

(Appendix ORD: 12.2.3B)

The CEO Shire of Dardanup

Draft Local Development plan – Lot 2 Banksia Road Crooked Brook

As the nearest residents to the development, we would like to make a submission & comment on the draft development plan proposal.

Our amenity & lifestyle has been ruined by the continual creeping development on this site that has been allowed to grow far beyond the proposal that was granted on the appeal by Minister Keirath.

We would like to make the following points,

1. PENALTIES & CONSEQUENCES

History on this site has shown that, despite all the regulations that are put in place and plans that are submitted, that unless the penalties and consequences for non-compliance to the regulations are severe enough to act as a deterrent, companies such as Cleanaway, J&P Metals and Transpacific before them will treat small fines as an operational cost and continue to break the regulations as they see fit.

If the Council commits to a Local Development Plan for the site, then it must also commit to system of auditing of compliance with suitably qualified, competent persons and make the consequences of non-compliance severe enough to have an impact on operations.

There must also be liaison between other regulating authorities (such as DWER) when conditions are not being met so that those authorities are aware of a history of non-compliance.

The council should implement a policy where if a condition of the development approval is not met to the satisfaction of a qualified competent person the approval is withdrawn. Too often in the past, at this site wonderful plans are presented but not acted on by the proponents. Eg Stormwater control, erosion control, dust monitoring & watering down, litter fencing, after hours operations, traffic routes.

2. TRAFFIC

With the problems that the amount of traffic the development generates is causing, conditions that need to be investigated are traffic routes that are suitable that have minimal impact on the amenity of ratepayers and the environment and co-contribution from the developers for maintenance & upkeep of the roads.

When Minister Keirath gave approval to the site he determined that all traffic using the site should enter from the north end of Banksia Road. This was because neighbors' highlighted concerns that using the southern end of Banksia Rd would lead to problems such as, disturbance of the (now) Dardanup Conservation Park flora by widening, poor visibility by traffic on the corner of Banksia & Crooked Brook roads, narrow poorly made local roads, bridge over Crooked Brook at Dillon being narrow and a lack of sufficient holding space for trucks between the railway line and Boyanup-Picton Road. Traffic management plans should not include a southern entry because of these reasons.

Also the developers should be made to have policies & procedures in place that ensure that all of their customers entering the waste site are aware of the traffic management conditions of

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the development license. We still get a number of skip bin trucks using the southern entrance access that claim they have never been told of the requirements to use the northern entry. Some discussion also needs to be held as to having truck curfews in place on Ferguson Road during school pick up & drop off times to minimize the impact in that area.

3 NOISE

As the site sits high in the landscape regular noise monitoring should be in place audited by a competent, qualified person. This should be mandatory when new cell construction is in place and when operating areas are changed as this has a major impact on the amount of noise carry.

No crushing or screening should be included in the plan due to impact of extra noise and dust potentially being generated and having impacts offsite.

The fitting of “noise reducing” reversing beeper should be introduced for on site machinery and made mandatory for contractor machinery coming onto the site.

4 DUST

Any dust management plan must include compulsory action trigger points and be able to be monitored offsite by a third party and not left to the onsite managers discretion.

Auditing of the contents of the dust particles should also be regular, to ensure nearby neighbor’s will not be affected by the contents of the dust.

5 VISUAL IMPACT

The visual impact that this site has had on the surrounds has been very detrimental to the area and therefore extra height should not be allowed. The reference points should be expressed by using ADH and the terms of referencing “surrounding landscape” should be changed to “Immediate surrounding landscape” so they can’t refer to the height of a hill a kilometer away.

Any planting of trees, shrubs etc on the faces of the cells should ensure that the species used will not have an impact on the integrity of the cell walls or cell liners in the future.

6. STORMWATER

Any stormwater plan must have enough catchment to store a 100 year storm event should be able to be captured onsite and not have any chance to escape from the property. Monitoring of the storm water for contaminants should also take place.

7. BUFFER ZONES

As shown by the disaster on the southern boundary adequate buffer zones should be in place so any development does not impinge beyond the properties boundaries. Any new development should have at a minimum a 50 meter buffer where no development other than a fire access track should be allowed.

8 FIRE PLAN

A comprehensive fire management must be in place with all stakeholders (Bushfire brigade, DFES & local neighbors’) aware of the plan. It should include a list of likely hazards to be included and address the flare burning of methane on extreme fire danger days.

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9 FENCING & LITTER

The council must ensure that adequate fencing is actually in place at all times and the fencing is adequate to control litter escaping and vermin entering the site.

Litter control must include the escaping of litter from trucks exiting the site with residual litter blowing from trucks. The patrols in the Dardanup Conservation Park are welcome and a must but they are only the result of litter escaping the site.

When drafting a Development Plan for the site, council officers must refer to previous conditions that have been imposed on this site and investigate why they have failed to control the problems of the site. Most of the suggestions above, have, at some stage of the development, been included in various forms in the approvals that have been granted. So before implementing any further plans or conditions Council must ensure that this time they will work.

In conclusion we once again state that we will always oppose further development on Lot2 Banksia Rd because we believe that this site will never be suitable for this type of development. No matter what conditions are placed it will always prove to be extremely difficult to manage due to the physical environment that it is located. (ie: side of a hill, prone to strong seasonal winds, over aquifers, high rainfall, adjacent to a valuable declared Conservation Park & poor road infrastructure) therefore unless the penalties for non-compliance are a deterrent, the ratepayers of the surrounding Dardanup area will continue to suffer.

David & Raelene Birch

268 Banksia Road

Crooked Brook

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From: [Val](#)
To: [Submissions Planning](#)
Cc: [Councillors](#)
Subject: Local Planning Development Lot 2 , Banksia Road, Dardanup. Submission.
Date: Thursday, 6 May 2021 1:51:36 PM

Shire of Dardanup CEO and Councillors.

Thank you for community input as you work towards having a complete Local Planning Development for this site.

We are opposed to any expansion on this site but realize the company Cleanaway Solid Waste have a License till 2035 .

DWER are still conducting a full review of this License and are the governing body for this site for compliance and management.

We can't see the Shire of Dardanup gaining any more power to control this site by adopting a Local Development Plan.

I hope that we are wrong .

With all the past Development Approvals over the years the Shire were always in a position to adopt change and make a difference at this site.

All the issues that have been raised including Visual Pollution , Contamination , Tronox mining, Wren Oil , Dust , Air pollution and the Aquifers , large volumes of heavy traffic to and from are still major problems that are all associated with Lot 2 , Banksia Road.

Does the Shire really have the capacity to change any of these major problems ?

Our concerns with Mapping Lot 2;

The inclusion of future cells on the map should not be a given and the Buffer area going forward should be changed to not less that 50 metres. 100metres is the Victorian standard.

The height must be controlled as it is already Visual from Bunbury. Fire management will be virtually impossible if allowed to gain in height and lack of potable water or Fire suppression at the site.

We believe this site is way to busy with too many Industry wastes along side one another. It should ring alarms bells.

It is astonishing that DWER , EPA and the Shire are comfortable with the mixed components on this site.

We applaud the effort the Shire are making to go before SAT over Lot 81 Marginata Close . decision as this was a blatant disregard by Cleanaway Solid Waste. Cleanaway need to be prosecuted.

The Shire of Dardanup have the Local Planning Scheme No 9. before the Minister knowing that the people of Dardanup are totally against further Expansion of this area. Most certainly, we are against any further Waste coming to this area.

Once again if you can regulate and control change for the better , the people will back you.

The tourism in the area and the growing township of Dardanup will suffer if the Shire fails.

We appreciate the opportunity to enter a submission.

Andrew and Valerie Brandstater. 188 Ferguson Road . Dardanup. 6236.

Sent from [Mail](#) for Windows 10

(Appendix ORD: 12.2.3B)

From: [Sally Carlton](#)
To: [Submissions Planning](#)
Cc: [Susan Oosthuizen](#); [Murray Connell](#); [John Mulholland](#)
Subject: FW: Cleanaway submission on the draft Local Development Plan (LDP) that the Shire of Dardanup has prepared for Lot 2 Banksia Road, Crooked Brook
Date: Friday, 7 May 2021 1:44:56 PM
Attachments: [image003.png](#)
[Banksia Rd Local Development Plan- SET 001-002-210507.pdf](#)
[Appendix 7.7- B1026 Banksia Road Landfill Site Visual Amenity Report_290321.pdf](#)
[Appendix 7.5-201515R003Rev4 Landscaping Plan_Final.pdf](#)

For the attention of Andre Schönfeldt,

Andre,

Thank you for the opportunity to comment on the draft Local Development Plan (LDP) that the Shire of Dardanup has prepared for Lot 2 Banksia Road, Crooked Brook.

Cleanaway, as operators of the existing landfill facility and the only party impacted by the advertised LDP, have a keen interest in any new legislative requirements that are proposed. In this regard, the existing approvals in particular need to be recognised so that the operator is not unduly restricted in relation to legal ongoing operations.

Cleanaway has a number of concerns in relation to the advertised LDP and requests a number of changes to be made to the advertised document. These are outlined in more detail below.

1. Cell height

The advertised LDP under the heading 'Height' currently states, 'Development is not to exceed a maximum height of 114m AHD, as outlined in the Cross Section.'

Cleanaway requests that this wording be amended to state, 'Development is not to exceed a maximum height of 151m AHD (top of waste 149m AHD, plus 2m capping), as outlined in the Cross Section.' It is noted that the cross section itself as well as the contours on the 'Site Plan' would then also need to be updated on the LDP.

The main reason for this is the fact that Cleanaway has already designed, planned for, and proposed a 'Top of Waste' height of 149m AHD. The recent Development Application lodged with the Shire of Dardanup for waste cells 9, 10 and 12A demonstrates this as well as the previous application for cells 6, 7 and 8 (submitted to DWER in 2016). The Landscape and Visual Assessment included as part of the Development Application demonstrates that the proposed maximum height of 149m AHD (top of waste) will have limited and manageable impacts on the visual amenity.

A copy of the Banksia Road Landscape and Visual Assessment reports are attached as part of this submission.

In any case, the LDP should not have a maximum height of 114m AHD as this is contrary to the licence that Cleanaway has been issued from the Department Water and Environmental Regulation for the implementation of the landfill to a height of 128m AHD.

As a minimum therefore, Cleanaway respectfully submits that the LDP instead include a provision that approved developments are to have maximum height that is demonstrated to be consistent with the prevailing visual amenity. Each future Development Application will need be assessed on merit and include the relevant justification and therefore having a 'maximum height' stated on the LDP at this point in time which is below what is currently approved for the site is not logical nor consistent with orderly and proper planning.

2. Setbacks

The advertised LDP under the heading 'Boundary Setbacks' currently states, 'Development is to be setback from site boundaries a minimum of 30m to the Primary Street (Banksia Road) and a minimum of 20m to all other boundaries.'

Cleanaway requests that this wording be amended to state, 'Development is to be generally setback from site boundaries a minimum of 30m to the Primary Street (Banksia Road) and a minimum of 20m to all other boundaries, unless otherwise approved.'

The proposed amended wording, while providing general setback guidance, also allows for slight variations that are either already present onsite or that may be proposed and justified in the future.

3. Landscaping Requirements

Under the 'Landscaping Requirements' stated on the advertised LDP, the requirements reference a 'minimum 20m landscaping strip adjacent to the subject site boundary'. Again, Cleanaway's request is to amend this wording to provide flexibility to this 20m landscaping strip requirement, since some sections of this landscaping strip will need to be less than 20m wide and/or have already been approved with a slight reduction in width.

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Secondly, the 'Landscaping Requirements' stated on the advertised LDP also require, 'Native tree plantings at a minimum size of 30 litres with a minimum mature height of 10m.' This should not be an absolute requirement which is stated in the LDP, but again should be more flexible, since this is normally detail that forms part of a Landscaping Plan. The tree size and height should therefore be deleted from the LDP and reference should be made to endorsement of a Landscaping Plan for the relevant portions of the site.

We trust the above submission appropriately articulates the matters of concern in relation to the Local Development Plan for Lot 2 Banksia Road, Crooked Brook as presented for public advertising and submit a revised copy of the Banksia Road Local Development Plan (LDP) which we submitted to the Shire of Dardanup on the 6th of April . This LDP has been amended to better reflect the style and content of the LDP prepared and advertised by the Shire.

Should you wish to discuss any aspect of the above or wish to meet, please do not hesitate to contact the undersigned.

Regards

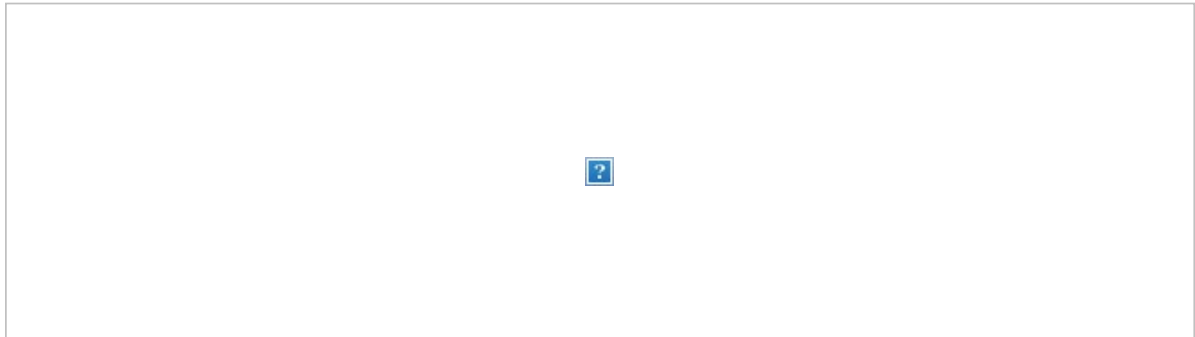
Sally Carlton

Engineering Manager-WA

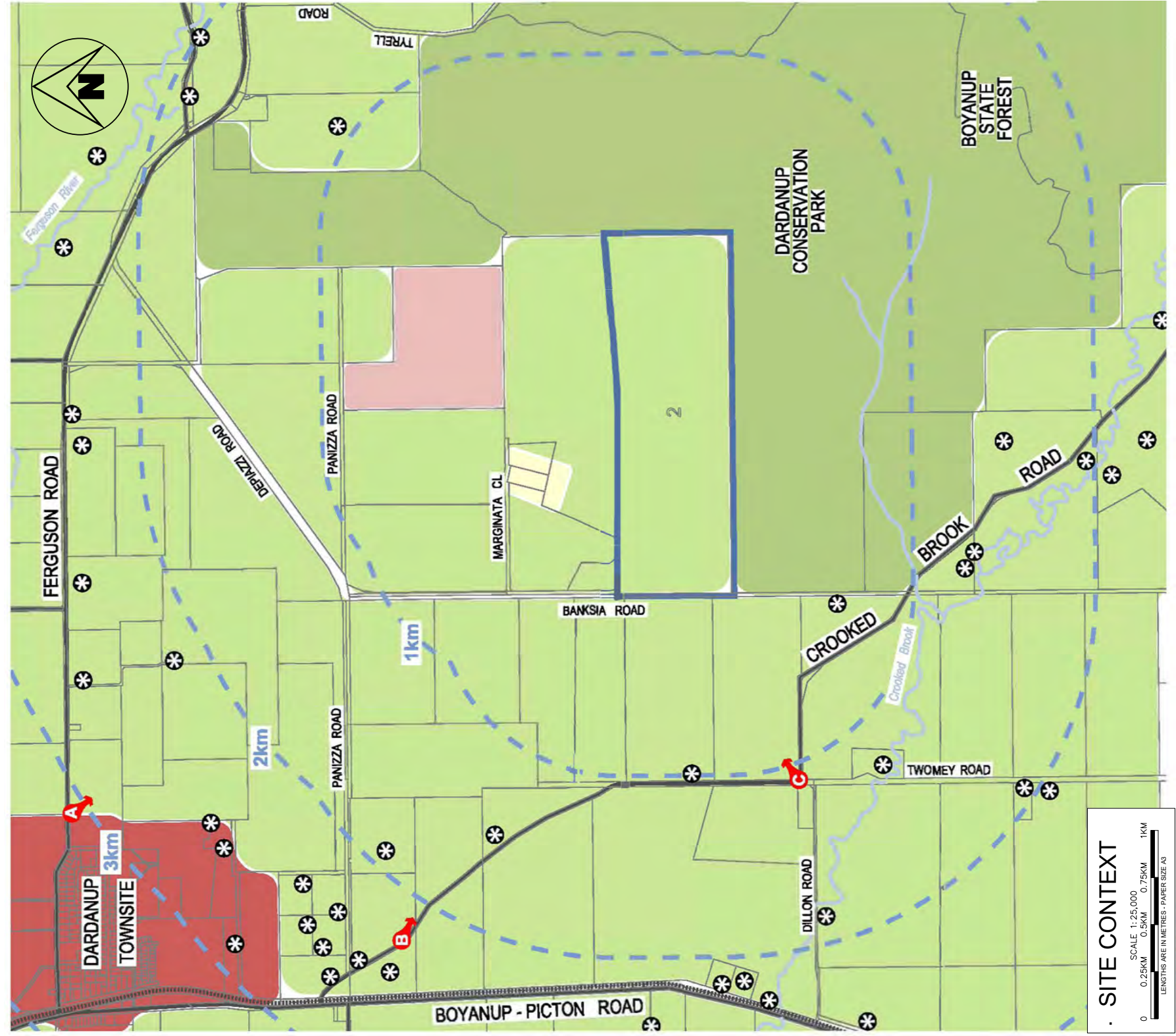
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Please consider the environment before printing this email.



Lot 2, Banksia Road Landfill Local Development Plan - Page 1 of 2

Local Development Plan
This Local Development Plan (LDP) has been prepared pursuant to clause 47(d) of the Deemed Provisions (Schedule 2) of the Planning and Development (Local Planning Schemes) Regulations 2015, as the Commission and the Shire of Dardanup has identified an LDP is required for the purposes of orderly and proper planning.
The objectives of this LDP are to:

- ensure onsite development and associated operations are undertaken in an orderly manner;
- ensure that any impacts from development on surrounding sensitive land uses are minimised; and
- provide guidance and a general understanding of current and future development(s), and the key considerations applicable to any future development applications.

Background
The subject site has been operated as a resource extraction area and landfill facility since the 1990s, pursuant to a series of development and environmental approvals. The site accommodates gravel and sand extraction, landfill disposal, liquid and tailings waste disposal and associated site infrastructure.

Subject Site Context
The subject site is identified on the LDP and is described as Lot 2 Banksia Road, Crooked Brook. The site is located:

- to the immediate north and west of the Dardanup Conservation Park;
- approximately 3.5km to the south-east of the Dardanup Townsite; and
- approximately 1.5km to the north and north-east of the Crooked Brook creek.

Statutory Framework
Applications for development approval relating to the subject site must be decided having due regard to, but are not bound by, the LDP, in accordance with the Deemed Provisions.

Development Applications
Any applications for development approval that propose to vary from:

- the LDP;
- management plans, and/or other technical reports, that are being implemented as part of obligations under development approvals relied on for the use of the subject site; and/or
- environmental approvals relied on for the use of the subject site,

are to include justification for that variation and are to be accompanied by relevant technical reports, which include details of any variations.

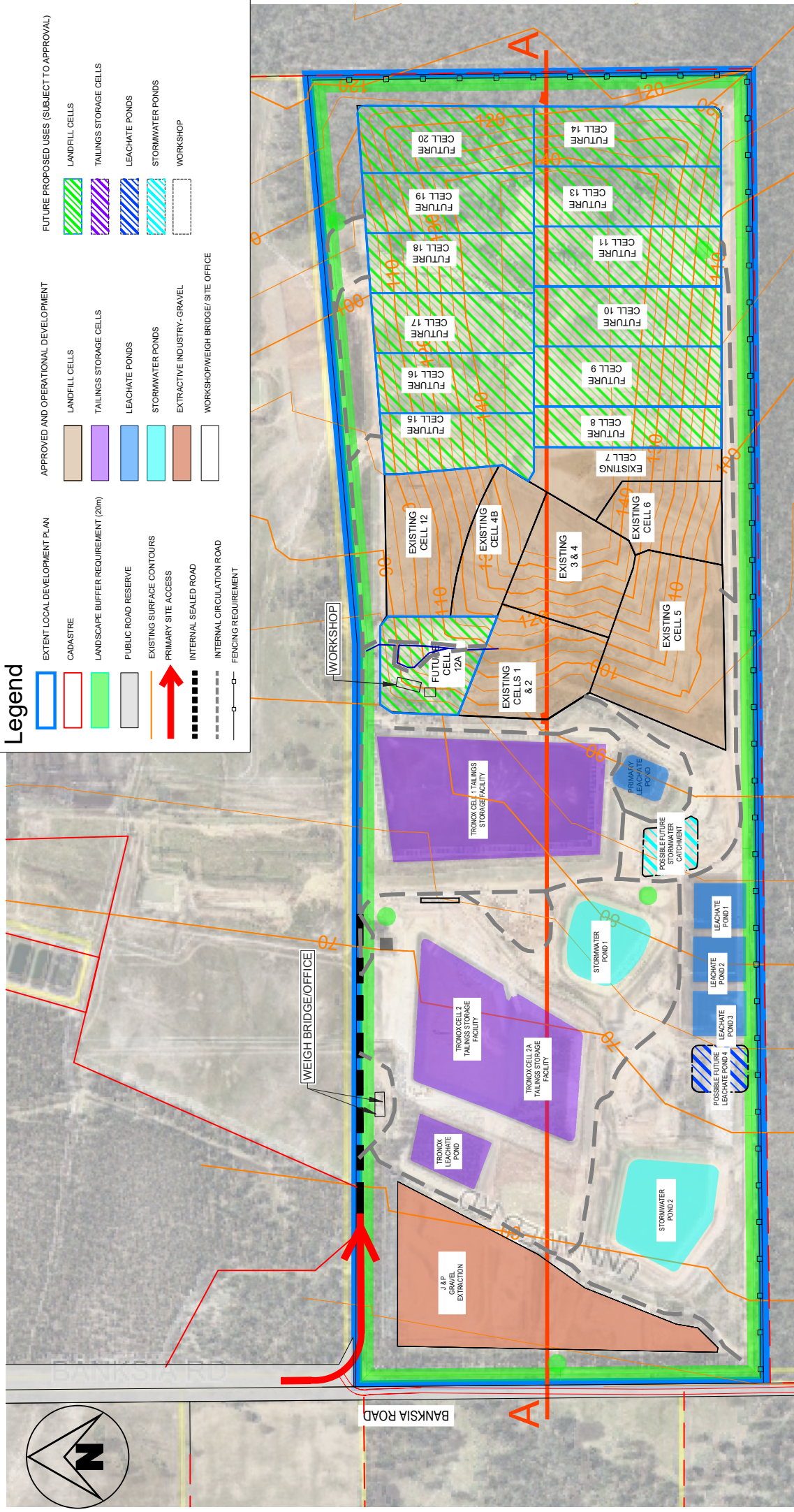


Endorsement Table

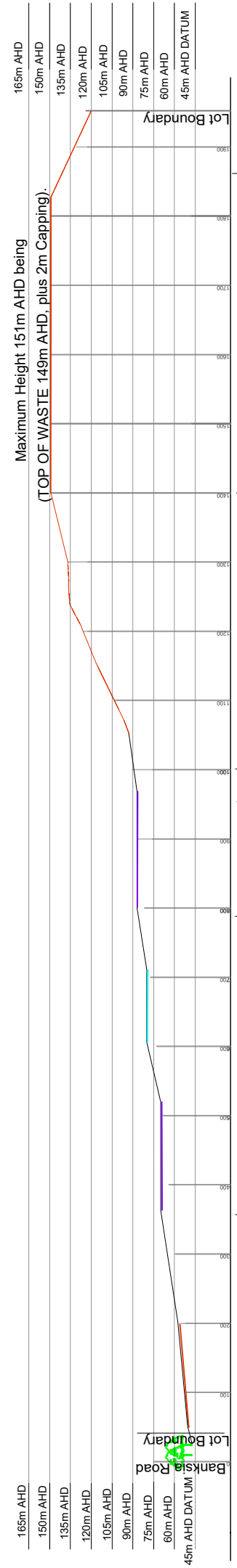
This Local Development Plan has been approved by Council under the provisions of the Shire of Dardanup Local Planning Scheme No.3

Delegated Signatory _____
Position _____
Date _____





SITE PLAN



CROSS SECTION A-A



Local Development Plan

Boundary Setbacks
Development is to be setback from site boundaries a minimum of 30m to the Primary Street (Banksia Road) and a minimum of 20m to all other boundaries, unless otherwise approved.

Height
Development is not to exceed a maximum height of 15m AHD being (TOP OF WASTE 149m, plus 2m capping), as outlined in the Cross Section.

Site Access and Circulation
The primary site access is to occur via Banksia Road at the location shown on the Site Plan. Any application for development approval including a proposal that will result in additional traffic generation to the subject site is to be accompanied by:

- Traffic Impact Assessment or Traffic Impact Statement consistent with the Department of Transport Guidelines to outline the relevant transport considerations and demonstrate the suitability of the proposed site access and vehicle circulation; and
- where additional Heavy Vehicles are proposed to access and egress the site, an assessment of the standard and suitability of the public road network to accommodate these vehicles and an overview of the necessary upgrades and/or potential additional maintenance costs to accommodate these vehicle movements.

Landscaping Requirements
Development is to be appropriately screened from key viewpoints via the installation of a minimum 20m landscaping strip adjacent the subject site boundary which includes:

- Native tree plantings as per endorsed Landscaping Plan for the relevant portions of the site.
- A variety of smaller shrubs and plantings to provide greater density of foliage to the understorey of any trees.

Any applications for development approval including a proposal that will result in material visual prominence from the identified sensitive receptors are to be accompanied by a landscaping plan outlining the proposed landscaping and associated screening.

Fencing
Boundary fencing to the eastern and southern boundary adjacent to the Dardrup Conservation Park is to be constructed of chain mesh fencing to a minimum of 2m in height.

Endorsement Table

This Local Development Plan has been approved by Council under the provisions of the Shire of Dardrup Local Planning Scheme No.3

Delegated Signatory _____
Position _____
Date _____



Banksia Road Landfill Rehabilitation and Closure Plan

Appendix D - Landscaping Plan

Cleanaway Waste Management

10 February 2021
Ref: 201515R003



Document History and Status

Rev	Description	Author	Reviewed	Approved	Date
A	For Client Comment	AW/MRS	IPN	MRS	11/09/2020
B	For Client Comment	MRS	MRS	MRS	29/09/2020
0	For Issue	MRS	Sally Carlton, Cleanaway	MRS	01/10/2020
1	Updated for CWY Comments	MRS	MRS	MRS	09/11/2020
2	Updated for Shire submission in response to third party review	IPN	MRS	MRS	22/01/2021
3	Minor updates to document Updated for Shire submission in response to third party review	IPN	MRS	MRS	5/02/2021
4	Updated Figure 2	IPN	IPN	IPN	10/02/2021



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Client: Cleanaway Waste Management

Ref: 201515R003

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1 Introduction

Tonkin was engaged by Cleanaway Waste Management to prepare a Landscaping Plan (the Plan) for the Dardanup Landfill (Landfill). The site is located in the Shire of Dardanup local government area. Department of Water and Environmental Regulation (DWER) Licence 8904/2015/1 incorporates Lot 2 on Plan 65861, Banksia Road, Crooked Brook WA.

1.1 Aims and Objectives

The Plan aims to provide a clear, concise and practical framework for the landscaping of the final landform of the Landfill, in accordance with the requirements of the *DWER Revegetation Guideline* (DWER, 2018) and the *Rehabilitation and Closure Plan* (Cleanaway, 2020) for the site. The final landform and landscaping are intended to facilitate a final land use as passive open recreational space.

The objectives of the Landscaping Plan are to:

- determine local vegetation characteristics;
- describe the landscaping activities necessary to restore the native vegetation;
- describe the maintenance program to ensure establishment;
- utilise cost efficient restoration techniques;
- restore the Landfill in a manner which minimises management costs in perpetuity; and
- provide an indication of the costing for the landscaping work.

1.2 Relationship with Existing Reports

The Plan has taken into consideration the impacts of the following documentation:

- Rehabilitation and Closure Plan, Updated V3 (Cleanaway, 2021);
- Capping Staging Plan (Drawing DNP-600, Cleanaway, 2020);
- Capping Design Report (ref: 201515R001Rev2, Tonkin, 2020);
- Phytocap Technical Specification (ref: 20155261R002B, Tonkin, 2016);
- Southern Boundary Vegetation Buffer Plan (Cleanaway, 2016);
- **Waste Management and Resource Recovery's** Phytocap Guidelines (WMAA, 2011).

All work to be performed on site will be in accordance with the following guidelines, or updated versions thereafter:

- Florabank Guideline Series
- Regional forest Agreement for the South-West Forest Region of Western Australia 1999.
- Fire Management Strategy (DPaW, 2019)
- A Revegetation Guide for Eucalypt Woodlands (DWEWPC, Greening Australia and Landcare, undated)

1.3 Relevant Legislation

The Plan has been prepared in accordance with the provisions contained in relevant legislation and policy guidelines, including but not limited to the following:

- *Biodiversity Conservation Act 2016* (WA) provides protection for biodiversity, including threatened species and ecological communities and critical habitat;
- *Bush Fires Act 1954* (WA) provides for prevention control and extinguishment of bush fires and diminishing bush fire danger for the public.
- *Conservation and Land Management Act 1984* (WA) provides for the management of land for native vegetation conservation purposes;



- *Environment Protection Act 1986* (WA) provides for the establishment of environment protection policies, regulation of clearing for development and definition of prescribed premises, works, approvals and licences
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) provide protection of the environment on matters of national significance and identifies species and communities which are under threat;
- *Soil and Land Conservation Act 1945* (WA) provides for the conservation of soil and land resources to mitigate the effects of erosion, salinity and flooding and includes the management of native vegetation to conserve land;



2 Description of Proposed Development

This section provides a general description of the proposed development based on discussions with Cleanaway and in accordance with the *Rehabilitation and Closure Plan* (Cleanaway, 2020), the *Capping Design Report* (201515R001Rev2, Tonkin, 2020) and the *Phytocap Technical Specification* (20155261R002B, Tonkin, 2016).

2.1 General

The site operates in accordance with the Licence L8904/2015/1 issued by DWER. Cleanaway proposes to continue landfilling the Dardanup Landfill site to a top of waste height of 149 m AHD with capping design and settlement allowances in addition to this. Landfilling rates are not expected to differ substantially from current levels. Site operations require the ongoing use of site facilities including stormwater management infrastructure. Refer to Section 2 of the *Capping Design Report* (Tonkin, 2020) for additional site setting and background information.

The final landform for the site has been designed to account for the following considerations:

- Providing a long-term stable barrier between waste and the environment
- Providing land suitable for its intended after use.

2.2 Landfill Capping System

The landfill capping will be constructed in accordance with the *Rehabilitation and Closure Plan* (Cleanaway, 2020). The capping system profile is set out in Section 2 of the *Rehabilitation and Closure Plan* and is as either:

- Geomembrane cap including (from bottom to top): gas collection layer, geosynthetic clay layer (GCL), linear low-density polyethylene (LLDPE), cushion geotextile, drainage layer, 1-2 m growing medium, appropriate vegetation (grasses and/or small shrubs); OR
- Phytocap: constructed of 2 m of locally available mixed natural soil material (similar to Cell 5 material utilised for phytocap trial) with organic mulch incorporated into the surface layer or Hydromulch applied to assist plant establishment and appropriate vegetation including endemic trees, shrubs and grasses.

The Landscaping Plan assumes that the phytocap trial being undertaken currently at the site will be successful and a phytocap will be implemented as part of the final capping solution. Should the trial be unsuccessful, this plan will need to be updated accordingly. The *Rehabilitation and Closure Plan* includes further information on the cap design and the parameters of the trial including acceptance criteria.

2.3 Surface Water

An extensive infrastructure system has been installed / maintained to manage stormwater runoff from and across the site incorporating the following:

- Two stormwater ponds;
- A network of vegetated swales, stormwater drains, channels and bunds;
- Secondary underground drainage on the side of the Southern Haul Road via pit and pipe systems; and,
- Maintained surface grades to prevent ponding of surface water.

The system relies on the principle of preventing 'run-on' to active areas and runoff from active areas and the separation of clean and 'dirty' runoff throughout the site. The stormwater management plan (Golder Associates, 2020) for the site details the stormwater management practices at the site and the design of the above infrastructure.



3 Landscaping Plan

The following information provides an assessment of the opportunities and constraints at the site in relation to landscaping and a detailed description of all activities required to implement the PLAN. The opportunities have been developed using desk top research or existing reports relevant to the site, current vegetation maps and restoration guidelines, previous field investigations and liaison with Cleanaway.

3.1 Site Opportunities and Constraints

The restoration of such a large area provides numerous opportunities and constraints. To ensure the success of the project it is important to identify these prior to developing a design or undertaking any works.

3.1.1 Opportunities

The opportunities that this project provides include:

- Restoring a large area of native vegetation/habitat;
- Providing valuable bird habitat through the mass installation of native shrubs;
- Linking with local habitat corridors;
- Improving aesthetics of the area;
- Providing a passive recreation area for local residents;
- **Utilising 'best practice' vegetation restoration techniques;**
- Integrating ecological function and engineering design to achieve balanced landscape outcomes; and
- Improving water quality at the site;
- Providing future use areas for activities such as active recreation (e.g. courts, playing fields), shed-based commercial industries (e.g. farm supplies) or on-going waste related activities (e.g. energy from waste plant, material recovery and recycling facility).

3.1.2 Constraints

Constraints to be considered during project design include:

- Highly modified/artificial site conditions;
- Low summer rainfall;
- Erodible natural soil;
- Depleted natural seed source;
- Weed burden from green waste materials transported to site;
- Settling of landfill and production of landfill gas during early stages;
- Maintenance requirements of the landscaped area.

3.2 Restoration Zones

The Landfill site is divided into five distinct areas that require different vegetation management approaches. These areas are:

Zone 1 Infrastructure –an infrastructure zone near the landfill perimeter and includes access roads and tracks and stormwater drains and channels. No vegetation will be required in this area.

Zone 2 Grassland – a grassed area on the upper crest of the landfill and over the Tronox ponds to facilitate use of the site for passive recreation. Capping may be geomembrane cap or phytocapping. Trees, shrubs and native gardens may be included in this space.



Zone 3 Native Woodland – The western batter slopes of the landfill will be planted to native trees, shrubs and grasses to provide a visual screen and reduce the visual impact of the landfill topography by blending into the surrounding Dardanup Conservation Park vegetation. The capping proposed is a phytocap.

Zone 4 Buffer – buffer zone around the landfill comprised of native vegetation, including trees, shrubs and groundcover species to link with adjacent Dardanup Conservation Park vegetation. This area is not over landfill and does not require capping.

Zone 4a Established– this area has already been planted to trees and has a grass understorey

Zone 4b Groundcovers – this area is along the batter slope of the leachate ponds. The pond wall provides a visual screen between adjacent forest and the landfill. Native grasses and forbs will be planted along this section.

Zone 4c Establishing – some native shrubs and small trees are present in this area; however additional planting is required to further improve the visual screen.

Zone 4d Proposed – requires planting of a range native vegetation to provide a link to the adjacent Dardanup Conservation Park.

Zone 4e Retained Native Vegetation – Remnant native vegetation in this area will be retained and protected.

These buffer zones are nominally 20 m wide except where restricted by the topography along portions of the southern boundary. These areas of narrower buffers are described in the *Southern Boundary Native Buffer Plan* (Cleanaway, 2016):

- 12 metre to 21 metre for Eastern Half of Southern Boundary, and
- 5.5 metre to 11 metre for Western Half of Southern Boundary

Zone 5 Wetland - a wetland zone around the stormwater basins and leachate ponds, consisting of native shrubs and groundcovers. This area is not over landfill and hence a cap is not required.

Figure 1 shows the location of the zones and Figure 2 is an impression of the final landscaped site. A species list for Zones with native vegetation is provided in Appendix A with selected photographs and a list of threatened or rare species for Whicher Range and Dardanup is included in Appendix B.

3.3 Seed Collection and Supply

Native seed and tube stock will be purchased from Revegetation Industry Association of WA (RIAWA) accredited seed collector and suppliers (riawa.com.au) and will be local provenance, where possible, for trees and shrubs. One potential supplier is Nindethana Seed Suppliers (part of Greening Australia (WA)) who are RIAWA accredited and located in Albany so able to supply local provenance seed and provided the seed for the phytocap trial (Table 1). To allow sufficient lead-in time for the propagation of provenance species, native plant orders must be placed prior to spring for sufficient stock to be available. The vegetation supplied should be consistent with those listed in Appendix A and Appendix B, noting species may be substituted as required and that native seed availability is highly variable. Where practical, threatened and rare plants should also be included. A list of these species for the Whicher Range and near Dardanup plants, as current on 5 December 2018, is presented in Appendix B.

Non-native grasses will be purchased from companies which meet the seed certification standards specified by the Australian Seed Federation. One potential supplier is PGG Wrightson Turf which supplies certified seed and is located in Perth and has previously provided ryegrass seed for stabilisation of embankments (Table 1). They also can supply sterile grass seed which can be used as a cover crop prior to establishment of native seed.



Table 1 Contact Details for Potential WA-Accredited Vegetation Suppliers

Vegetation type	Supplier
Native seed and tubestock	Nindethana Seed Supplies Phone: 08 9844 3533 Email: seed@nindethana.net.au www.nindethana.net.au
Native tubestock (including installation)	Matthew Blunt Tranen 20 Possum Place, Vasse, WA 6280 Phone: (08) 9754 2643 Mobile: 0400 165 729 matt.blunt@tranen.com.au www.tranen.com.au
Non-native grasses	Glen Liebold Revegetation Territory Manager WA & NT. PGG Wrightson Turf Phone: 1800 3872 8879 Email: gliebold@pgwturf.com.au www.pggwrightsonturf.com.au

3.4 Plant Propagation

Plant propagation **refers to the germination of collection seed and the 'growing on' of plants in enviro cells, hiko cells or forestry tubes.** This will be undertaken by a suitably qualified and experienced native plant production nursery.

3.5 Site Preparation

3.5.1 Site Protection

Once the bulk earthworks are complete and to ensure the success of plant establishment, it will be necessary to control access into the area. Machine access should be limited inside the landscaping zones other than for landscaping purposes and re-shaping areas of erosion or maintaining a free draining surface.

3.5.2 Erosion Control

At the completion of earthworks, appropriate sediment control fencing will be installed as specified in the detailed design for capping. Consideration will be given to alternative control structures, particularly **those shown in "Best Practice Erosion and Sediment Control" (IECA, 2008).**

Areas of high erosion potential may require the installation of jute matting or hydromulching. The Hydromulch **"mixture" will include jute fibre and a mixture of pre-treated native seed.** Experience has **shown that using a mixture of native peas and Acacia's in the hydro mulch is an inexpensive way to establish native vegetation at difficult sites.**



3.5.3 Litter Removal

All litter from the site should be removed prior to the commencement of landscaping works.

3.5.4 Weed control

Being highly modified, the site is unlikely to contain significant weed seed loads at the completion of the bulk earthworks, other than those growing on existing batters. Inspection for and removal of any noxious weeds prior to any landscaping works should be undertaken. All weed control activities are to be completed by a suitably qualified contractor.

3.5.5 Installation of Irrigation System

Before revegetation activities commence an irrigation system, e.g. drippers or sprinklers, will be installed throughout Zones 2, 3, 4B, 4C and 5 (refer Figure 3) to assist in establishing vegetation. Once established the irrigation may be retained or removed. As far as practical, the system should be buried to prevent damage and is anticipated to be required for at least 3 years. Installation of an irrigation system helps ensure establishment targets are achieved.

3.6 Sowing/Planting Techniques

A combination of landscaping techniques should be employed in each of the zones to maximise the potential for good establishment of plants. Due to the different characteristics of each zone and the different type of vegetation to be established (as described in Section 3.2 and Appendix A), the landscaping techniques recommended for each zone are also different. The landscaping techniques to be used for each zone are summarised in Table 2 and described in more detail below.

Table 2 Sowing/Planting Technique for Each Zone

Technique	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Hydromulch	NR	✓	✓		✓
Tube stock	NR		✓	✓	✓
Native seed	NR	✓	✓	✓	✓
Lawn seed	NR	✓			

NR – not required

3.6.1 Hydromulch

Hydromulch is the means by which mulch in the form of plant fibre can be placed onto topsoil using water as a carrier. Pre-treated seed, including native seed can be added to the mulch; native seed must be added with minimal agitation to minimise seed damage. Hydromulch encourages vegetation cover and provides protection against erosion. Initially, it is recommended that blends of the appropriate pre-treated native seed mix be added to the mulch and spread across the Zones. It is recommended that 2-3 kg/ha of seed be added to the mulch.

3.6.2 Tube Stock

Native tube stock may also be used across the Zones by hand planting across smaller areas (up to 10 ha). Machinery is available but is not currently recommended for tube stock. The recommended planting density for trees and shrubs for each zone is 1 per 10 m² with 5 m interrow spacings to achieve



a recommended density of 1 per 20 m² when trees and shrubs are established. It is recommended that groundcovers are planted in the interrow at 4 per m².

Most plants will be planted as hiko or enviro cells. Each plant will have a surface mulch ring placed around its base and then protected using a tree guard, stabilised by stakes. This is to prevent herbivory and weed competition and to encourage optimum growing conditions.

In general, autumn is the best season for planting to reduce stress on young plants from high temperatures or frost. Planting in early spring can be effective provided a suitable watering regime is implemented; however, has higher risk of lower survival rates.

3.6.3 Seeders

Non-native grass and native seed, particularly native grasses, may be mechanically sown on-site. Modified air seeders with trailing harrows have been successfully used across large areas to provide a light cover to native seed. Seeders may be used in the inter-row of tree and shrub tube stock. It is recommended that 3-5 kg/ha of seed be used.

3.6.4 Hand Broadcasting of Seed

To supplement the establishment of vegetation, grass seed may be hand broadcast throughout the maintenance period of the landscaping program.

3.6.5 Fertiliser

Fertiliser will only be applied to native vegetation areas if required due to low nutrient conditions. Fertiliser for the native vegetation will be a low or no phosphorus fertiliser suitable for native vegetation and applied at low rates to minimise weed competition.

Fertiliser will be applied to the non-native grass areas to improve establishment as recommended by the seed supplier.

3.7 Maintenance Program

At the completion of the planting a 36-month maintenance program will commence. The maintenance program will optimise plant establishment and weed control. Activities will include watering, herbicide spraying, replacement planting and general maintenance. The aim of the maintenance program is to sustain:

- Tree and shrub density of 1 plant/15 m²;
- No bare patches > 4 m².

3.7.1 General Maintenance

Six-monthly general maintenance visits will be scheduled throughout the three - year maintenance period. These activities will include repairing and removing tree guards, monitoring survival and growth rates (see Section 3.8.3), installing replacement plants as required, weeding and continued follow-up spot spraying.

3.7.2 Watering

All plants will be 'watered in' on installation, with each plant receiving a minimum five litres. All plantings will receive a further three applications of water during the first 6 weeks to assist establishment, depending on rain fall. Irrigation will be undertaken by drip or sprinkler irrigation or by hand watering, depending on the zone and resources available.

3.7.3 Weed Control

To ensure the success of the revegetation activities it is essential to control weeds. Weeds compete with the newly installed plants for nutrients and water thereby limiting their survival and growth rates.



In Zones 2, weed control will include the removal of any emergent tree species to minimise the potential for roots to penetrate the landfill capping.

Weed spraying will be instigated as required from General Maintenance. All spraying will be carried out by suitably trained contractors.

3.8 Monitoring and Reporting

In order to accurately evaluate the success of the landscaping works, a monitoring and evaluation program will be put into place. The monitoring and reporting requirements are:

- An implementation report;
- Maintenance checklists;
- Vegetation assessment – Zones 3 and 4 only; and
- Landscape Report.

All reports should be prepared by suitably experienced and qualified consultants.

3.8.1 Implementation Report

When the landscape works are completed, an Implementation Report will be prepared as an addendum to the As Constructed Report prepared for final capping. These final capping reports will be completed following the construction of each stage of final capping as detailed in Table B of the *Rehabilitation and Closure Plan* (Cleanaway, 2021). This report will provide written certification that:

- The individual or company that supplied seed/tube stock is suitably accredited;
- The landscape works have been implemented substantially in accordance with the approved plans. Minor variations to the approved plans, such as small changes in plant species and quantities, are acceptable subject to Cleanaway approval;
- The landscape works have been implemented in accordance with best practice industry standards; and
- A landscape maintenance program has been established.

3.8.2 Maintenance Checklists

As part of the General Maintenance program a checklist will be completed to record all measurements and observations.

3.8.3 Zone 3 and Zone 4 Vegetation Assessment

In Zones 3 and 4 only, vegetation assessment for survival and establishment will be undertaken at 6 monthly intervals after planting for the first 3 years and then annually until vegetation is fully established, which is anticipated to be around 10 years following planting.

For Zone 3, which is over the waste mass and an integral part of maintain cap performance, the vegetation assessment involves:

- Locating one 10 m x 10 m plot every 2 ha (with a minimum of five plots). These plots will be permanently located, e.g. by flagging or pegs
- At each assessment:
 - For each tree and shrub in the plot, record the species, height and reproductive state;
 - For groundcover, randomly select four locations within each plot by throwing a 0.5 m x 0.5 m quadrat and record coverage, mortality and species (if possible) or at least if it is a native plant or weed.

For Zone 4, which is confined to areas which have not received waste, the vegetation assessment involves:

- Visual assessment for tree and shrub death



It is important for this assessment to be undertaken initially on a six-monthly basis to inform the maintenance program including, weed and pest management, replanting requirements and irrigation requirements.

3.8.4 Three Year Landscape Report

After three years, a landscape report will be prepared which details:

- Summarizes the maintenance undertaken;
- Analyses the survival, establishment and ground cover of vegetation
- Determines if vegetation has matured or whether any additional actions are required.



4 Program of Works

In 2019, a phytocap was constructed on a portion of Cell 5 to trial the potential for 2 m of locally available soil planted to endemic trees, shrubs and grasses. Limited irrigation over summer resulted in poor establishment of vegetation so hydroseeding was reapplied in July 2020 to increase the native seed load on the site and improve establishment. These plants will be adequately irrigated over summer to ensure their survival. Technical specifications and a trial performance plan are included as Appendix B and C of the *Rehabilitation and Closure Plan* (Cleanaway, 2020).

Landfill capping and the corresponding landscaping works will be undertaken in stages as described in Table B of the *Landfill Closure and Rehabilitation Plan* (Cleanaway, 2020).



5 Costings

Approximate costs to complete the landscape plan are provided in Table 3. These costs are indicative only (+/- 40% at present value) and are provided for budgeting purposes only and should not be utilised for any other purpose. If required, a detailed cost estimate will need to be requested prior to commencing construction works on site.

Table 3 Estimated Costs for Revegetation Works

Task	Area (ha)	Estimated Cost	Basis
Seed - grass	58	\$67,000	\$7/kg @ at 150kg/ha
Seed - native	27	\$99,000	Phytocap trial
Hydromulching	85	\$374,000	Phytocap trial
Tubestock	6.5	\$178,000	Quote from Cleanaway
Planting	6.5	\$64,000	Quote from Cleanaway
Tree guards	6.5	\$64,000	Schirmer and Field (2000)
Fertiliser	93	\$8,000	150 kg/ha of <4%P fertiliser @ \$500/t
Irrigation	93	\$120,000/yr	50kL/ha/week for 16 weeks at \$1.45/kL
Weed Control	93	\$15,000/yr	\$70/ha/application, twice/yr
Replacement	93	\$243,000	30% replacement
Project Management		\$24,000/yr	Cleanaway Engineering 10 hours/ month
Monitoring and Reporting		\$30,000/yr	Tonkin estimate
Total (ex. GST)		\$1,364,000	



6 References

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- WMAA (2011). Guidelines for the Assessment, Design, Construction and Maintenance of Phytocaps as Final Covers for Landfills, Waste Management Association of Australia



Figures



Figure 1 Landscaping Plan

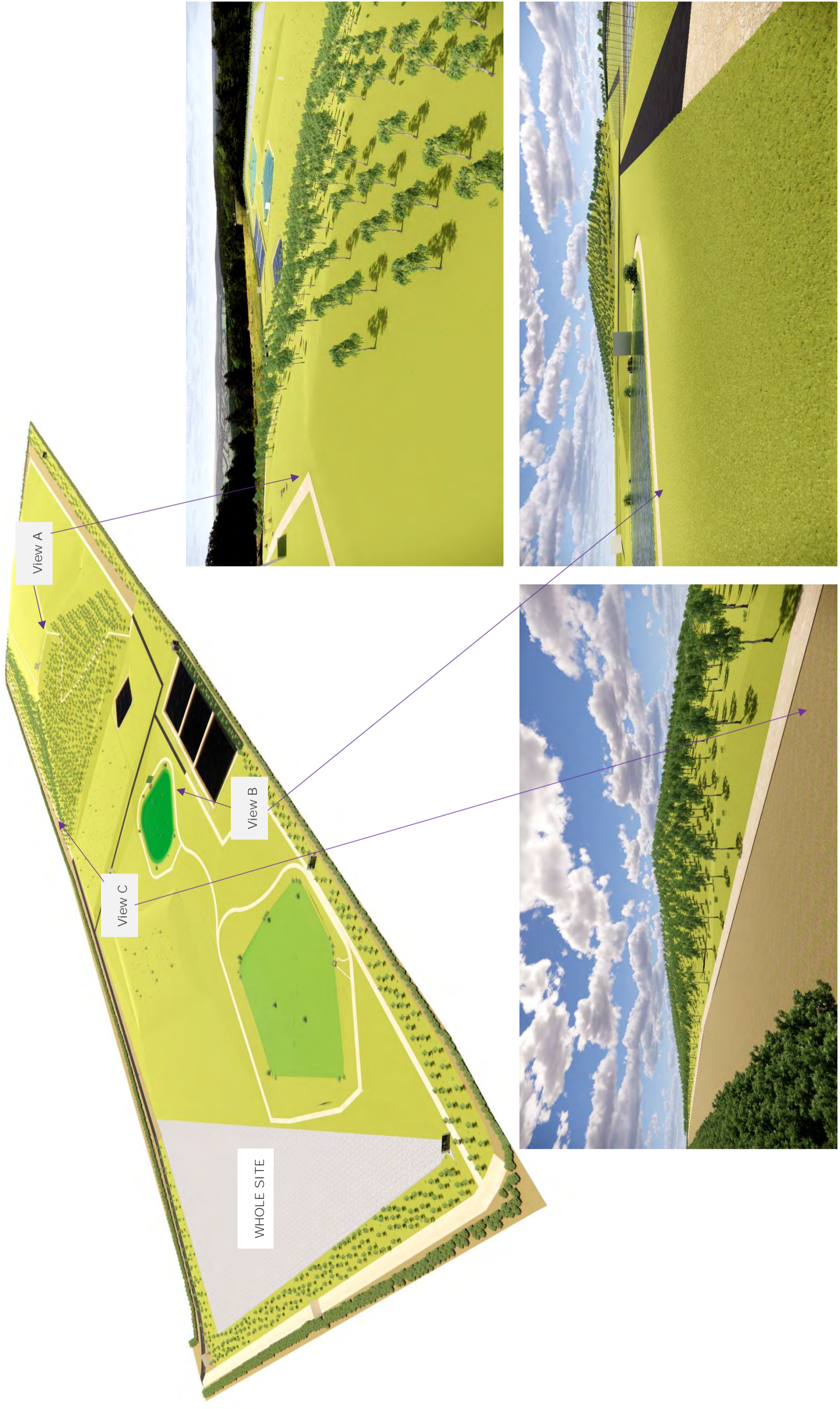


Figure 2 | Isometric and Vantage Point Photos of Final Landscape



Appendix A – Standard Species List



It is expected that a selection of plants from the list following will be planted in the various zones. The selection of plants will be based on ensuring a variety of plants of different forms and Families are selected, with availability of supply expected to be the main limitation. Where appropriate, alternate species may be substituted to ensure variety. A current list of rare and threatened species is included as Appendix B and, where practical, some species should also be selected from this list, or as current at the time of planting.

Zone 2 Grassland – localised gardens may be created from any of the species listed below.

Zone 3 Native Woodland –a variety of native trees, shrubs and grasses from the list below will be planted

Zone 4b Groundcovers –native grasses and forbs from the right-hand columns in the list below will be planted

Zone 4c Establishing –additional planting of native trees and shrubs from the left-hand column of the list below will be planted

Zone 4d Proposed – a variety of native trees, shrubs and grasses from the list below will be planted

Native Trees and Shrubs		Native grasses and forbs	
Species	Common Name	Species	Common Name
<i>Eucalyptus calophylla</i>	Marri – Red Gum	<i>Austrodanthonia spp</i>	Wallaby Grass
<i>Eucalyptus decipiens</i>	Redheart moit	<i>Austrostipa compressa</i>	Compact needlegrass
<i>Eucalyptus drummondii</i>	Drummond’s gum	<i>Austrostipa semibarbata</i>	Bearded spear-grass
<i>Eucalyptus haematoxylon</i>	Mountain Marri	<i>Ficinia nodosa</i>	Club rush
<i>Eucalyptus marginata</i>	Jarrah	<i>Hypolaena exsulca</i>	Hypolaena
<i>Eucalyptus megacarpa</i>	Bullich	<i>Lomandra nutans</i>	-
<i>Eucalyptus patens</i>	Blackbutt	<i>Lomandra sericea</i>	Silky mat rush
<i>Acacia flagelliformis</i>	Wattle	<i>Lyginia barbata</i>	-
<i>Acacia lasiocarpa var lasiocarpa</i>	Wattle	<i>Mesomelaena tetragona</i>	Semaphore sedge
<i>Acacia pulchella var glaberrima</i>	Prickly moses	<i>Microalaena stipoides var stipoides</i>	Weeping grass
<i>Acacia saligna</i>	Golden Wreath Wattle	<i>Patersonia occidentalis</i>	Swamp flag
<i>Allocasuarina fraseriana</i>	Sheoak	<i>Patersonia umbrosa</i>	Purple flag
<i>Banksia attenuata</i>	Candlestick banksia	<i>Themeda triandra</i>	Kangaroo grass
<i>Banksia grandis</i>	Bull Banksia		
<i>Banksia littoralis</i>	Swamp Banksia		
<i>Bossiaea eriocarpa</i>	Common brown pea		
<i>Daviesia physodes</i>	Prickly Bitter Pea		

(Appendix ORD: 12.2.3B)



Native Trees and Shrubs		Native grasses and forbs	
Species	Common Name	Species	Common Name
<i>Hakea cyclocarpa</i>	Ramshorn		
<i>Hakea ruscifolia</i>	Candle Hakea		
<i>Hakea undulata</i>	Way leaf Hakea		
<i>Hibbertia hypericoides</i>	Yellow buttercups		
<i>Hibbertia subvaginata</i>	-		
<i>Jacksonia horrid</i>	-		
<i>Kunzea glabrescens</i>	Spearwood		
<i>Kunzea micrantha</i>	-		
<i>Leucopogon glabellus</i>	-		
<i>Melaleuca preissiana</i>	Stout Paperback		
<i>Melaleuca viminea</i>	Mohan		
<i>Persoonia longifolia</i>	Long-leaf Persoonia		
<i>Pityrodia bartlingii</i>	Woolly Dragon		
<i>Podocarpus drouynianus</i>	Wild Plum		
<i>Pultenaea reticulata</i>	Bush Pea		

Picture Source: Florabase.dpaw.wa.gov.au



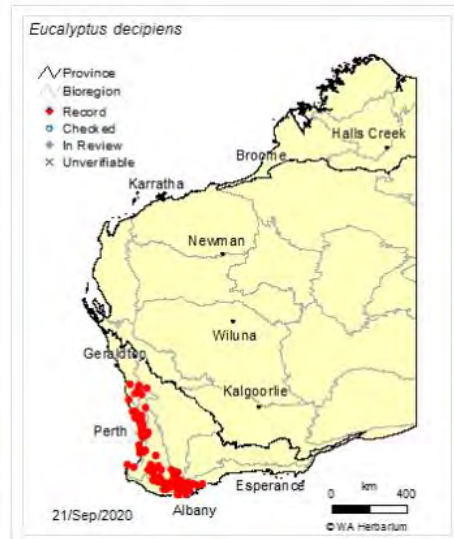
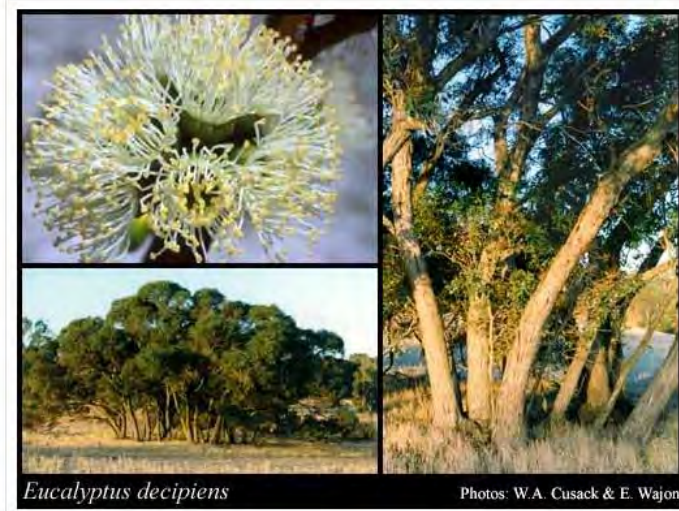
Eucalyptus decipiens Endl. Redheart

Endl., Fenzl, Benth. & Schott, Enum.Pl. 49 (1837)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**



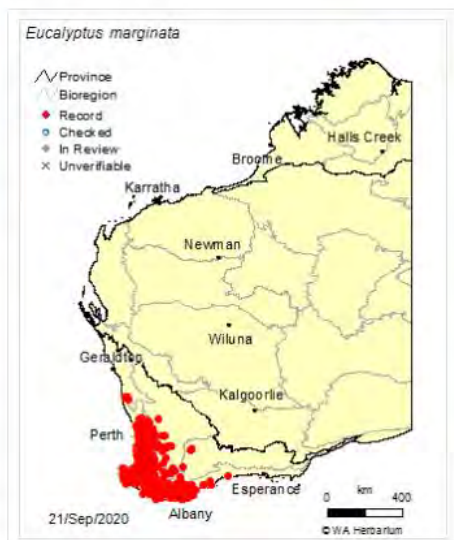
Eucalyptus marginata Sm. Jarrah

Trans.Linn.Soc.London 6:302 (1802)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**



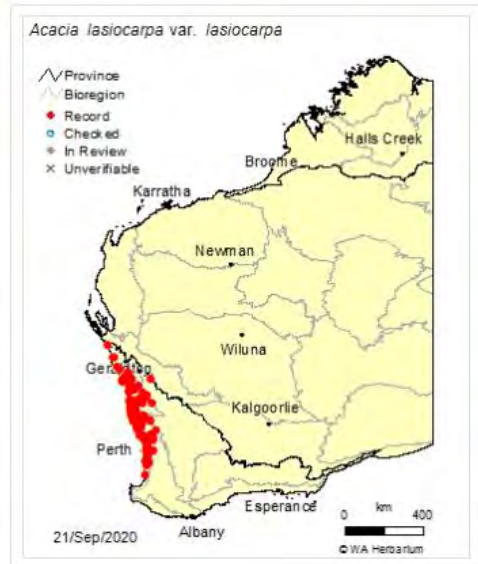


Acacia lasiocarpa Benth. var. *lasiocarpa*

Conservation Code: **Not threatened**

Naturalised Status: Mixed (Native in Part of Range, Naturalised Elsewhere)

Name Status: **Current**



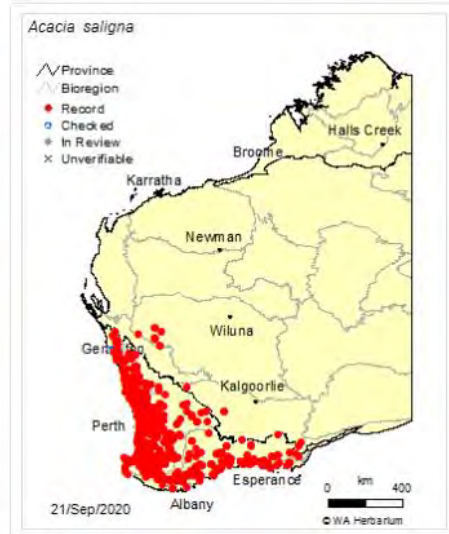
Acacia saligna (Labill.) H.L.Wendl. Orange Wattle

Comm.Acac.Aphyll. 26-27 (1820)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**





Allocasuarina fraseriana (Miq.) L.A.S.Johnson Sheoak

J.Adelaide Bot.Gard. 6:75 (1982)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**



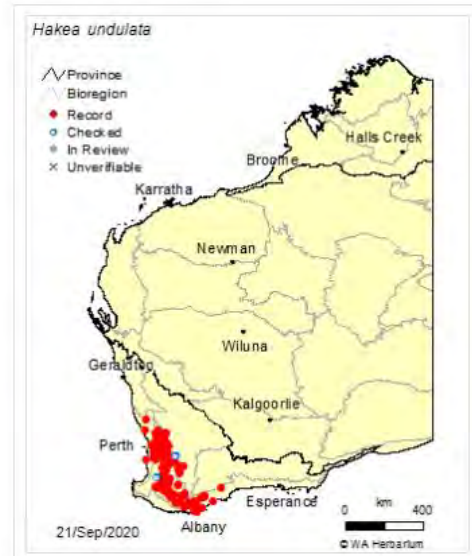
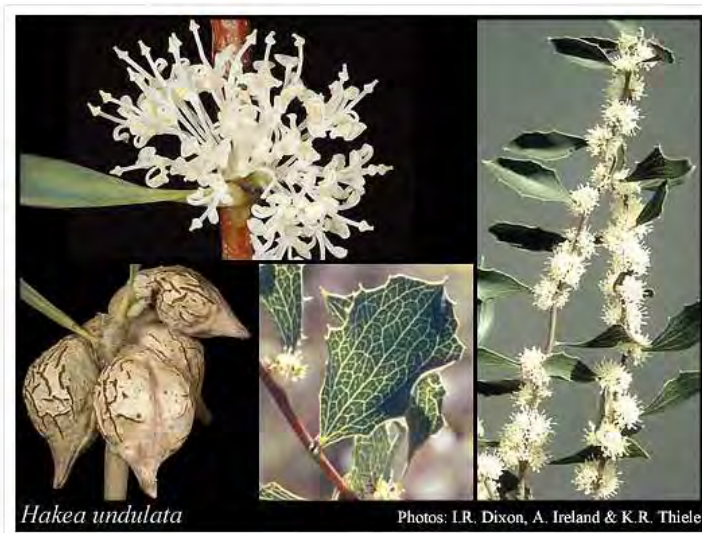
Hakea undulata R.Br. Wavy-leaved Hakea

Trans.Linn.Soc.London 10:185 (1810)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**





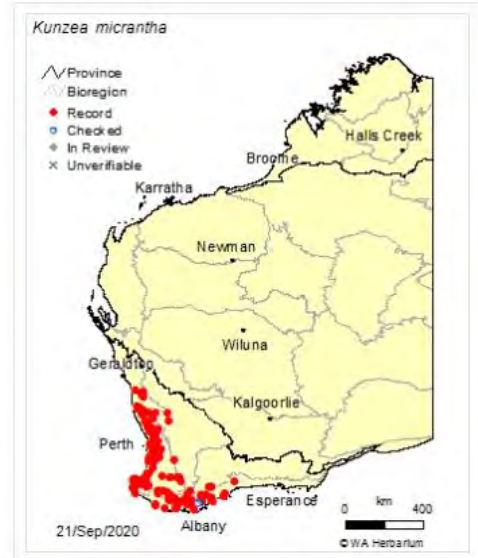
Kunzea micrantha Schauer

Lehm., Pl.Preiss. 1:125 (1844)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**



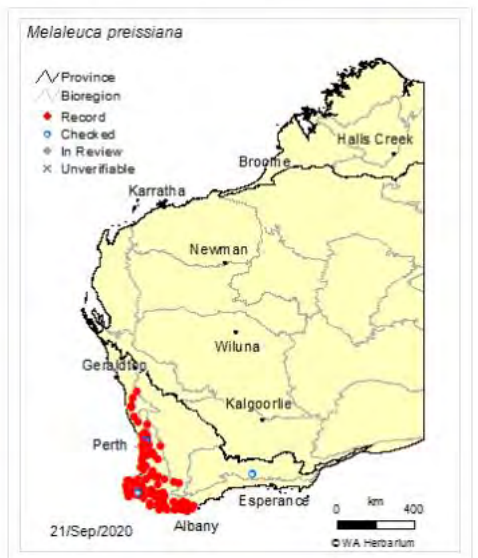
Melaleuca preissiana Schauer Moonah

Lehm., Pl.Preiss. 1:143 (1844)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**





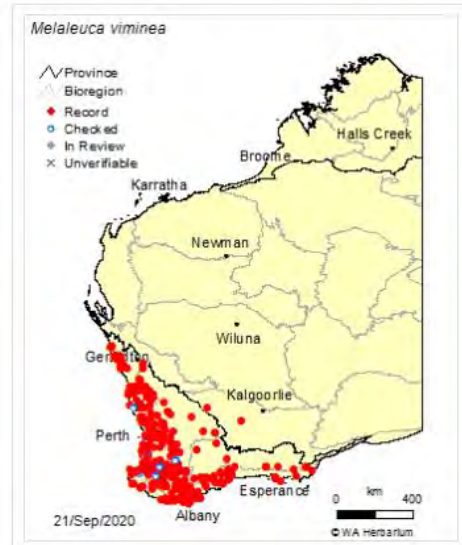
Melaleuca viminea Lindl. Mohan

Sketch Veg.Swan R. 8 (1839)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**



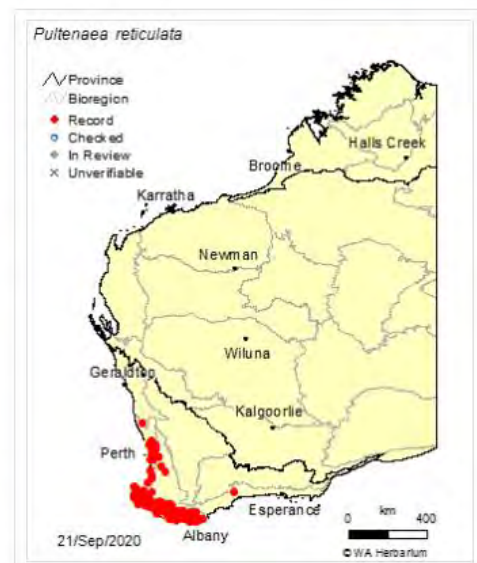
Pultenaea reticulata (Sm.) Benth.

Fl.Austral. 2:119-120 (1864)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**





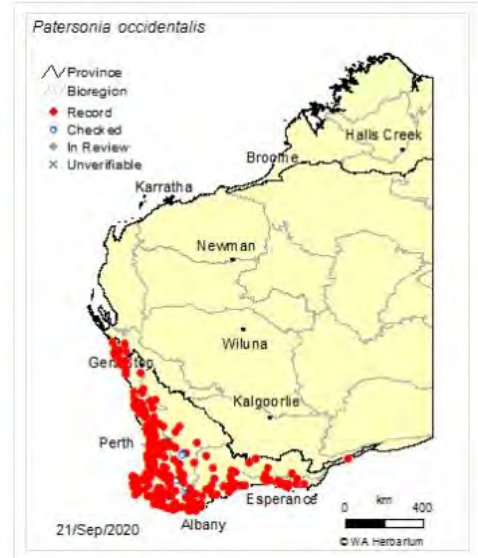
Patersonia occidentalis R.Br. Purple Flag

Prodr. 304 (1810)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**



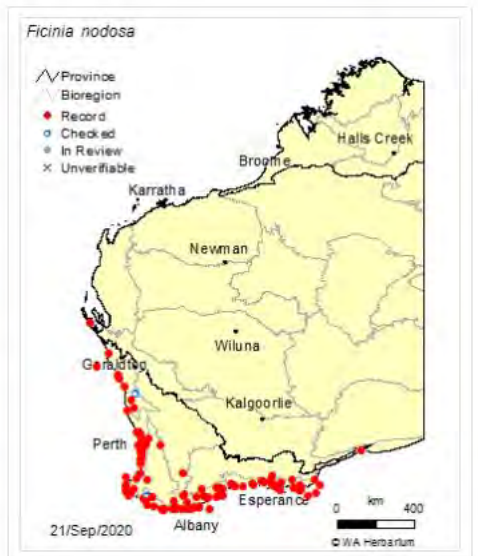
Ficinia nodosa (Rottb.) Goetgh., Muasya & D.A.Simpson Knotted Club Rush

Novon 10:133 (2000)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**





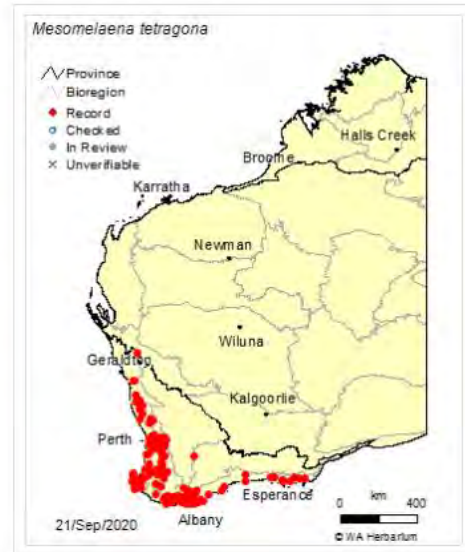
Mesomelaena tetragona (R.Br.) Benth. Semaphore Sedge

Fl.Austral. 7:379-380 (1878)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**



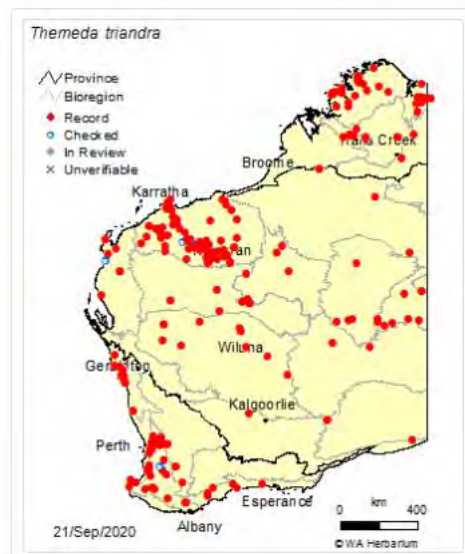
Themeda triandra Forssk.

Fl.Aegypt.-Arab. 178 (1775)

Conservation Code: **Not threatened**

Naturalised Status: Native to Western Australia

Name Status: **Current**





Appendix B – South West Region Threatened And Priority Flora List (5 December 2018) for Whicher Scarp and Dardanup

Source: <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants>



(Appendix ORD:12.2.3B)

NameID	Taxon	Status	Rank	IUCN Criteria	EPBC	DPaW Region	DPaW District	Distribution	Flowering Period	Recovery Plan
19258	<i>Actinotus whicheranus</i>	2				SWST	BLACKWOOD	Whicher Range		
4586	<i>Amperea micrantha</i>	2				SWAN, SWST	BLACKWOOD, PERTH HILLS	Mokine, Yoongarillup, Busselton, Capel, Whicher Range, Ruabon NR	Sep-Oct	
6303	<i>Andersonia barbata</i>	2				SWST, WARR	BLACKWOOD, DONNELLY	Busselton, Whicher Range, Nannup, Windy Harbour	Aug-Nov	
18102	<i>Andersonia ferricola</i>	1				SWST	BLACKWOOD	Whicher Range, Hithergreen		
6315	<i>Andersonia longifolia</i>	2				SWST	BLACKWOOD	Whicher Range, Blackwood River N.P.	Aug, Oct	
32211	<i>Banksia mimica</i>	T	VU	D1	EN	MWST, SWAN, SWST, WHTB	BLACKWOOD, MOORA, PERTH HILLS, SWAN COASTAL, CENTRAL WHEATBELT	Whicher Range, Kalamunda, Mogumber, Gingin	Dec-Jan	
32204	<i>Banksia nivea</i> subsp. <i>uliginosa</i>	T	EN	A2c	EN	SWST	BLACKWOOD	Whicher Range, Scott River, Tutunup	Aug-Sep	IRP
32046	<i>Banksia squarrosa</i> subsp. <i>argillacea</i>	T	VU	B1ab(iii)+2ab(iii): C1	VU	SWST	BLACKWOOD	Ruabon, Tutunup, Whicher Range, Upper Capel	Jul-Aug	IRP
17804	<i>Boronia tetragona</i>	3				SWST	BLACKWOOD	Capel, Busselton, Whicher Range, Cowaramup	Oct-Dec	
35796	<i>Calothamnus quadrifidus</i> subsp. <i>teretifolius</i>	4				SWST	BLACKWOOD	Whicher Range		
759	<i>Carex tereticaulis</i>	3				SWAN, SWST, WARR	BLACKWOOD, DONNELLY, SWAN COASTAL, WELLINGTON	Dardanup, Bridgetown, Blackwood River, Guildford, (Harvey), Mungallip	Nov, Feb	
35657	<i>Chamealaucium</i> sp. <i>Yoongarillup</i> (G.J. Keighery 3635)	4				SWST	BLACKWOOD	Whicher Range, S of Busselton, Yoongarillup	Nov-Jan	
34765	<i>Darwinia whicherensis</i>	T	CR	A4ce; B1ab(iii)+2ab(iii); C2a(ii)	EN	SWST	BLACKWOOD, WELLINGTON	Williamson (below Whicher Range), Boyanup	Oct, Dec	IRP
19852	<i>Dillwynia</i> sp. <i>Capel</i> (P.A. Jurjevich 1771)	1				SWST, WARR	BLACKWOOD, DONNELLY	Whicher Range, Nannup, Donnybrook, Pemberton	Sept-Oct	
20852	<i>Eucalyptus relicta</i>	2				SWST	BLACKWOOD	Whicher Range, Sabina River, Busselton, Nannup	?Dec	
16915	<i>Eucalyptus x mundijongensis</i>	1				SWAN, SWST	SWAN COASTAL, WELLINGTON	Wilbinga, Matilda Bay, Dardanup		
20509	<i>Gastrolobium papilio</i>	T	CR	B1ab(iii)+2ab(iii); C1+2a(ii)	EN	SWST	BLACKWOOD	Williamson (below Whicher Range), Busselton, Abba Block	Sep-Oct	IRP



(Appendix ORD:12.2.3B)

NameID	Taxon	Status	Rank	IUCN Criteria	EPBC	DPaW Region	DPaW District	Distribution	Flowering Period	Recovery Plan
30453	<i>Gastrolobium</i> sp. Yoongarillup (S.Dilkes s.n. 1/9/1969)	1				SWST	BLACKWOOD	Dardanup, Yoongarillup	Oct	
20474	<i>Gastrolobium whicherense</i>	2				SWST	BLACKWOOD	Whicher Range, Dardanup	Oct	
19414	<i>Grevillea brachystylis</i> subsp. <i>grandis</i>	T	CR	A4c: B1 ab(iii) + B2ab(iii)	CR	SWST	BLACKWOOD	Busselton (Whicher Range), Jindong	Aug, Dec	IRP
12219	<i>Grevillea bronwenae</i>	3				SWST	BLACKWOOD	Whicher Range, Margaret River, Nannup	June-Nov	
14526	<i>Grevillea elongata</i>	T	EN	C2a	VU	SWST	BLACKWOOD	Ruabon, Abba SF, Whicher Range, Butler SF	Oct	IRP
18436	<i>Grevillea manglesioides</i> subsp. <i>ferricola</i>	3				SWST	BLACKWOOD	Scott River, Whicher Range	Jul-Dec	
2190	<i>Hakea oldfieldii</i>	3				MWST, SCST, SWST, WHTB	BLACKWOOD, ALBANY, GERALDTON, GREAT SOUTHERN	Katanning, Champion Bay, Busselton, Stirling Range, Whicher Range, Woogenillup, Treeton	Sep	
17734	<i>Lambertia echinata</i> subsp. <i>occidentalis</i>	T	CR	A3e: B1 ab(iii, v) + 2ab(iii, v); C1	EN	SWST	BLACKWOOD	Busselton, Whicher Range	Oct-Dec	IRP
16879	<i>Lambertia rariflora</i> subsp. <i>rariflora</i>	4				SWST	BLACKWOOD	Margaret River, Jarrahwood, Whicher Range	Jan-Mar	
45084	<i>Lasiopetalum laxiflorum</i>	3				SWST, WARR	BLACKWOOD, DONNELLY	Cowaramup, Whicher Range, Acton Park, Chapman Hill, Manjimup	Oct, Nov	
29492	<i>Leucopogon</i> sp. Busselton (D. Cooper 243)	2				SWST	BLACKWOOD	Capel, Ruabon N.R., Dardanup	Aug-Sep	
33298	<i>Lomandra whicherensis</i>	3				SWST	BLACKWOOD	Whicher Range, Dardanup	Dec	
37320	<i>Loxocarya striata</i> subsp. <i>implexa</i>	1				SWST	BLACKWOOD	Whicher Range		
46256	<i>Orianthera wendyae</i>	1				SWST	BLACKWOOD	Capel, Dardanup	Oct	
8163	<i>Pithocarpa corymbulosa</i>	3				SWAN, SWST	BLACKWOOD, PERTH HILLS	John Forrest NP, Lesmurdie NP, Helena Valley, Dardanup, Busselton	Apr	
4179	<i>Pultenaea pinifolia</i>	3				SWST, WARR	BLACKWOOD, DONNELLY	Busselton, Karridale, D'Entrecasteaux N.P., Lake Charley, Whicher Range, Margaret River, Mt Manypeaks	Oct	
4183	<i>Pultenaea skinneri</i>	4				SWST	BLACKWOOD, WELLINGTON	Collie, Binningup, Boyanup, Whicher Range, Jalbarragup, Nannup, Bunbury	Jul-Jan	



NameID	Taxon	Status	Rank	IUCN Criteria	EPBC	DPaW Region	DPaW District	Distribution	Flowering Period	Recovery Plan
31872	<i>Stylidium ferricola</i>	1				SWST	BLACKWOOD	Whicher Range	Oct-Nov	
25805	<i>Stylidium hygrophilum</i>	1				SWST	BLACKWOOD	Whicher Range		
25800	<i>Stylidium paludicola</i>	3				SWAN, SWST	BLACKWOOD, SWAN COASTAL, WELLINGTON	Bullsbrook, Ruabon, Mandogalup, Lake Clifton, Cookernup, Capel, Dardanup		
33381	<i>Stylidium perplexum</i>	1				SWST	WELLINGTON	Dardanup	Dec	
16769	<i>Synaphea hians</i>	3				SWST, WARR, WHTB	BLACKWOOD, DONNELLY, WELLINGTON, GREAT SOUTHERN	Busselton, Collie, Ludlow, Capel, Crooked Brook, Unicum, Elgin, Beaufort River	Sep-Oct	
31767	<i>Synaphea polypodioides</i>	3				SWST	BLACKWOOD, WELLINGTON	Dardanup, Boyanup, Donnybrook	Sep-Oct	
18590	<i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696)	T	CR	B1ab(iii)	CR	SWAN, SWST	SWAN COASTAL, WELLINGTON	Pinjarra, Dardanup, Serpentine, Kooljerrenup N.R., Dardanup	Oct	IRP

KEY TO CODES USED IN LIST

STATUS Conservation status of taxon - refer to definitions.

T Threatened Flora (Declared Rare Flora - Extant)

X Presumed Extinct (Declared Rare Flora - Extinct)

1 Priority One - Poorly known Species

2 Priority Two - Poorly known Species

3 Priority Three - Poorly known Species

4 Priority Four - Rare, Near Threatened and other species in need of monitoring

RANK The threat category the taxon is recognised as in Western Australia (see definitions)

CR Critically Endangered

EN Endangered

VU Vulnerable

EX Extinct

CRITERIA The criteria that the taxon meets to be listed under the category of threat. Categories and criteria follow IUCN guidelines.

<https://www.iucnredlist.org/resources/categories-and-criteria>

EPBC The category that the taxon is listed under the Commonwealth's Environmental Protection and Biodiversity Conservation Act 1999. Note this list is maintained by the Commonwealth and the official list should be sourced at the Commonwealth's website



CR Critically Endangered
E Endangered
V Vulnerable
X Extinct

DBCA REGION
GOLD Goldfields
KIMB Kimberley
MWST Midwest
PILB Pilbara
SCST South Coast
SWST South West
SWAN Swan
WARR Warren
WHTB Wheatbelt

DISTRIBUTION Listed according to the nearest town/place name. Includes historical records. NP=National Park, NR=Nature Reserve, Stn=Station, Mt=Mount, Is=Island, Rg=Range

RECOVERY PLAN Whether the taxon has a Recovery Plan (RP), Interim Recovery Plan (IRP) or Multiple Species Plan (MSP).

CHANGE CODE Type of change that has occurred:

ADDITION Added to list – new entry to State (WCA or Priority) or Commonwealth list (EPBC). If already on one state list and needs to be changed to another see either upgrade or downgrade.

UPGRADED Species that is on the Priority list has been upgraded to Threatened or Presumed Extinct under the Wildlife Conservation Act.

CAT_CHG The category under which a species is listed (e.g. EPBC Act VU to EN or Priority 1 to P3) has been changed.

DOWNGRAD A Species has been downgraded from Threatened or Presumed Extinct under the Wildlife Conservation Act to the Priority list.

NAME_CHG Species has undergone a name change.

OTHER Records a change to other details not related to Conservation status (e.g. Location and Recovery Plan details).

DELISTED Species removed from the particular list it was on. Note that a taxon may be delisted from the "Priority" list and added to the "WCA" list or vice versa. Delistings should be reviewed in the context of other additions, upgrades or downgrades.

RELISTED Species has been added to the list which it was once previously listed on.

LIST CODE Priority Priority Flora List

WCA_1991 Wildlife Conservation Act 1950 DRF Schedule [1991 amendments]



CONSERVATION CODES FOR WESTERN AUSTRALIAN FLORA

T: Threatened Flora - Specially protected under the Wildlife Conservation Act 1950, listed under Schedules 1, 2 and 3 of the Wildlife Conservation (Rare Flora) Notice (which may also be referred to as Declared Rare Flora).

Taxa which have been adequately searched for and are deemed to be, in the wild, either rare, at risk of extinction, or otherwise in need of special protection, and have been gazetted as such.

The assessment of the conservation status of these species is based on their national extent.

Ranking:

CR · Schedule 1 - taxa that are extant and considered likely to become extinct or rare, as critically endangered flora, and therefore in need of special protection.

EN · Schedule 2 - taxa that are extant and considered likely to become extinct or rare, as endangered flora, and therefore in need of special protection.

VU · Schedule 3 - taxa that are extant and considered likely to become extinct or rare, as vulnerable flora, and therefore in need of special protection.

EX: Presumed extinct Flora - Specially protected under the Wildlife Conservation Act 1950, listed under Schedule 4 of the Wildlife Conservation (Rare Flora) Notice (which may also be referred to as Declared Rare Flora). Taxa which have been adequately searched for and there is no reasonable doubt that the last individual has died, and have been gazetted as such. Threatened flora are ranked according to their level of threat using IUCN Red List categories and criteria. For example *Acacia splendens* is specially protected as Declared Rare Flora under the Wildlife Conservation Act 1950 and is a threatened species with a ranking of Critically Endangered.

EX · Schedule 4 - taxa that are presumed to be extinct in the wild and therefore in need of special protection.

A list of the current rankings can be downloaded from the Department of Biodiversity, Conservation and Attractions Threatened Species and Communities webpage at <http://dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/>.

Taxa that may be threatened or near threatened, but are data deficient or have not yet been adequately surveyed to be listed under the Wildlife Conservation (Rare Flora) Notice, are added to the Priority Flora List under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status, so that consideration can be given to their declaration as threatened flora. Taxa that are adequately known and are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened list for other than taxonomic reasons, are placed in Priority 4. These taxa require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

1: Priority One: Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations, but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

2: Priority Two: Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations, but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

3: Priority Three: Poorly-known species

Species that are known from several locations, and the species do not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations, but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

4: Priority Four: Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

The conservation codes for Western Australian flora and fauna can be downloaded from the Department's website at:



<https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities>

*Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies, variety or forma).

Reference

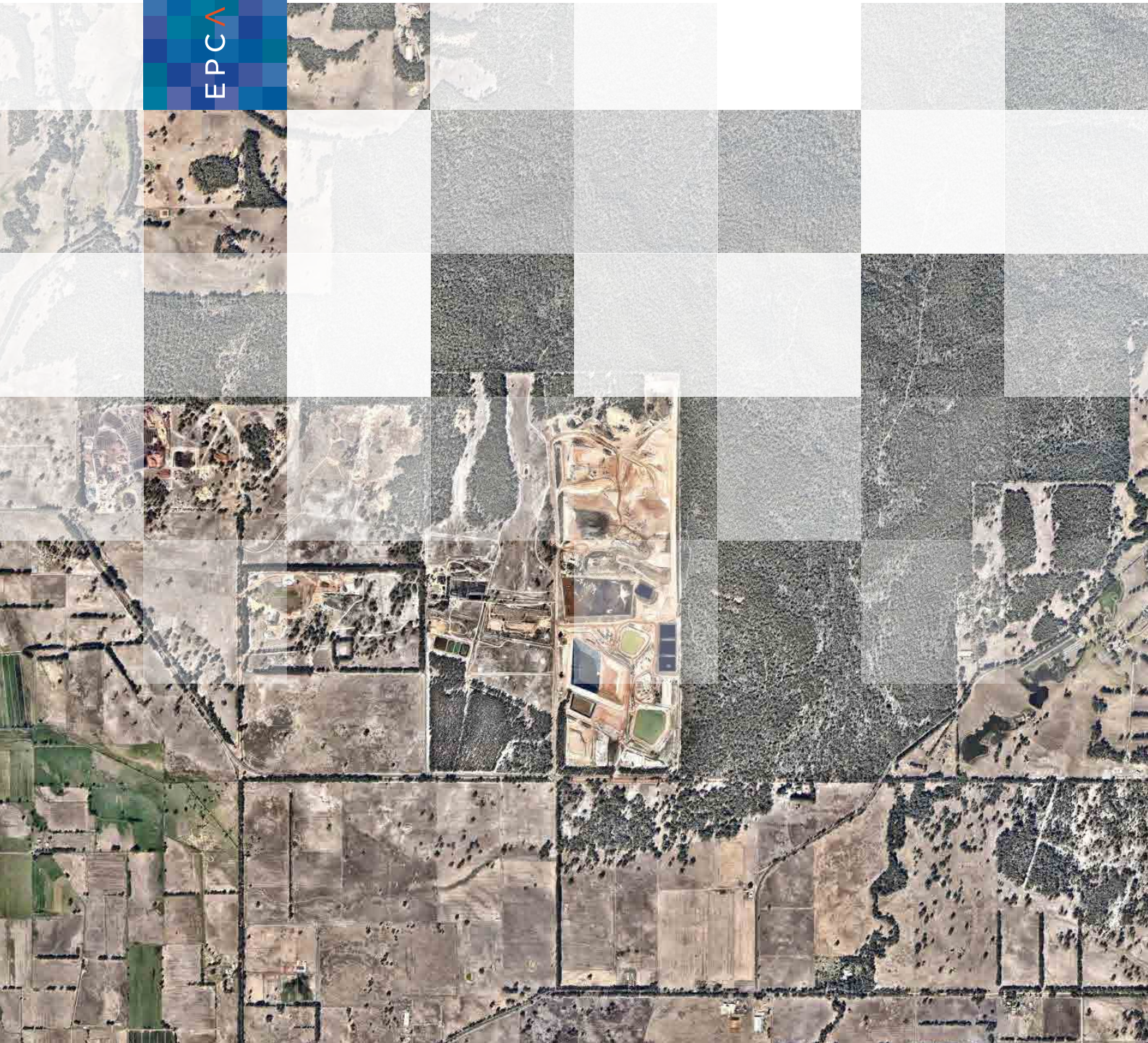
Smith M.G. & Jones A. (2018) Threatened and Priority Flora List, 5 December 2018. Department of Biodiversity, Conservation and Attractions: Kensington, WA.

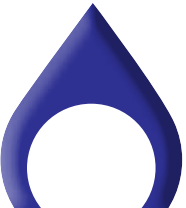
Banksia Road Landfill Site

Landscape and Visual Assessment

29th March 2021

For: Cleanaway





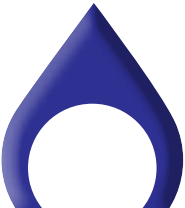
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1. Executive Summary

Lot 2 Banksia Road, Crooked Brook waste disposal facility is proposed to be increased by creating a series of cells accommodating waste to a height of 149 AHD and a finished landform after capping, of approximately 151 AHD. The site has been a waste disposal facility since 1999. Existing works at the subject site are discrete. The surrounding vegetation and landforms combine to restrict views.

The Dardanup Landfill Site is located to the north. In contrast to the south and east of the site, is the Jarrah forest of the Dardanup Conservation Park. To the west, the landscape is a rural, agrarian landscape plain extending to the coast and the City of Bunbury. This broad flat landscape consists of open paddocks and a matrix of mature trees generally within road reserves and along lot boundaries.

The majority of viewing opportunities are from public roads with speed limits of 50km/h to 110km/h. The proposal is located generally obliquely to the direction of travel. There are no formal footpaths within the immediate road network. The site can be seen from tourist lookouts located on the high ground in Bunbury but at a distance of 19 kilometres and will be indistinct.

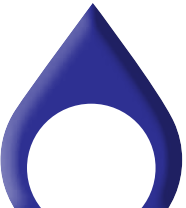
The incremental implementation of the proposal includes the staged delivery of rehabilitation landscape works. As filling progresses, the planting will mature. As the scale and height of the new landform increases the landscape planting will ameliorate effects.

In the long term, the proposed top of cell height, 149 AHD (excluding capping) will form a slightly higher skyline from some views. The modelling suggests this takes the form of a localised variation in topography.

The Town of Dardanup is the nearest community. It has distant views from the public realm and it can be inferred that there may be distant views from some private residences.

The incremental staged creation of elevated topography, will be combined with the staged planting of vegetation and establishment of grass areas. The long time frame to completion in 2045 suggests that changes in the views will not be rapid but a progression.

As such it is not considered that the proposals will represent an obtrusive element in views during the works. They will be observed when sought out within a wider panorama when seen. This location has the ability to accommodate change within the broader landscape due to the local landforms and intervening vegetation and woodland restricting many open views to the site.



2. Introduction

EPCAD have been commissioned to study the visual effects of the construction and operation of the Waste Disposal Facility, located at Lot 2 Banksia Road, Crooked Brook on the public realm to its immediate and greater surrounds.

The site is located on the north-west boundary of the Dardanup Conservation Park, south-west of the Town of Dardanup, and approximately 178km south of Perth, in the Shire of Dardanup.

The image locations selected within this report are views taken from the public realm and represent a general cover of possible viewpoints of the site. EPCAD acknowledges that there may be additional locations where views to the site are possible which have not been covered within this report.

Glossary of Terms Featured in This Report:

EPCAD / The Landscape Architect: EPCAD Pty Ltd, Landscape Architects;
Author of this report and conductor of this Visual Impact Assessment.

Cleanaway / The Client: The client for which this assessment was conducted for.

The site / The Proposed Works / Subject Site / Development Site

Viewing Locations / View Locations / Key Views: The locations where images were taken from.

ZVI: Zones of Visual Influence




The locations selected serve to illustrate a general statement of the site surrounds, their associated character and potential views offered of the site. They are representative of the viewing experience.

An initial zone of visual influences was determined utilizing computer generated inter-visibility data. This suggested areas and locations that required site assessment. This information and modelling informed the site visit, and route of travel.

This study has been undertaken under the instruction of Cleanaway Solid Waste Pty Ltd ('Cleanaway').



LEGEND

-  Location of Image
-  Site
-  53° Field of View

NOTE:

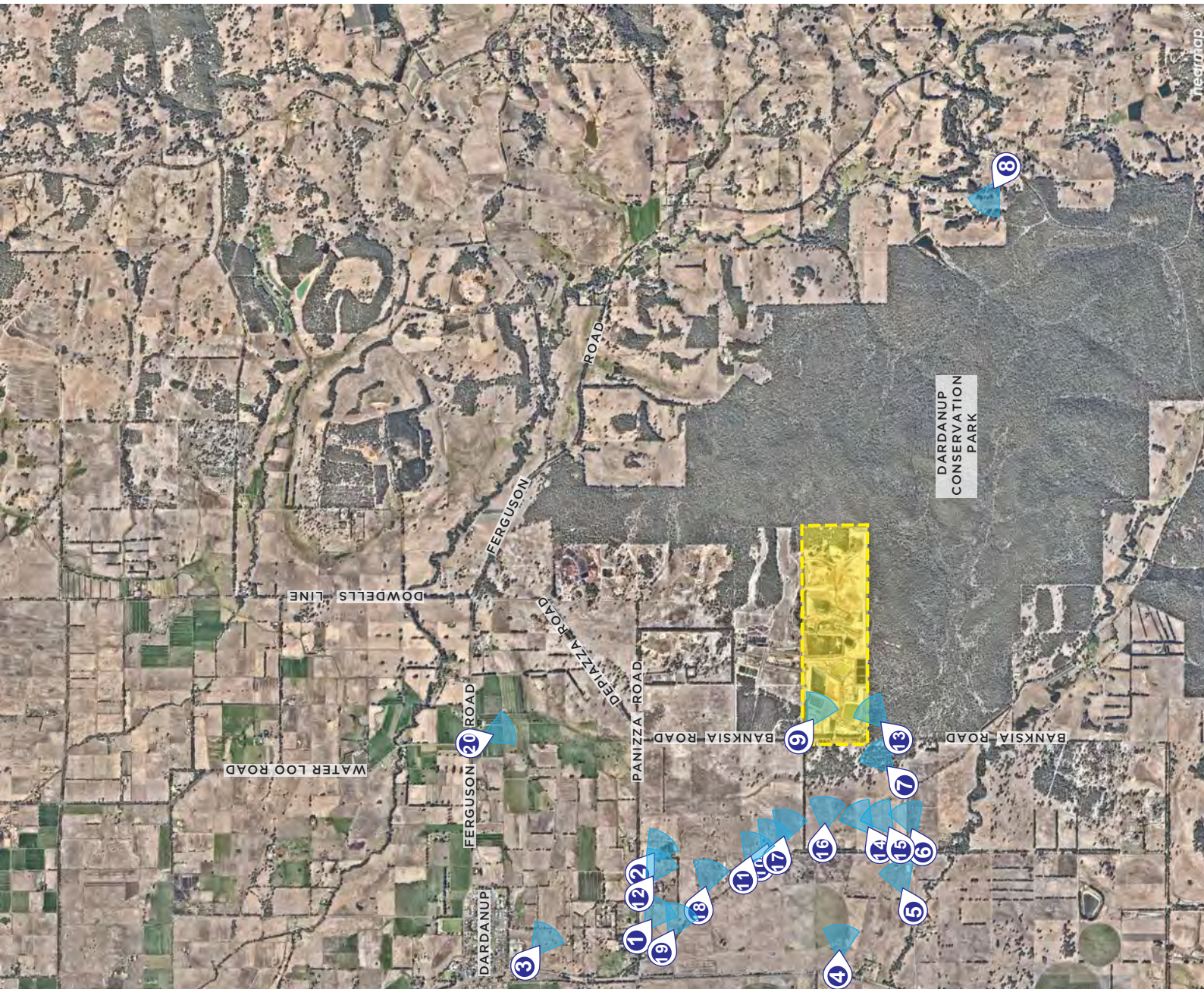
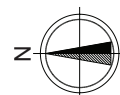
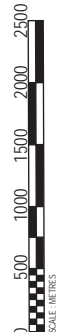
- Location 1 - 41 Panizza Road
- Location 2 - 62 Panizza Road
- Location 3 - Macleay Street (Roseiland)
- Location 4 - 636 Boyanup-Picton Road
- Location 5 - 127 Dillon Road
- Location 6 - Intersection of Twomey Road and Crooked Brook Road
(**Shire of Dardanup Ref: View Point C**)
- Location 7 - 361 Crooked Brook Road
(**Shire of Dardanup Ref: View Point B**)
- Location 8 - 102 Ironstone Road
- Location 9 - Entrance to Cleanaway Waste Disposal Facility on Banksia Road
- Location 10 - 125 Crooked Brook Road
- Location 11 - 125 Crooked Brook Road
- Location 12 - 62 Panizza Road
- Location 13 - Banksia Road
- Location 14 - 245 Crooked Brook Road
- Location 15 - 127 Dillon Road
- Location 16 - 125 Crooked Brook Road
- Location 17 - 125 Crooked Brook Road
- Location 18 - 245 Crooked Brook Road
- Location 19 - 32 Crooked Brook Road
- Location 20 - Intersection of Waterloo Road and Ferguson Road
(**Shire of Dardanup Ref: View Point A**)

Distant Views (See Figure 2a)

- Location 21 - Intersection of Hynes Road and South West Highway
- Location 22 - Marlston Hill Lookout
- Location 23 - Boultoners Heights Lookout
(**Shire of Dardanup Ref: View Point D**)
- Location 24 - Bunbury Lighthouse

Figure 1: Overall Location Plan

key plan illustrating photographic record



(Appendix ORD: 12.2.3B)

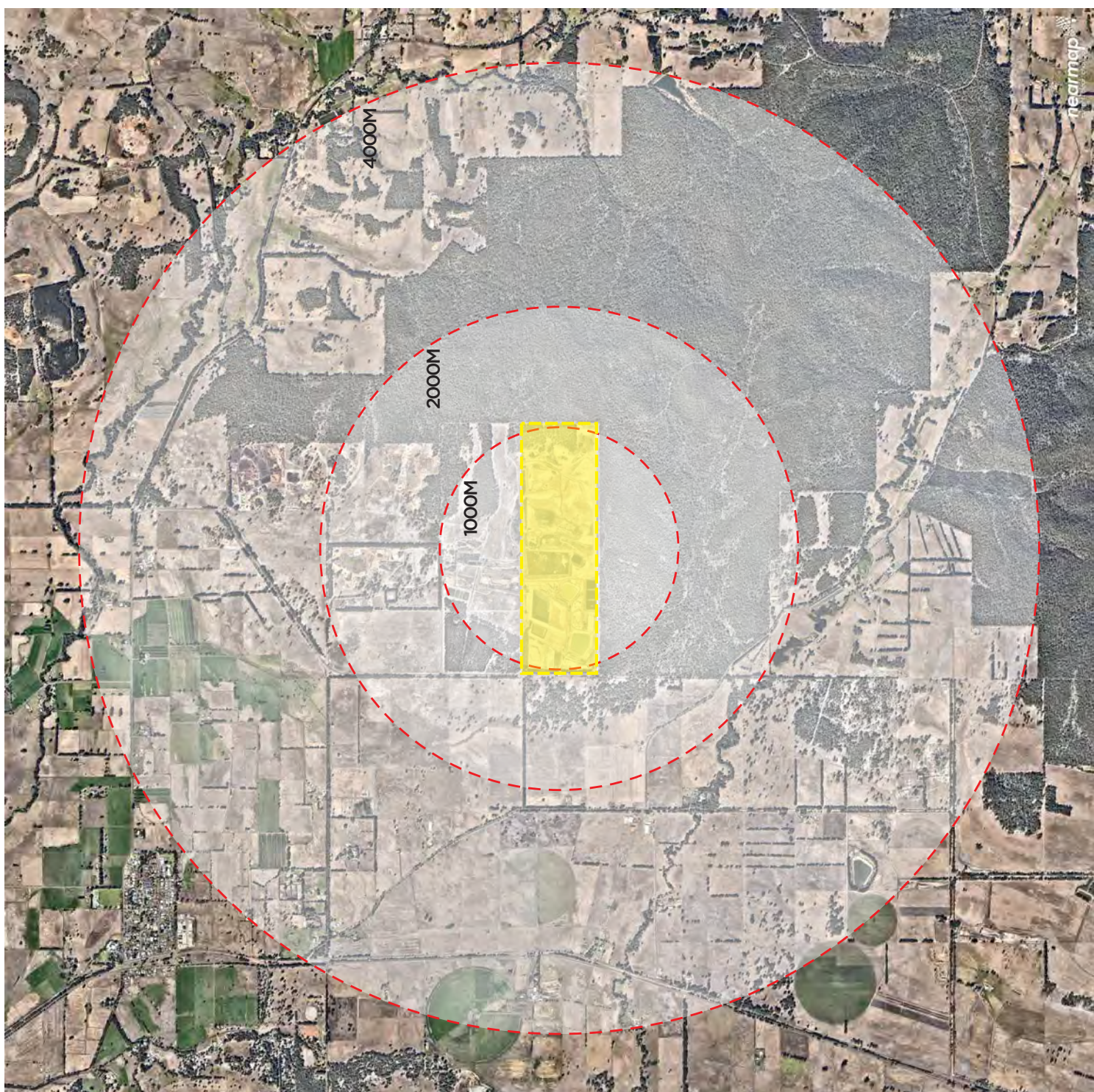
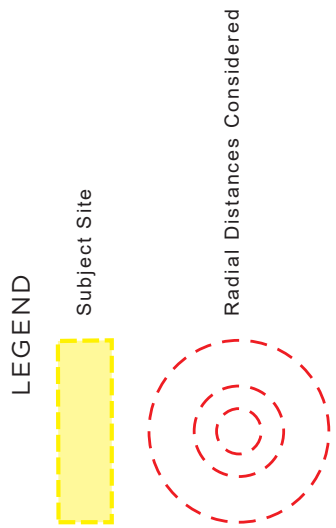
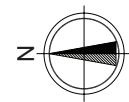


Figure 2: Areas of foreground to far distance considered



LEGEND



Location of Image

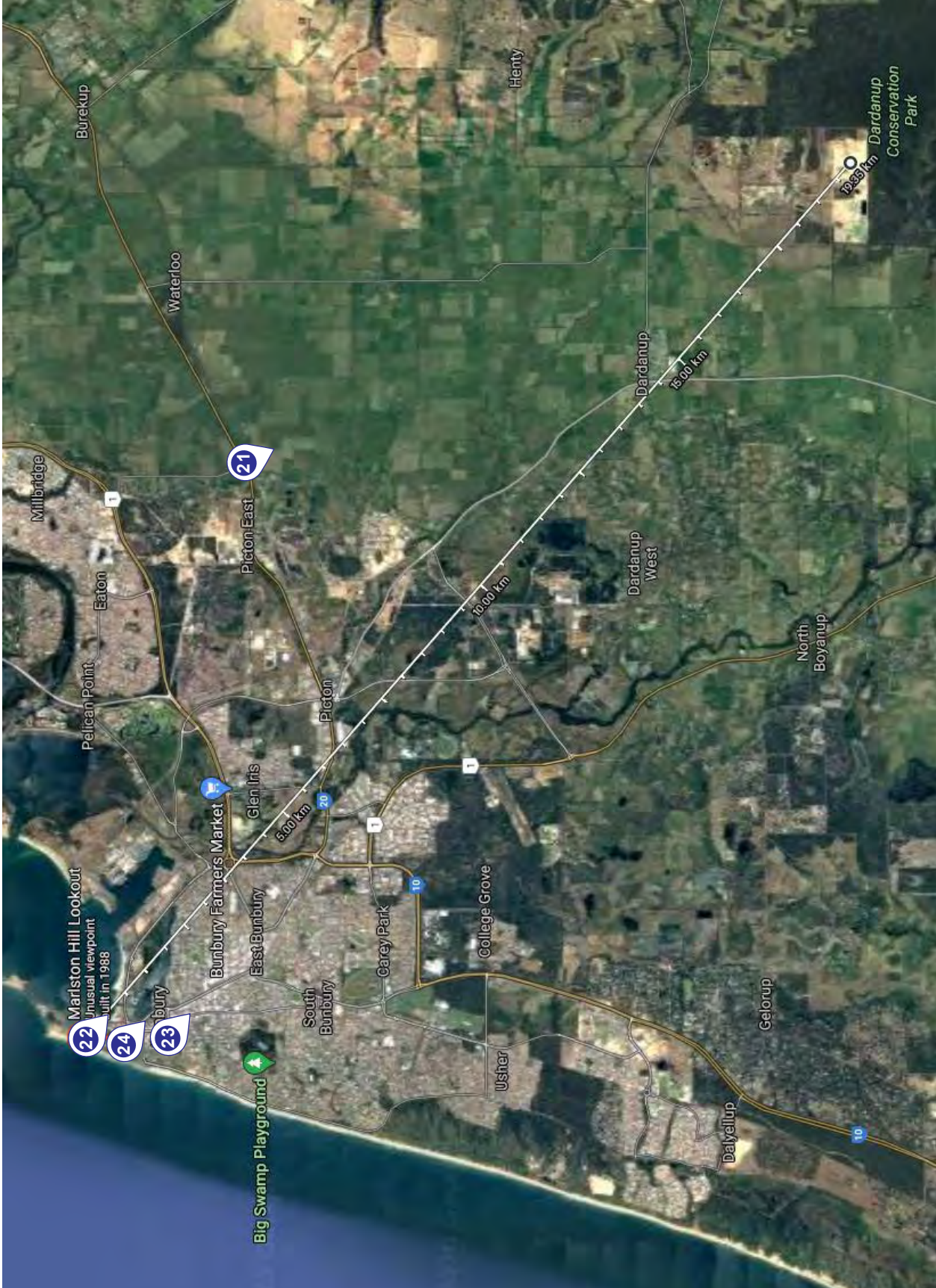
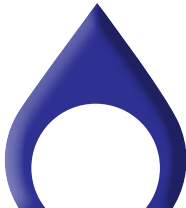


Figure 2a: Distant Viewing



3. Visual Landscape Evaluation

3.1. Scope & Context

Guidance for undertaking a Visual Landscape Evaluation is provided by the state planning authority, Department of Planning Lands and Heritage & Western Australian Planning Commission within *Visual Landscape Planning in Western Australia; 2007 (VLPWA)*. This study has been undertaken in accordance with the principles set out in the VLPWA using two methods;

- Site survey and analysis
- Desktop study of cartographic and photographic material

This study is to ascertain the local and district visual assets and characteristics and to evaluate the likely effects of the disposal of waste in purpose built cells at the existing Waste Disposal Facility.

This report includes illustrations that present an end state. It also includes illustrations of the approved 128 AHD waste height with a capping and rehabilitation treatment.

3.1.1 The Proposed Development

Lot 2 Banksia Road, Crooked Brook is currently a waste disposal facility. The proposal is to create a series of cells accommodating waste to a finished height of 149 AHD. This top of waste level will then be capped. The capping will be approximately 2m in depth.

The site operates in accordance with the Licence L8904/2015/1 issued by DWER. Cleanaway proposes to continue landfilling the Dardanup

Landfill site to a top of waste height of 149 m AHD with capping design and settlement allowances in addition to this. Landfilling rates are not expected to differ substantially from current levels. Site operations require the ongoing use of site facilities including stormwater management infrastructure. Refer to Section 2 of the Capping Design Report (Tonkin, 2020) for additional site setting and background information.

The final landform for the site has been designed to account for the following considerations:

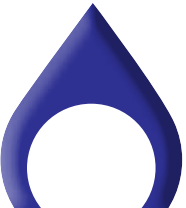
- Providing a long-term stable barrier between waste and the environment
- Providing land suitable for its intended after use.

The proposed development also includes two stormwater ponds, a network of vegetated swales and comprehensive landscape and rehabilitation works as detailed in Banksia Road Landfill Rehabilitation and Closure plan, Appendix D Landscaping Plan, Rev 3 January 2021.

Remnant vegetation located at the east end of the site will be cleared.

The construction of the proposed development will be undertaken from approximately May 2021 through to May 2044 as detailed on DARD-615-CELL TIMING Rev C1.

The proposal, in summary, is to create a secure, purpose designed landfill facility that will be progressively filled, capped and revegetated with native plantings to form woodland and grassed areas.



3.2. Site Description

3.2.1 Context

The site as identified in Figure 4: Site Plan - Airspace Volumes DARD-330-AIRSP, is located at Lot 2 Banksia Road, within the Shire of Dardanup. The site is located approximately 178km south from the Perth Central Business District (CBD), and approximately 3.5km north east of Dardanup township.

The site is bounded to the west by an unsealed road, Banksia Road. To the north is the Dardanup Council Landfill Site, to the east and west is the Dardanup Conservation Park. The site is located within the lower slopes of the Darling Range that rise to the east to the Wellington State Forest. The immediate contextual topography is illustrated on Figure 3a: Overview of Contours DARD-700-EAST LAY-1.

The site has been a waste disposal facility since 1999, with several subsequent amendments to the existing approval granted in 2005, 2006, 2010, 2011, 2014 and 2016, allowing for further facilities to be built, relocated and for the waste disposal facility to cater for the disposal of higher grade wastes.

The site as a landscape, is a significantly disturbed, manmade site, formed by earthworks and site tracks. A combination of steep slopes and terraced landforms are key features within this site. Along the southern boundary, there are areas where trial rehabilitation works are being undertaken. These consist of predominantly immature plantings, of a range of native species. The current works being undertaken on the site are discretely located behind the west and northern perimeter mature trees. Along the southern and eastern boundaries, are post and wire fences, delineating the site from the adjacent mature banksia woodland.

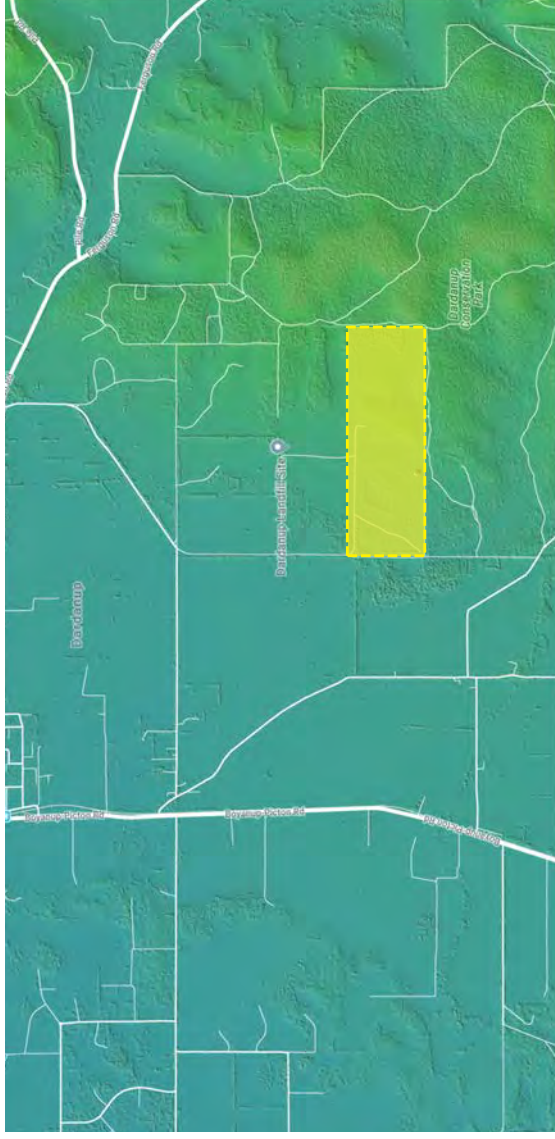


Figure 3: Terrain Model

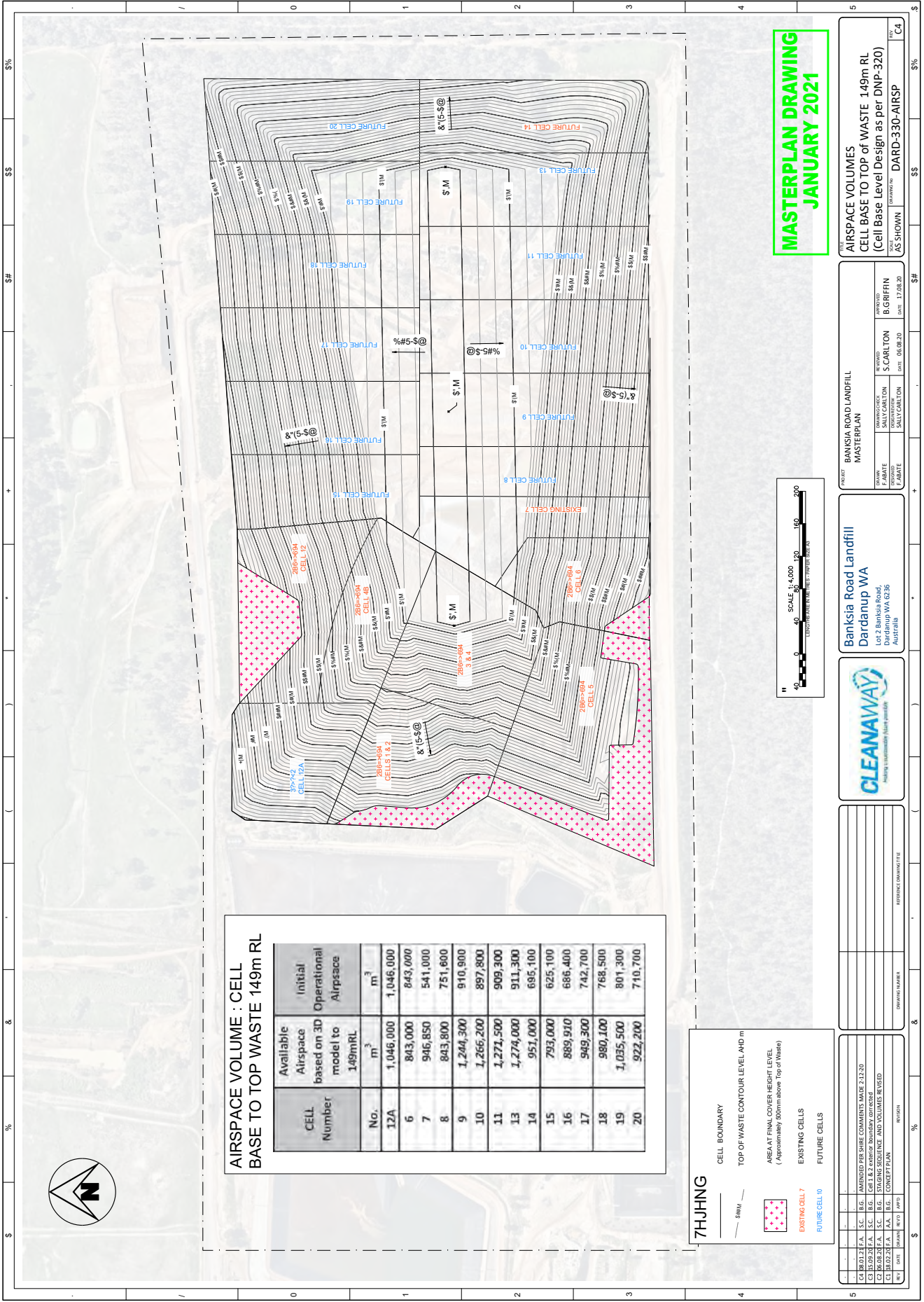


Figure 4: Site Plan - Airspace Volumes (149m)

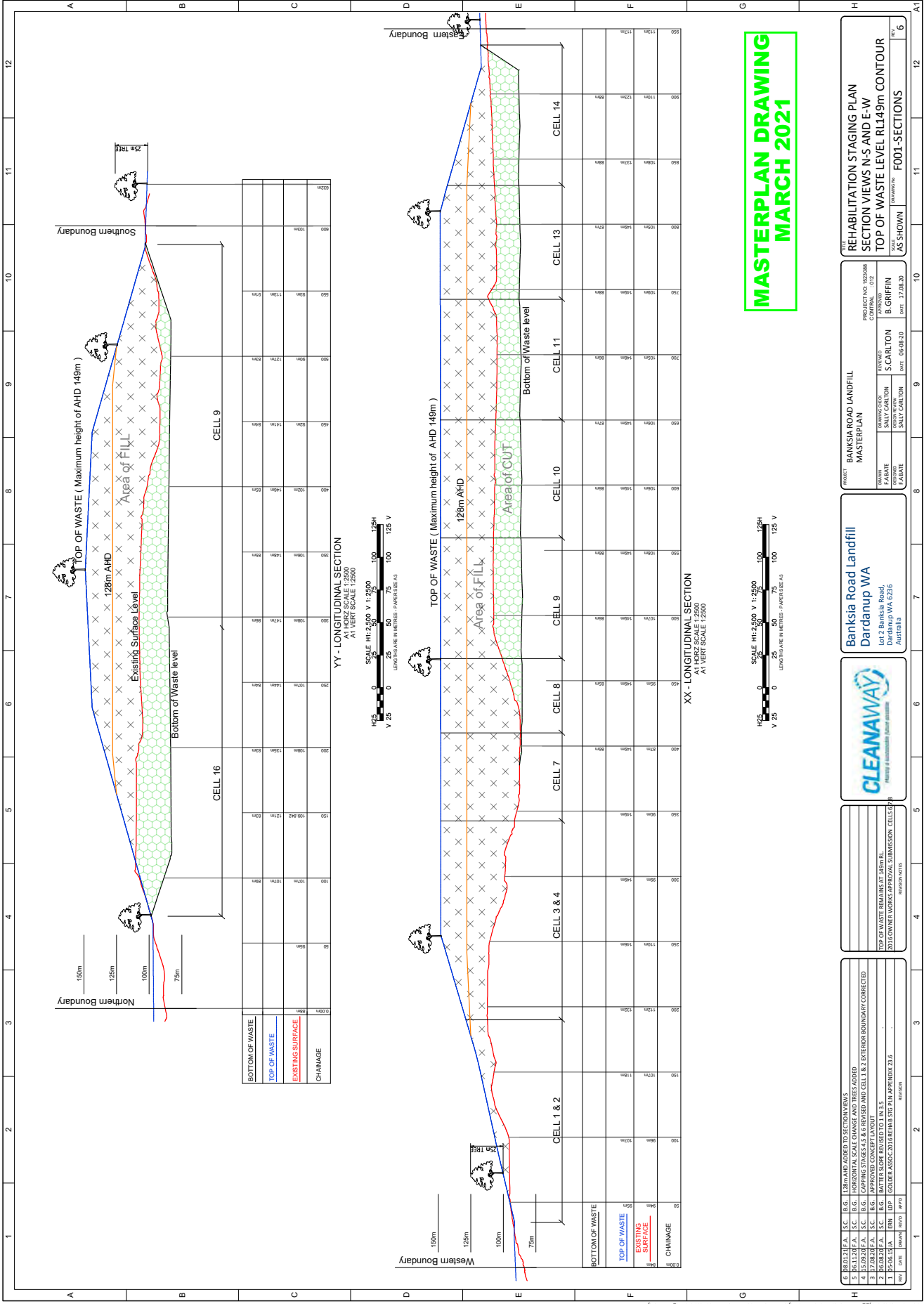


Figure 4a: Site Plan - Proposed Cell Construction Section



3.2.2 Topography

Lot 2 Banksia Road, has a gentle slope from east to west. The land is approximately 45m above sea level, rising to approximately 118m above sea level. The average slope, according to available google earth information, is 3.6%. Refer to **Figure 5: Topography of the Site**. North to south, the site has two rises, refer to **Figure 6: Topography of the Site**, the northern rise being an approximate height of 90m above sea level, and the southern rise being approximately 99m in height, utilising latest google earth information. Generally, the northern edge of the site is at approximately 75m above sea level, with the southern boundary of the site being approximately 85m above sea level.

The proposed works are located across the overall site, refer to **Figure 4: Site Plan - Airspace Volumes DARP-330-AIRSP**.

Currently, according to the Local Planning Strategy Map (refer to Appendix I) the area the site is located in is identified as Waste Disposal/Processing, with an overlaid zoning of Strategic Minerals, over a portion of the site.

Based on the landscape assessment of the area, this classification reflects the locations ability to accommodate change discreetly within the broader landscape due to the local landforms and woodland restricting open views to the location.

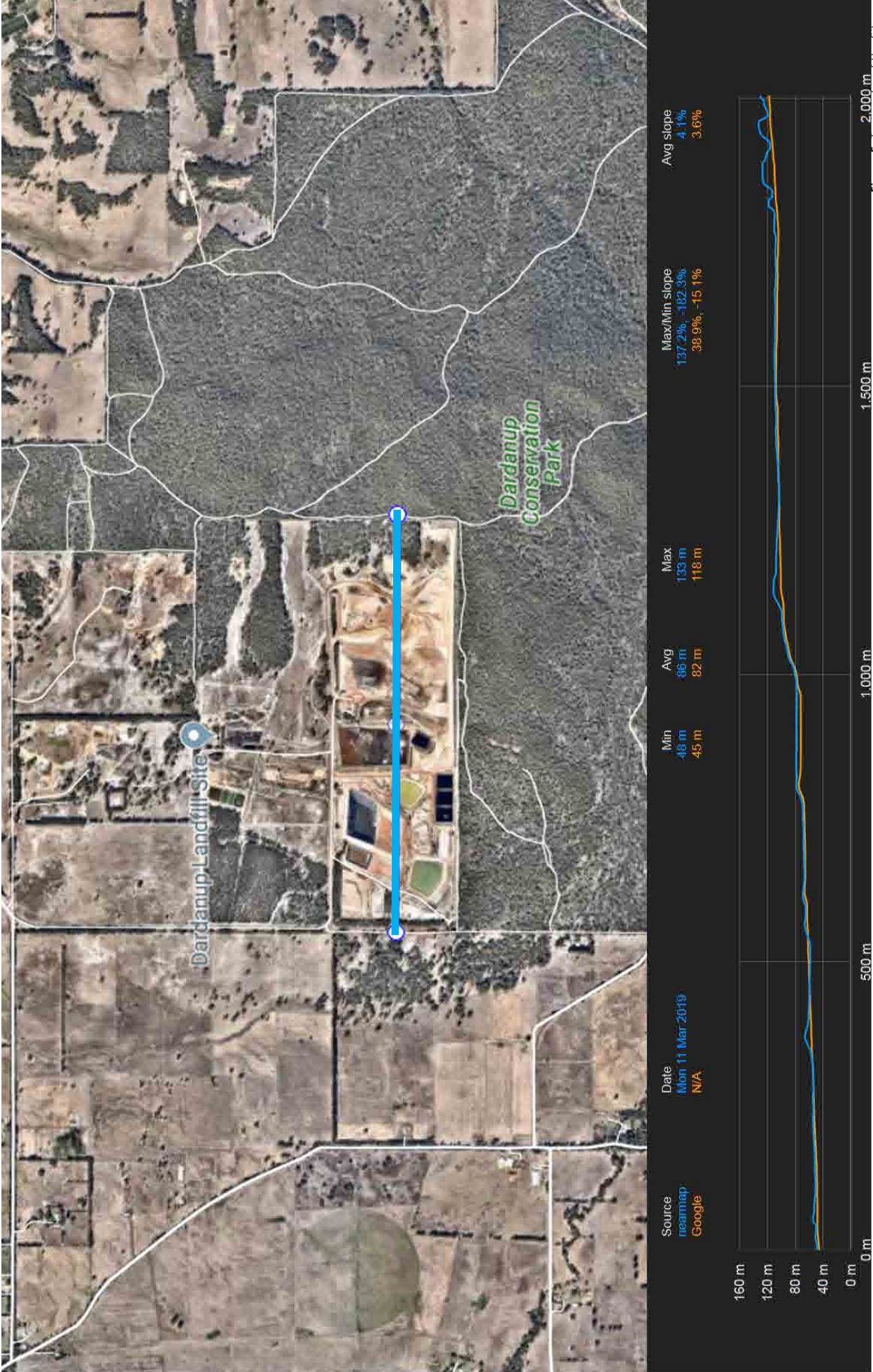


Figure 5: Topography of the Site

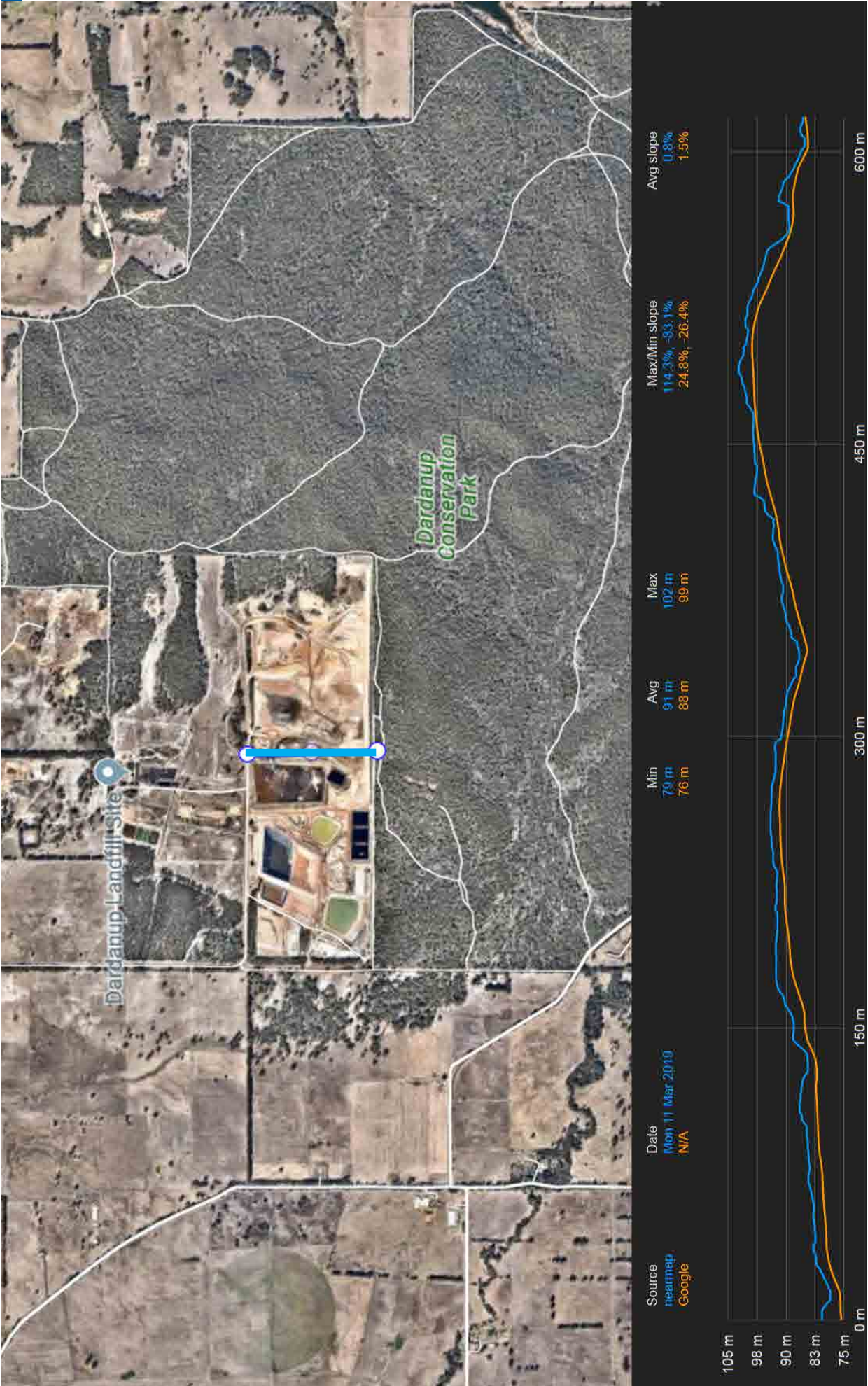


Figure 6: Topography of the Site



3.2.3 Vegetation

Proposed works as outlined in this report, will require the clearing of mature remnant vegetation on site. The longer term filling of the eastern 200m extent of the site, has remnant trees that will be removed to facilitate grading.

The western boundary of the site, consists of a vegetated buffer, predominantly made up of Eucalypt trees which on average is approximately 45m wide. This vegetated buffer (situated within the lot boundary, behind an existing chain link fence) assists in screening views into the interior of the subject site. Approximately 280m from the north-western corner of the site, is the main entrance into the site. This vegetation also extends for approximately 335m along the northern boundary, also providing screening. At this point, the vegetation thins out, and is located slightly further south from the northern lot boundary. This portion of the vegetation provides screening to the leachate pond.

Throughout the central portion of the site, there are the occasional isolated establishing trees and bushes predominantly located adjacent to vehicle routes, and in between cells.

On the eastern portion of the site, is an area of vegetation, covering an area approximately 103,000m². This area of vegetation is broken up with small tracks, and areas of clearing. The eastern most portion of vegetation, does not appear to have been cleared for any purposes.

The southern boundary of the site also has retained vegetation, with sparsely, located shrubs and small trees along the entirety of the southern boundary.

The southern boundary has been the location of some rehabilitation works in order to provide

a 20m vegetated buffer. The following native species have been selected to be planted;

Acacia saligna
Acacia alata
Acacia lasiocarpa
Acacia pulchella
Allocasuarina humilis
Gompholobium tomentosum
Ficinia nedosa
Hakea undulata
Kunzea glabrescens
Melaleuca viminea
Patersonia occidentalis

Rehabilitation plantings around the site along the north, west and parts of the south boundary are maturing well and creating bands of mature vegetation.

3.2.4 Built Form

Built Form on the site of the proposed development consists of facility outbuildings, machinery, washdown and storage areas. The site consists of several demountable buildings that are used for office space and ablation blocks, these are located currently at the north-western end of the site. The majority of carparking for both visitors and workers is co-located here.

Throughout the site, other temporary buildings are located alongside relevant landfill or cells. These buildings include but are not limited to, various storage sheds, vehicle maintenance bays, additional ablutions blocks and maintenance sheds. The cells used for landfill and waste disposal are the dominant "built form". These are excavated pits within the ground, lined and are used for waste disposal, whether it be mineral or landfill materials.



3.2.5 Adjacent Properties

To the north of the site is the Dardanup Landfill Site. Owned and operated by the Shire of Dardanup, the site accommodates green waste, that is processed into compost on site and used on a number of Council sites, general waste is dropped off, however, sent off-site for disposal and recycling is either sent off site for processing or resold through the Tip Shop. The site consists of retained vegetation located on the western and eastern boundaries, several cells, with apparent man made, informal vehicle access tracks throughout the site.

To the south and east of the site, is the Dardanup Conservation Park. This jarrah forest has several walking trails of varying lengths and varying difficulty levels.

To the west of the site, is Banksia Road, a partially bitumenised, partially gravel road, which means traffic along this road is typically used for local traffic, or employees of either the Banksia Road Waste Disposal Facility, or the Dardanup Landfill Site - with the associated Tip Shop. It is not a main tourist route. Banksia Road, is relatively flat, in nature, with mature vegetation either side of the road corridor. Additional vegetation is located either side of the road from the nature reserve, and from remnant vegetation from within private lots.

Located to the west of Banksia Road, are large agricultural blocks, with varying amounts of retained vegetation. Vegetation is to field boundaries, and provides a strong framing structure to the rural landscape. These areas are visually separated from the existing facility's operations, by these stands of vegetation and the roadside vegetation found along transport corridors.

The existing built environment within the landscape is that of a rural character. Buildings in the immediate landscape are limited to often one dwelling per

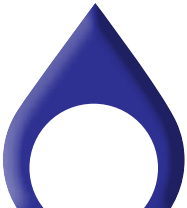
block, with several associated outbuildings and sheds, typical of the land uses of agriculture and minor industrial activities.

3.3. District Landscape Area

The dominant elements that comprise the district landscape character can be summarised as;

- Rolling topography, rising to the east Darling Range;
- Flat plain to the west of subject site extending to the coast;
- A matrix of large lots containing various uses from residential, hobby style farming, viticulture and industrial;
- These lots range from fully vegetated to fully cleared;
- Large blocks of retained vegetation exist in Reserves and Regional Parks;
- Land is divided into properties and paddocks by low post and wire or post and rail fences (visually permeable);
- Built form of a very low density with occasional punctuating low buildings;
- Wide vehicular carriageways with remnant mature vegetation within road reserves.

These landscape elements combine to produce a rich rural landscape that at times affords long and broad views from certain locations. However the maturity and density of vegetation often obscures long distance views.





3.4 Key Views

There are no key viewing locations that allow a broad open view of the site. The proposed landform to a total height of 149 AHD plus capping, will still only be observed in glimpsed locations. There are no roads that align to present a view in direct line of sight and no public footpaths that allow open vistas to be observed. The following images have been selected from the initial ZVI and site tested.

Key viewing experience is from roads in a vehicle, few stationary views, public views generally from the road corridors obliquely to the direction of travel.



Marker to the Site

Location 1 41 Panizza Road



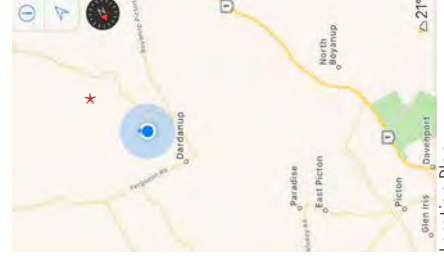
(Appendix ORD: 12.2.3B)

The above view is taken at a distance of approximately 2.2km from the subject site. The character of the landscape is of a rural, agrarian landscape. The prominent elements within this viewscape are of the retained, mature trees within the road reserve, and along lot boundary lines. This vegetation provides semi permeable screening into the interior of the lots, and towards the development site. Other features are the open areas within the adjacent lot and the bitumenised road to the left of the field of vision.

Visibility of Proposed Works

The development site is just visible from this location. The mound of existing soil is perceptible from the public realm, through breaks in the lot boundary vegetation, and roadside vegetation. The location of the development site is at an angle to the line of travel, as such views would be fleeting glimpses. Views would be predominantly from vehicles in the public realm, as there are no formal pedestrian footpaths, nor walking trails in this location. The proposed development would likely not be perceptible at this distance or from this location as the ultimate height will be screened by developing vegetation on slopes as detailed in the Banksia Road Landfill Rehabilitation and Closure Plan, Appendix D, Landscaping Plan, Tonkin 9/11/20.

* Location of development site



Location Plan



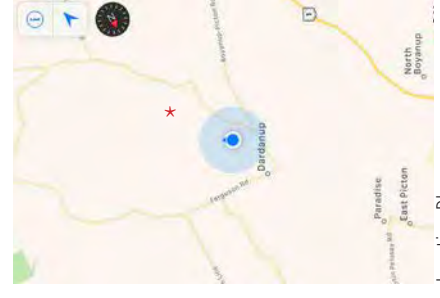
Marker to the Site

Location 2 62 Panizza Road



(Appendix ORD: 12.2.3B)

* Location of development site



Location Plan

The above view is taken at a distance of approximately 2km from the subject site. The character of the landscape is of a rural, agrarian landscape. The dominant elements within this viewscape are of the retained, mature trees within the road reserve, and along lot boundary lines. This vegetation provides semi permeable screening into the interior of the lots, and towards the development site. Other features are the open areas within the adjacent lot, the rural style fencing consisting of posts and strainer wires and the drainage ditch that runs parallel to the road.

Visibility of Proposed Works

As the existing mounds can be seen from this location the full completed works to a level of 149 AHD will also be viewable from this particular location. However, the colour of the development site from this location, and scale, is within context of the character of the landscape and the proposed works include significant planting that will incrementally establish over the development period.

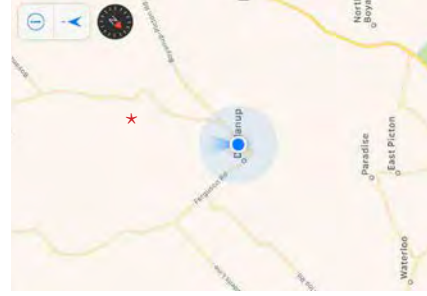


Marker to the Site

Location 3 Macleay Street (Roseland)



* Location of development site



Location Plan

Views from this location fall at a distance of approximately 3.6km from the site. The location from which this image was taken is at the edge of a new sub division estate, Roseland. The existing character is of a rural scene dominated by the open pastoral land, the large light coloured building in the middle distance and the isolated retained trees. Other features include the rural style fencing that is visually permeable, and it is at a distance from the viewer so as to not be dominating within the landscape. A telecommunications pole is clearly visible to the north of the viewer, which protrudes above the horizon.

Visibility of Proposed Works

The existing mounds of soil on the site are visible from this location. From this location, the site is seen as an open area, that appears as if it is a hill within the context of the scarp. The colour and textures of the overall proposals are within the context of the landscape, and not obtrusive within this broad view. The planting of the sides of the proposed landform will integrate it within the contextual landscape.





Marker to the Site

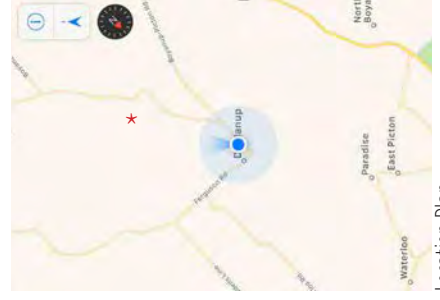
Location 3 Macleay Street (Roseland) - Illustration of completed works



Illustration of Landform and Planting (2045)

(Appendix ORD: 12.2.3B)

* Location of development site



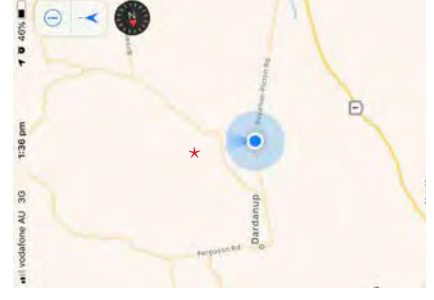
Location Plan

Marker to the Site

Location 4 636 Boyanup-Picton Road



* Location of development site



Location Plan

Views from this location fall at a distance of 2.2km from the site and are taken from the roadside of Boyanup-Picton Road. The direction of travel in this location is perpendicular to the site. As there are no pedestrian footpaths either side of the road, views are typically glimpsed through breaks in the roadside vegetation. The existing character of the landscape from this location is of a rural landscape, with significant mature roadside vegetation, with the open pasture seen beyond the road reserve. The train line is visible and is parallel to the horizon. The horizon, which can be seen beyond the roadside vegetation, appears as a strongly vegetated band on the edge of the open pasture.

Visibility of Proposed Works

From this location, the existing mound can be glimpsed through both the roadside vegetation, and the vegetation on the horizon. The ultimate landform, open grassland and planting will not be obtrusive within the context of the landscape in this location.



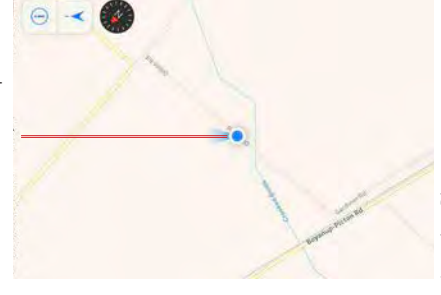
Marker to the Site

Location 5 127 Dillon Road



(Appendix ORD: 12.2.3B)

— Direction of development site



Location Plan

29

Views from this location fall at a distance of 1.6km from the site. The existing character is of open pastoral land, with existing buffer vegetation located along fence/boundary lines. The topography of the land within this view is flat, with existing trees being the prominent vertical element. The dominant features within this view is the flat open pasture, with the rural style fencing, which is visually permeable in the foreground of the view. Residential dwellings, and associated rural outbuildings are visible through the boundary vegetation.

Visibility of Proposed Works

The foothills of the Darling Range and existing works are just perceptible from this location. The expected height and location the proposed works will not be readily viewed within the landscape. From this location, the existing mounds can be glimpsed through the mature vegetation located along fence and boundary lines. This vegetation provides screening towards the subject site from the public realm.



Marker to the Site

Location 6 Intersection of Twomey Road and Crooked Brook Road (Shire of Dardanup Ref: View Point C)



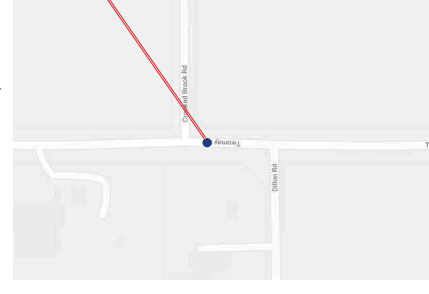
(Appendix ORD: 12.2.3B)

Views from this location are at a distance of approximately 1.1km from the site. The dominant features within this viewscape are the powerline poles and the street sign, which provide dominant vertical elements that contrast to the flat, open topography of the pastures in this view. The character of this view is of pastoral land, with a number of man-made elements that punctuate the horizon. The bitumenised road, central to the image is a strong linear feature. The rural style fencing, which is visually permeable adds to the rural character of this area. In the middle ground, to the right of the field of a view, are several buildings, a single dwelling and associated rural sheds and other buildings.

Visibility of Proposed Works

From this location, the existing mounds can be seen between the gaps in the existing vegetation. The works could be perceived as a pasture or field located on higher ground. The topography of the skyline will change when viewed from this location. the ultimate level of 149 being higher than present. The proposed planting to the cell sides will mature over the development period and form a new skyline.

— Direction of development site



Location Plan

Marker to the Site

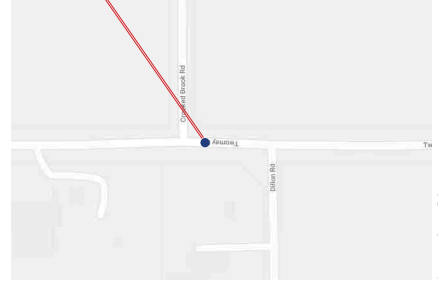
Location 6 Intersection of Twomey Road and Crooked Brook Road (**Shire of Dardanup Ref: View Point C**) - Illustration of completed works



Illustration of Landform and Planting (2045)

(Appendix ORD: 12.2.3B)

— Direction of development site



Location Plan



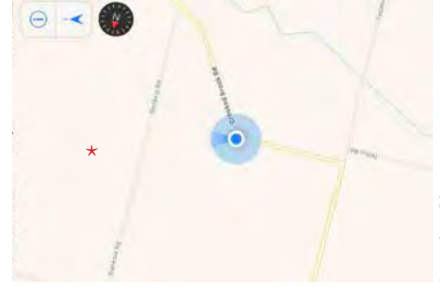
Marker to the Site

Location 7 361 Crooked Brook Road



(Appendix ORD: 12.2.3B)

* Location of development site



Location Plan

Views from this location are at a distance of approximately 590m from the site. The existing character is of a rural landscape, dominated with open pasture, cattle, and rural style fencing, which is visually permeable within the foreground of the image. The densely vegetated horizon consists of remnant vegetation within the pasture areas, but also includes vegetation located within the Dardanup Conservation Park. This vegetation and the natural topography of the land effectively screens the subject site from view from the public realm in this location.

Visibility of Proposed Work

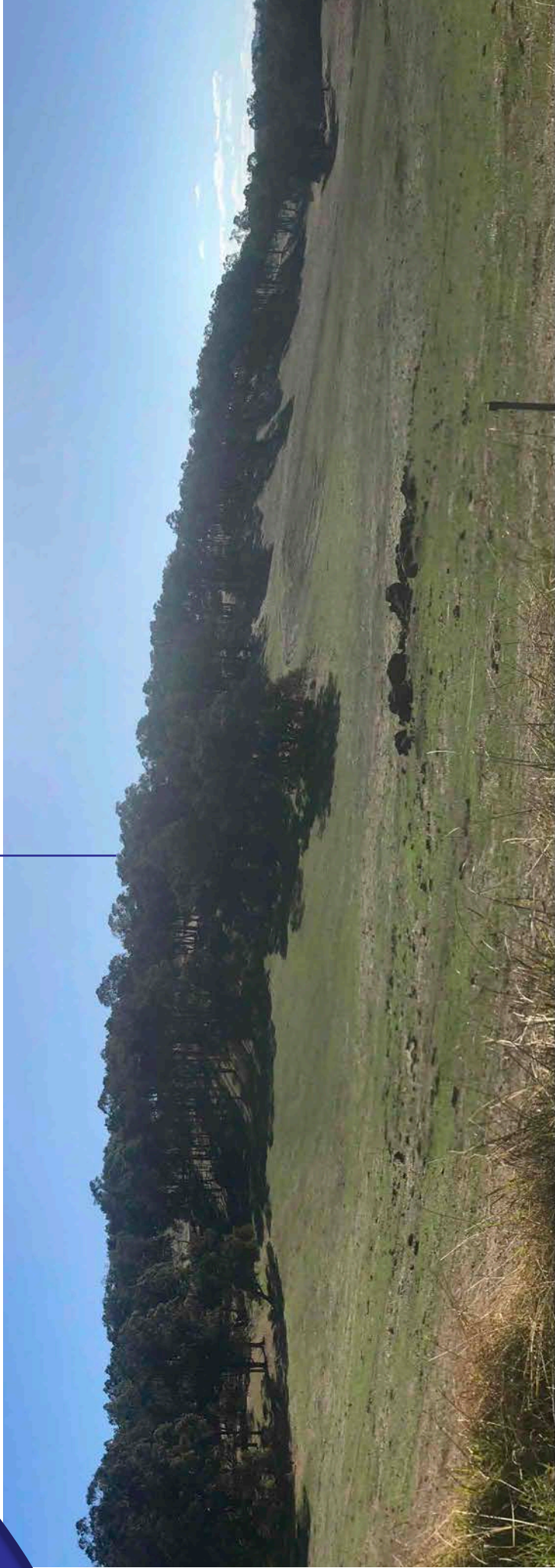
There are no views of the subject site as it stands from this location. The proposed long term fill to 149 AHD and associated planting will be likely to raise the skyline but still present a character that is rural.



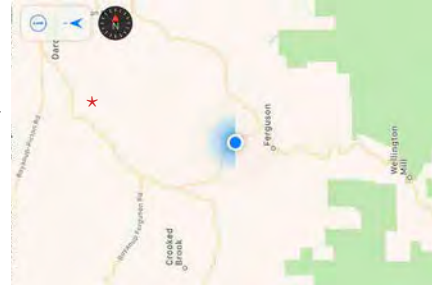


Marker to the Site

Location 8 102 Ironstone Road



* Location of development site



Location Plan

33

Views from this location are at a distance of approximately 3.6km from the site. The existing character of this landscape is of rolling hills with open grazing areas, punctuated with areas of remnant vegetation. The vegetation in this particular view concentrated along the ridge line, effectively screens views of the site. In the foreground of the view is a visually permeable rural style fence, along with roadside grasses that have been left to grow, with the lack of grazing farm animals access.

Visibility of Proposed Works

The subject site as it currently is cannot be seen from the public realm in this location, due to the screening of the natural ridgeline and the vegetation. The proposed landform of the landfill will not be observable from this location.

Location 9 Entrance to Cleanaway Waste Disposal Facility on Banksia Road

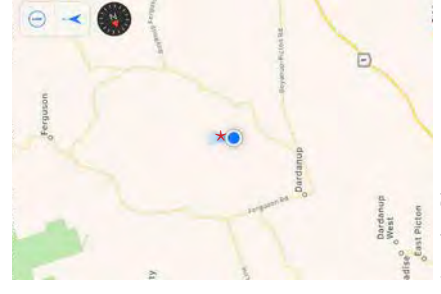


The view from this location is taken from the transition of the bitumen to gravel on Banksia Road, located directly adjacent to the subject site. The character of the landscape in this location is of an industrial site. The prominent features within this landscape include the mature trees located along the development site's western boundary, the chain link mesh fence, and the mounds of spoil located behind the mature vegetation. The sign to the left of this field of view notates this as a waste disposal site.

Visibility of Proposed Works

The current works are visible from this location, due to the close proximity of the viewer. As this is the current character of the landscape, the potential addition of further mounds of spoil and rehabilitation planting are unlikely to alter the overall character nor perception of the landscape, and therefore not detract from the amenity, when viewed from this location. Additional maturing planting proposed as part of the works is likely to improve the visual amenity in this location.

* Location of development site



Location Plan

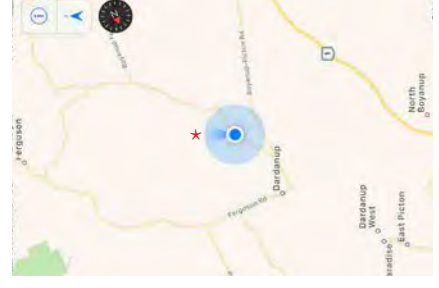


Location 10 125 Crooked Brook Road



(Appendix ORD: 12.2.3B)

* Location of development site



Location Plan

Views from this location are at a distance of approximately 1.3km. The character of the landscape when viewed from this location is of rural landscape, with the dominant features being the mature road side vegetation, clear pastures beyond the rural style, post and wire fence and the horizon. Other elements that add to the rural characteristic within this view include the horses, and the yellow and green tones of the landscape. The open grassland and trees being the primary elements.

Visibility of Proposed Works

The development site, and the current works underway are visible from this particular location on Crooked Brook Road. The scale of the current works on site can be seen below the skyline formed by the adjacent Dardanup Conservation Park. the proposals will attain a similar height with new woodland planted to the slopes. in this view the ultimate proposed works will therefore be consistent with the locations landscape character.



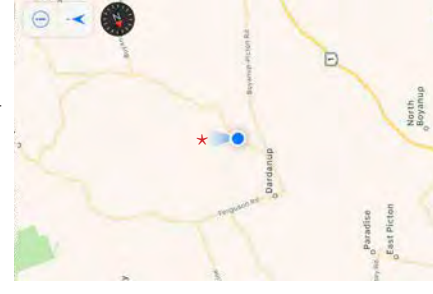
Marker to the Site

Location 11 125 Crooked Brook Road



(Appendix ORD: 12.2.3B)

* Location of development site



Location Plan

The view from this location is approximately 1.5km from the subject site. The break in the road side vegetation provides a clear view towards the subject site. The character of the landscape from this location would be considered rural. The dominant features include the open pasture/field in the middle ground, viewable through the break in the roadside vegetation, the tall grasses along the roads edge and the vegetation along the ridgeline and the horizon. The gate and the rural style fencing consisting of post a wire, add to the rural character of the landscape.

Visibility of Proposed Works

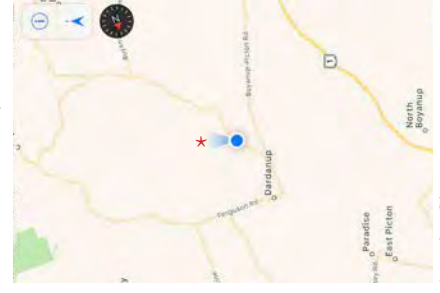
The current works and the development site are visible from this location. The break in roadside vegetation affords a clear view towards the subject site. However, the site, and it's inherent colour are not dissimilar to the colour palette of the surrounding landscape. The proposed ultimate landform will extend the higher skyline to the right, the sides of the new landform will be vegetated with an area of grassland being visible. The resulting views will not be a significant change to this locations character. Additionally, Crooked Brook Road has no formal pedestrian footpaths, which would mean that the majority of views of the subject site would be from a vehicle, and would be at right angles to the line of travel.

Location 11 125 Crooked Brook Road - Illustration of completed works



Illustration of Landform and Planting (2045)

* Location of development site



Location Plan



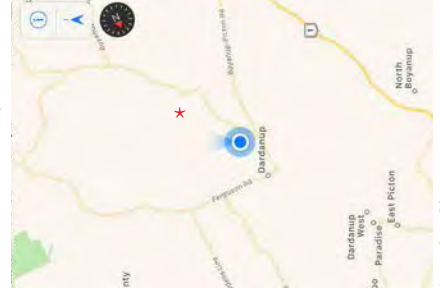
Marker to the Site

Location 12 62 Panizza Road



(Appendix ORD: 12.2.3B)

* Location of development site



Location Plan

38

The location from which this view has been taken is approximately 2.2km from the development site. The character of the landscape is of a rural environment. The dominant features within this view are the mature road side vegetation, in particular the trees, the rural style fencing, consisting of post and wire and the blue sky. The open fields or pastures are viewable between the trees and are a strong horizontal element within the view. The horizon is heavily vegetated as well, with breaks between this vegetation providing distant views of the current mounds of spoil on the subject site.

Visibility of Proposed Works

The subject site, and current works in the form of the mounds of dirt are viewable from this location between breaks in both roadside and boundary vegetation. The mounds of earth do not break the horizon, and are only viewable where there are breaks in the vegetation, or the height of the mature trees does not screen the subject site from the view of those within the public realm. This glimpsed view will reveal the proposal as a slightly higher skyline where it can be observed. the proposed woodland planting and grass areas will be “in character” elements within the landscape.

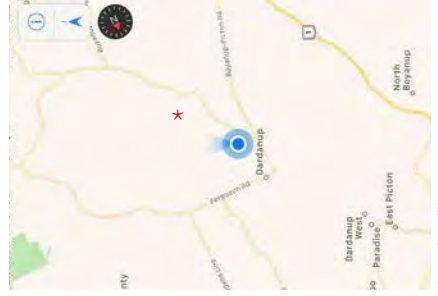
Marker to the Site

Location 12 62 Panizza Road - Illustration of completed works



Illustration of Landform and Planting (2045)

* Location of development site

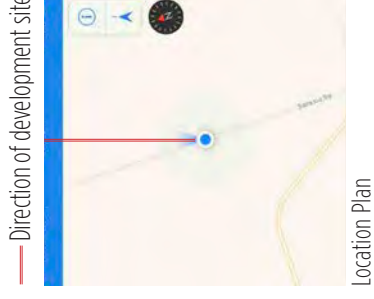


Location Plan



Marker to the Site

Location 13 Banksia Road



The location from which this image has been taken is located approximately 320m from the subject site. The character of the landscape in this view is of rural bushland, in particular the retained vegetation that makes up the Dardanup Conservation Park and the gravel road. The level of vegetation in this location effectively screens the subject site from view, including the current works on site. Given the current heights of spoil mounds and tops of cells on site, it is fair and reasonable to assume that the proposed works will not be viewable from this location either.

Visibility of Proposed Works

The subject site and the existing mounds of spoil are not viewable from this location. The height of the mounds that exist on site currently, will screen views of the proposed works from the public realm in this location. The mass of vegetation forming a screen will be further reinforced by the proposed planting as detailed in the Banksia Road Landfill Rehabilitation and Closure Plan, Landscaping Plan. See Appendix II.



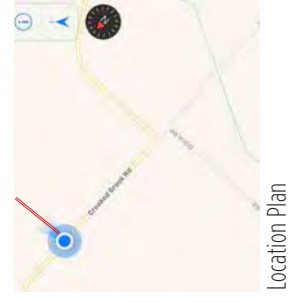
Marker to the Site

Location 14 245 Crooked Brook Road



(Appendix ORD: 12.2.3B)

— Direction of development site



The location from which this view has been taken is located approximately 1km from the subject site. The character of the landscape is of a rural, agricultural landscape. The open, flat field/pasture is the dominant feature within this landscape. Other prominent features include the tall grasses in the foreground of the view, located within the road reserve, the posts of the rural style fencing, and the vegetated horizon. The electricity pole is a strong, dominant feature within this view, particularly as it breaks the densely vegetated horizon.

Visibility of Proposed Works

The development site, and associated works in the form of mounds of spoil and top of batters associated with existing cells is viewable from this location. This is discernible through the vegetation along the horizon. This appears as an area of cleared land, in similar colours to that of the pasture in the foreground. From this location the ultimate landform will be seen as an undulation in the skyline, creating a low broad hill. The proposed planting of side batters and grassland rehabilitation will be elements within this strongly horizontal panorama.

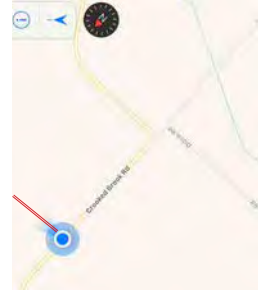
Marker to the Site

Location 14 245 Crooked Brook Road - Illustration of completed works



Illustration of Landform and Planting (2045)

— Direction of development site



Location Plan



Marker to the Site

Location 15 127 Dillon Road



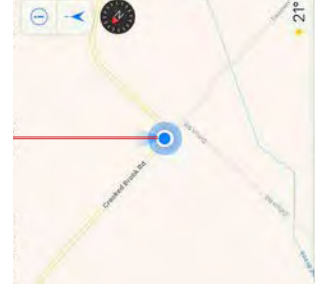
(Appendix ORD: 12.2.3B)

The location from which this view was taken is approximately 1km from the development site. The character of the landscape is of a rural, manmade, agricultural landscape. The open, flat field/pasture is the dominant feature within this landscape. Other prominent features include the tall grasses in the foreground of the view, located within the road reserve, the posts of the rural style fencing, and the vegetated horizon. The electricity pole is a strong feature within this view, particularly as it breaks the horizon. The buildings located in the middle ground to the right of the field of view stand out against the vegetated horizon.

Visibility of Proposed Works

The development site, and associated works in the form of mounds of spoil and top of batters associated with existing cells is viewable from this location. This is discernible through the vegetation along the horizon. This appears as a small area of cleared land, in similar colours to that of the pasture in the foreground. From this location the ultimate landform will be seen as an undulation in the skyline, creating a low broad hill. The proposed planting of side batters and grassland rehabilitation will be elements within this strongly horizontal panorama. The new plantings in the foreground are native eucalypts. As time passes, these will grow and will likely screen the development site completely from view when in this location.

— Direction of development site



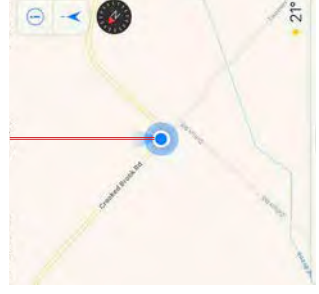


Location 15 127 Dillon Road - Illustration of Completed Works
 Marker to the Site



Approved top of fill 128m plus 2m capping. Please refer to Figure 4b for topography plan

— Direction of development site





Marker to the Site

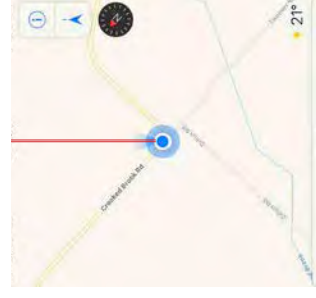
Location 15 127 Dillon Road - Illustration of Completed Works



Illustration of Landform and Planting (2045)

(Appendix ORD: 12.2.3B)

— Direction of development site

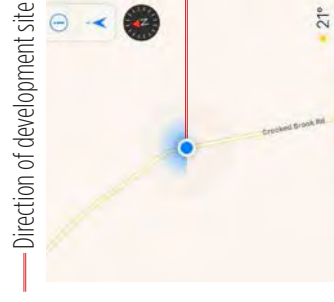




Location 16 125 Crooked Brook Road



(Appendix ORD: 12.2.3B)



The location from which this image was taken is approximately 1.03km from the subject site. The character of the landscape from this location is of a rural landscape. In particular, the dominant features being the roadside mature vegetation consisting of eucalypt trees, the open flat pasture or field located behind the roadside vegetation, the fence line mature vegetation to the left of this field of view and the heavily treed horizon. The open land is bordered on three sides by mature vegetation, providing an enclosed feeling and aesthetic within this viewscape. This view is at a right angle to the line of travel, and as such, would be a glimpsed view from a vehicle. There are no formal footpaths in this location.

Visibility of Proposed Works

The current works on the development site are visible from this location. Currently, the site is viewable through breaks in mature vegetation which acts as a screen in many locations throughout the district area surrounding the site. At the level that the site is observable, it does sit within the context of the landscape due to its colour, and that it does not visibly break the horizon line. the proposed landform height will ultimately form a broad, slight hill. the proposed rehabilitation works integrating the works within this landscape character area.



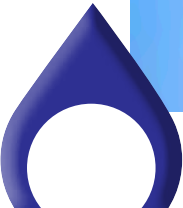
Marker to the Site

Location 16 125 Crooked Brook Road - Illustration of completed works



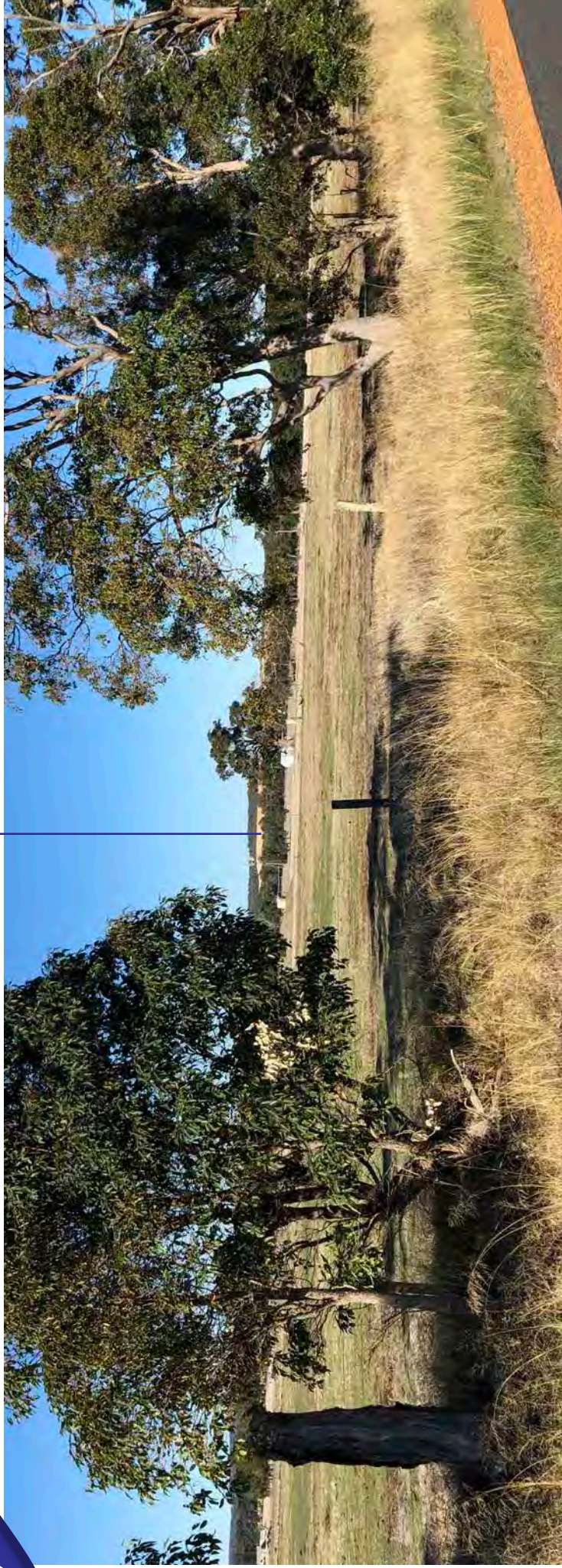
Illustration of Landform and Planting (2045)





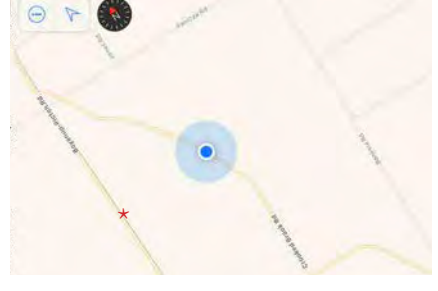
Marker to the Site

Location 17 125 Crooked Brook Road



(Appendix ORD: 12.2.3B)

* Location of development site



Location Plan

The distance from the subject site, from which this image was taken is approximately 1.2km. The character of the landscape is that of a rural land. The dominant features within this view are the mature trees on either side of the road, the long grass within the roadside in the foreground and the open field/pasture in the middle ground. There are several buildings within this view that remind the viewer that it is a manmade agrarian landscape. The horizon is heavily vegetated, with few manmade elements punctuating the horizon. Another element within this view that reinforces the rural character of the landscape is the rural style fencing in the foreground, delineating the public from private realm.

Visibility of Proposed Works

The current works on the development site are visible and perceivable from this location through breaks in the vegetation, both along the horizon, but also in the roadside vegetation. From this location the ultimate landform will be seen as an undulation in the skyline, creating a low broad hill. The proposed planting of side batters and grassland rehabilitation will be elements within this strongly horizontal panorama.



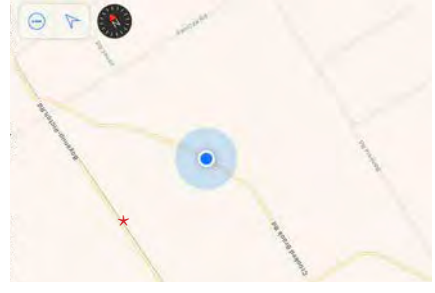
Marker to the Site

Location 17 125 Crooked Brook Road - Illustration of completed works



Illustration of Landform and Planting (2045)

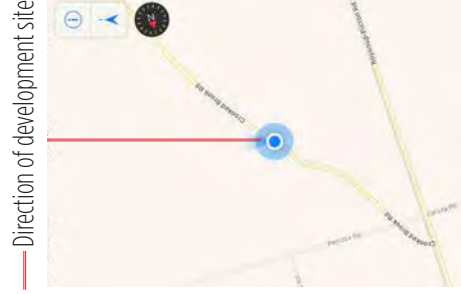
* Location of development site



Location Plan

Marker to the Site

Location 18 245 Crooked Brook Road



Location Plan

This location is located approximately 1.8km from the development site. The character of this landscape is of a rural landscape, punctuated with man-made elements, reminding the viewer that it is a cultivated landscape. The dominant features within this landscape are the blue sky and the open flat pastures/fields in the foreground of the image. Other features include the mature trees both in roadside vegetation but also along the ridgeline. There are several buildings within the viewscape that contrast with the surrounding landscape due to their colour. The rural style fence delineates the boundary between the public and private realm.

Visibility of Proposed Works

The development site is visible from this location on Crooked Brook Road. There are no formal pedestrian footpaths within this road carriageway and as such, it can be inferred that the majority of views are likely to be from vehicles. This view would be seen glimpsed obliquely to the line of travel. The site is observable through breaks in the vegetation along the ridgeline and on the western boundary of the development site. From this location the ultimate landform will be seen as an undulation in the skyline, creating a low broad hill. The proposed planting of side batters and grassland rehabilitation will be elements within this strongly horizontal panorama.



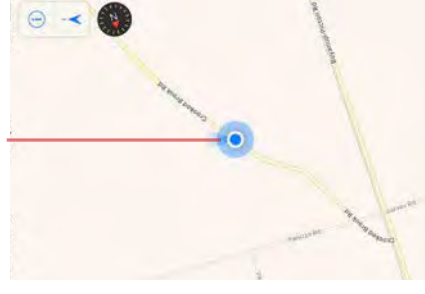
Marker to the Site

Location 19 32 Crooked Brook Road (Shire of Dardanup Ref: View Point B)



(Appendix ORD: 12.2.3B)

— Direction of development site



This image has been taken at a distance of approximately 2km from the development site. The character of the landscape is of a rural, manmade landscape. Dominant features within this viewscape are the open pastures/fields, dense vegetation along the horizon and to the right of the viewer. Other features, that add to the character landscape being that of a manmade landscape include the several buildings that are observable within this viewscape, and the rural style fence in the foreground.

Visibility of Proposed Works

The development site is visible from this location on Crooked Brook Road. There are no formal pedestrian footpaths within this road carriageway and as such, it can be inferred that the majority of views are likely to be from vehicles. This view would be seen glimpsed obliquely to the line of travel. The site is observable through breaks in the vegetation along the ridgeline and on the western boundary of the development site. From this location the ultimate landform will be seen as an undulation in the skyline, creating a low broad hill. The proposed planting of side batters and grassland rehabilitation will be elements within this strongly horizontal panorama.



Marker to the Site

Location 19 32 Crooked Brook Road (Shire of Dardanup Ref: **View Point B**) - Illustration of Completed Works

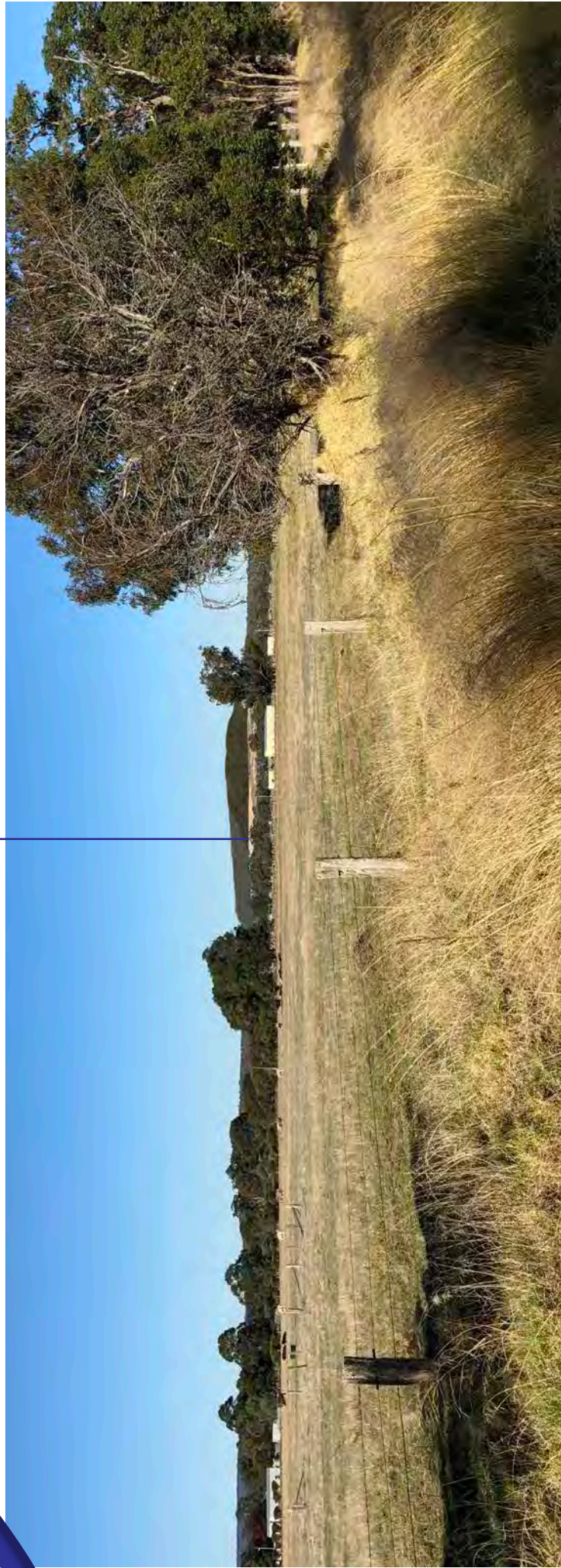
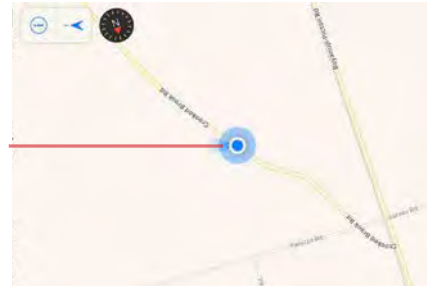


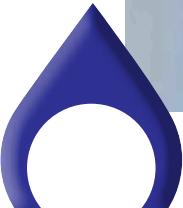
Illustration of Landform and Planting (2045)

(Appendix ORD: 12.2.3B)

— Direction of development site



Location Plan

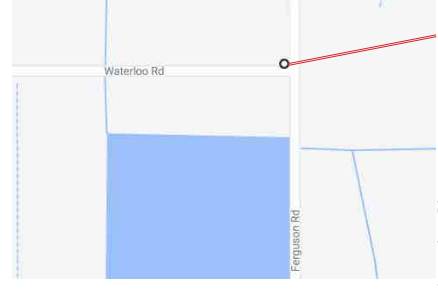


Marker to the Site

Location 20 Intersection of Waterloo Road and Ferguson Road (**Shire of Dardanup Ref: View Point A**)



— Direction of development site



Location Plan

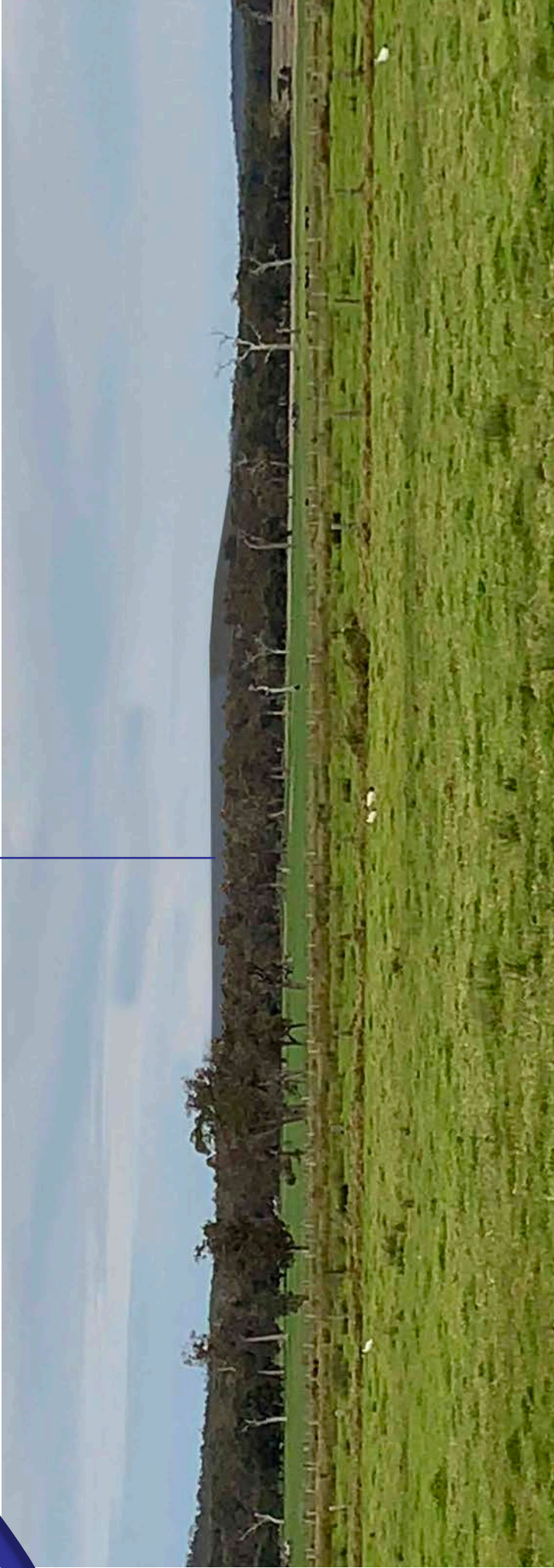
This image has been taken at a distance of approximately 3.5km from the development site. The character of the landscape is of a rural, manmade landscape. Dominant features within this viewscape are the open pastures/fields and dense vegetation along the horizon. The existing landfill site is just visible above the tree canopy in the distance.

Visibility of Proposed Works

The development site is visible from this location. There are no formal pedestrian footpaths within this road carriageway and as such, it can be inferred that the majority of views are likely to be from vehicles. This view would be seen glimpsed obliquely to the line of travel across open land. From this location the ultimate landform will be seen as a pronounced undulation in the skyline, creating a low broad hill. The proposed planting of side batters and grassland rehabilitation will be elements within this strongly horizontal panorama.

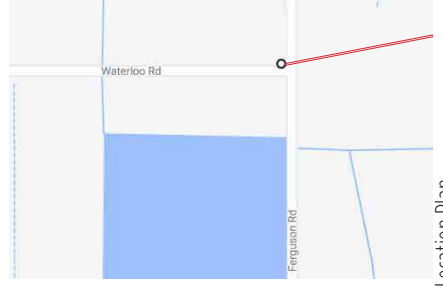
Marker to the Site

Location 20 Intersection of Waterloo Road and Ferguson Road (Shire of Dardanup Ref: View Point A) - Illustration of Completed Works



Approved top of fill 128m plus 2m capping. Please refer to Figure 4b for topography plan

— Direction of development site



Location Plan



Marker to the Site



Location 20 Intersection of Waterloo Road and Ferguson Road (**Shire of Dardanup Ref: View Point A**) - Illustration of Completed Works

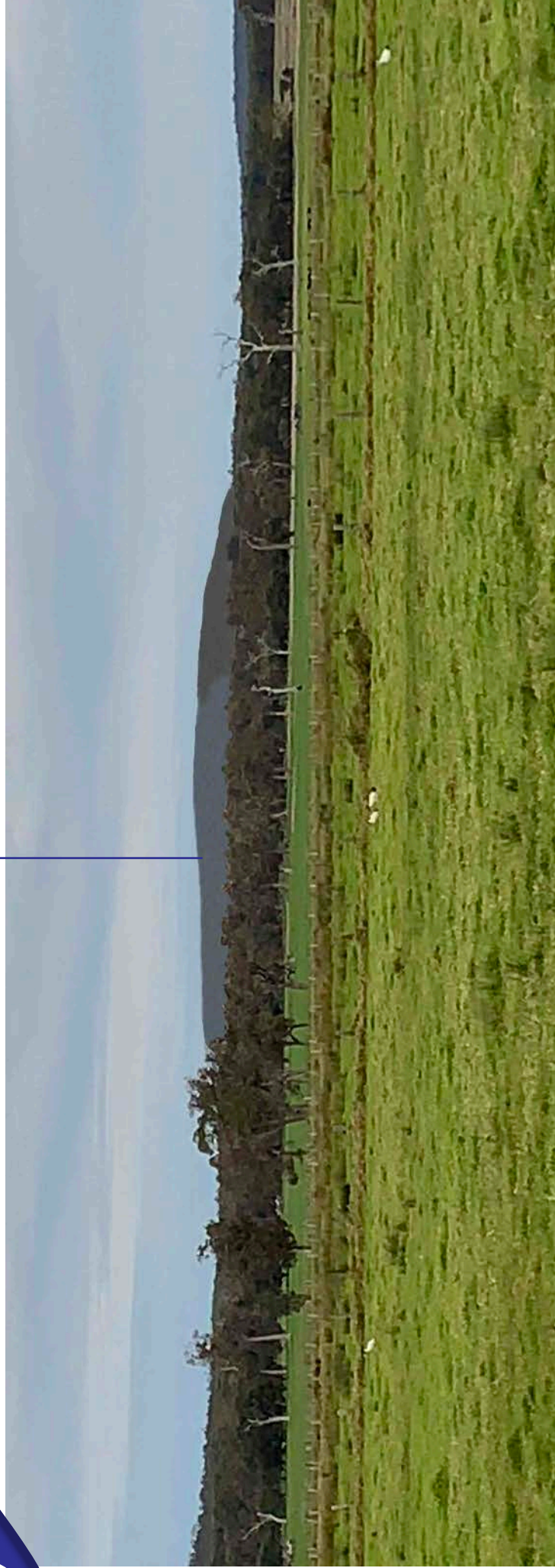
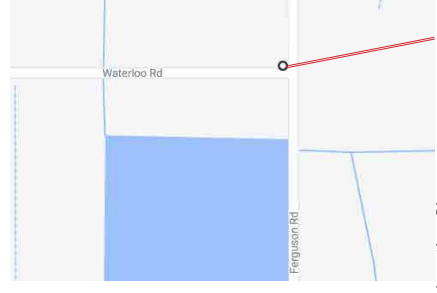


Illustration of Landform and Planting (2045)

(Appendix ORD: 12.2.3B)

— Direction of development site

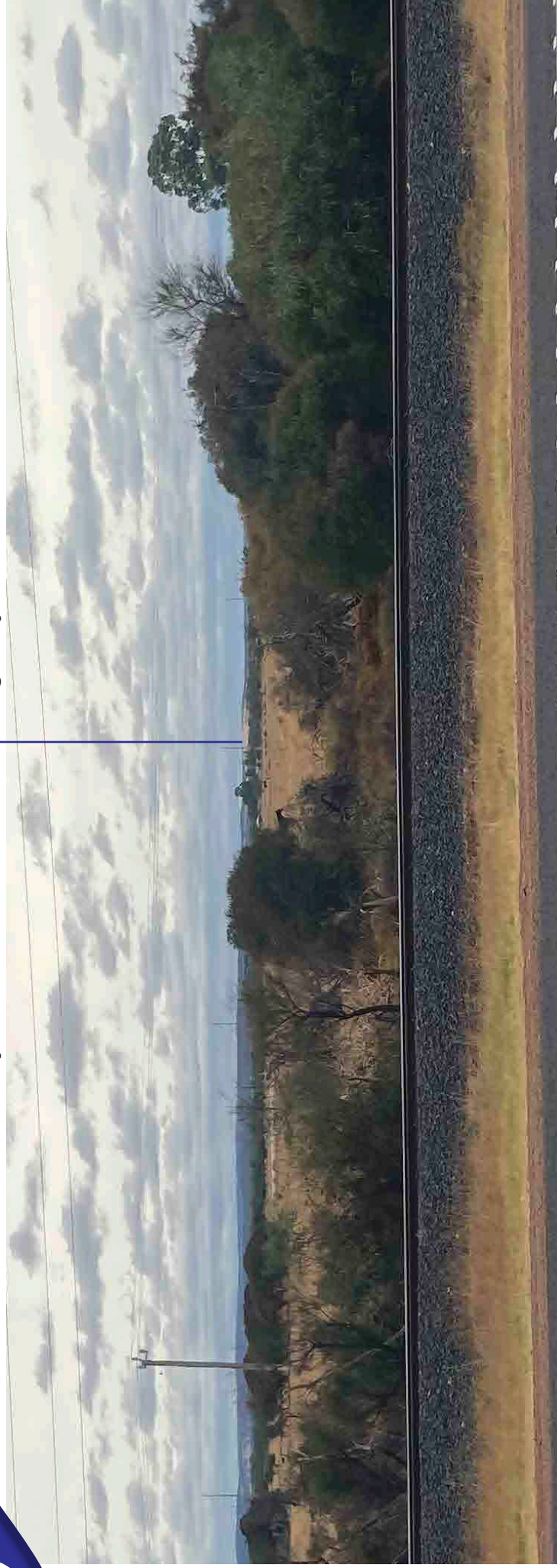


Location Plan



Marker to the Site

Location 21 Intersection of Hynes Road and South West Highway

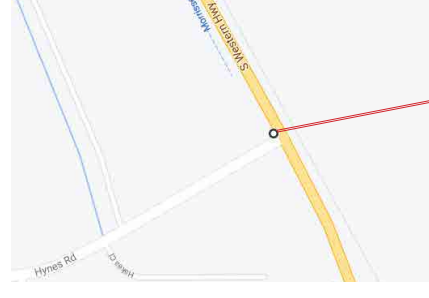


This image has been taken at a distance of approximately 11km from the development site. The character of the landscape is of a rural, manmade landscape. Dominant features within this viewscape are the open pastures/fields, dense vegetation along the horizon and a trian line in the immediate foreground.

Visibility of Proposed Works

The development site is visible from this location. There are no formal pedestrian footpaths within this road carriageway and as such, it can be inferred that the majority of views are likely to be from vehicles. This view would be seen glimpsed obliquely to the line of travel. The site is observable through breaks in the vegetation. From this location the ultimate landform will be seen as an undulation in the skyline, creating a low broad hill. The proposed planting of side batters and grassland rehabilitation will be elements within this strongly horizontal panorama.

— Direction of development site



Location Plan



Marker to the Site

Location 22 Marlston Hill Lookout (Shire of Dardanup Ref: View Point D)

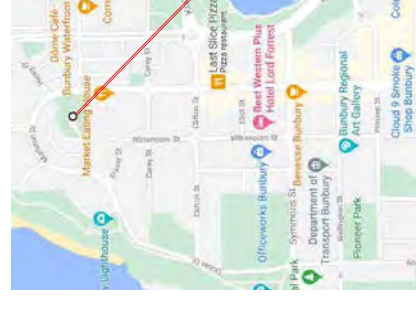


This elevated location is located approximately 19km from the development site. The character of this landscape is of an urban panorama. The dominant features within this landscape are distant views, open blue skies with multistorey residential and commercial buildings of high density within the foreground. The horizon presents a strong horizontal, elevated ridgeline stretching the length of the view which is occasionally punctuated by taller foreground buildings.

Visibility of Proposed Works

Static views of the development site in the distant landscape are achieved from this location. The proposed works will be visible but will appear as a small distant feature in the context of this view. The proposed ultimate height of the works will not penetrate the existing horizon with any visual changes sitting beneath the existing perceived ridgeline. The proposed planting of side batters and grassland rehabilitation will be elements within this strongly horizontal panorama. The visibility of the proposed works will be significantly affected by changing weather conditions. High humidity and reduced light levels will make the proposed works harder to discern at distance. Proposed vegetation within the works will be similar plant species to the surrounding landscape, matching any seasonal colour changes in the broader landscape. Therefore the proposed works will have a negligible visual impact on the character of this scene.

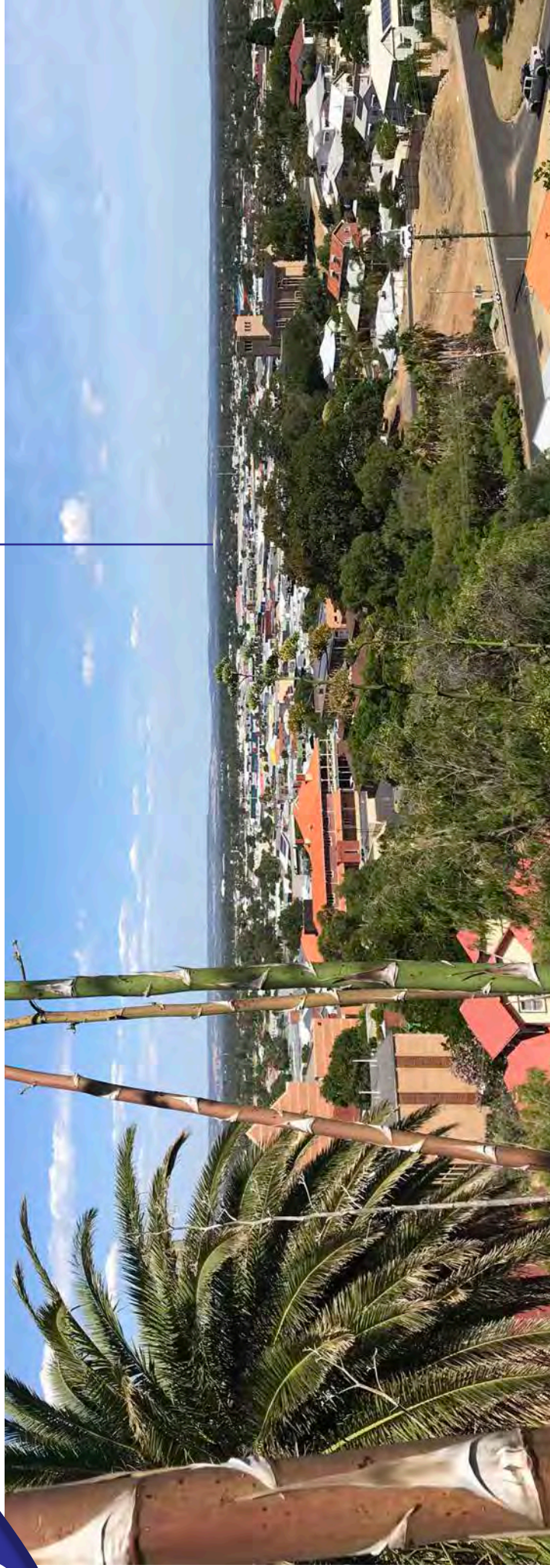
— Direction of development site





Marker to the Site

Location 23 Boulter's Heights Lookout

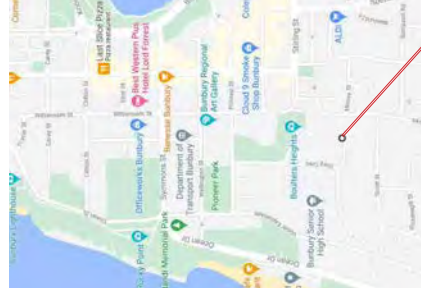


This elevated location is located approximately 19km from the development site. The character of this landscape is of an urban panorama. The dominant features within this landscape are distant views, open blue skies with multistorey residential and commercial buildings of high density within the foreground. The horizon presents a strong horizontal, elevated ridgeline stretching the length of the view which is occasionally punctuated by taller foreground buildings.

Visibility of Proposed Works

Static views of the development site in the distant landscape are achieved from this location. The proposed works will be visible but will appear as a small distant feature in the context of this view. The proposed ultimate height of the works will not penetrate the existing horizon with any visual changes sitting beneath the existing perceived ridgeline. The proposed planting of side batters and grassland rehabilitation will be elements within this strongly horizontal panorama. The visibility of the proposed works will be significantly affected by changing weather conditions. High humidity and reduced light levels will make the proposed works harder to discern at distance. Proposed vegetation within the works will be similar plant species to the surrounding landscape, matching any seasonal colour changes in the broader landscape. Therefore the proposed works will have a negligible visual impact on the character of this scene.

— Direction of development site





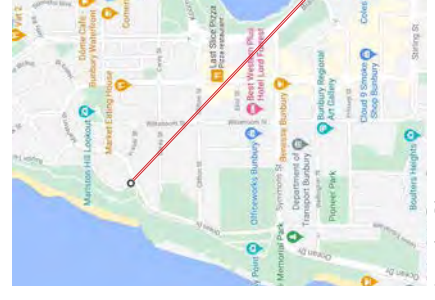
Marker to the Site

Location 24 Bunbury Lighthouse



(Appendix ORD: 12.2.3B)

— Direction of development site



Location Plan

This elevated location is located approximately 19km from the development site. The character of this landscape is of an urban panorama. The dominant features within this landscape are distant views, open blue skies with multistorey residential and commercial buildings of high density within the foreground. The horizon presents a strong horizontal, elevated ridgeline stretching the length of the view which is occasionally punctuated by taller foreground buildings.

Visibility of Proposed Works

Static views of the development site in the distant landscape are achieved from this location. The proposed works will be visible but will appear as a small distant feature in the context of this view. The proposed ultimate height of the works will not penetrate the existing horizon with any visual changes sitting beneath the existing perceived ridgeline. The proposed planting of side batters and grassland rehabilitation will be elements within this strongly horizontal panorama. The visibility of the proposed works will be significantly affected by changing weather conditions. High humidity and reduced light levels will make the proposed works harder to discern at distance. Proposed vegetation within the works will be similar plant species to the surrounding landscape, matching any seasonal colour changes in the broader landscape. Therefore the proposed works will have a negligible visual impact on the character of this scene.

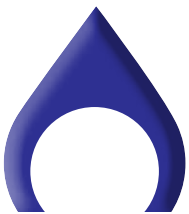
4. Defining the Zone of Visual Influence (ZVI)

The following data imagery illustrates view-sheds constructed from the topography surrounding the proposed works. These images do not take into account other features such as vegetation or built forms including housing, fence-lines etc. that may obstruct view lines.

The use of computer generated zones of visual influence enabled consideration of key areas to be selected for site assessment.

The ZVI provides a guide to assessment and does not define where there are impacts.

On the basis that the ZVI extended to the coast, distant views will be possible. For example views from Bunbury Marston Hill and lookout will be achieved. These however are at a distance of over 19 kilometers and the proposals form a very discrete element within a broad panorama. At such a distance the works may be discernable dependent on weather and light conditions. The proposed landscape treatments however will integrate the ultimate finished landfill within the extensive scene.



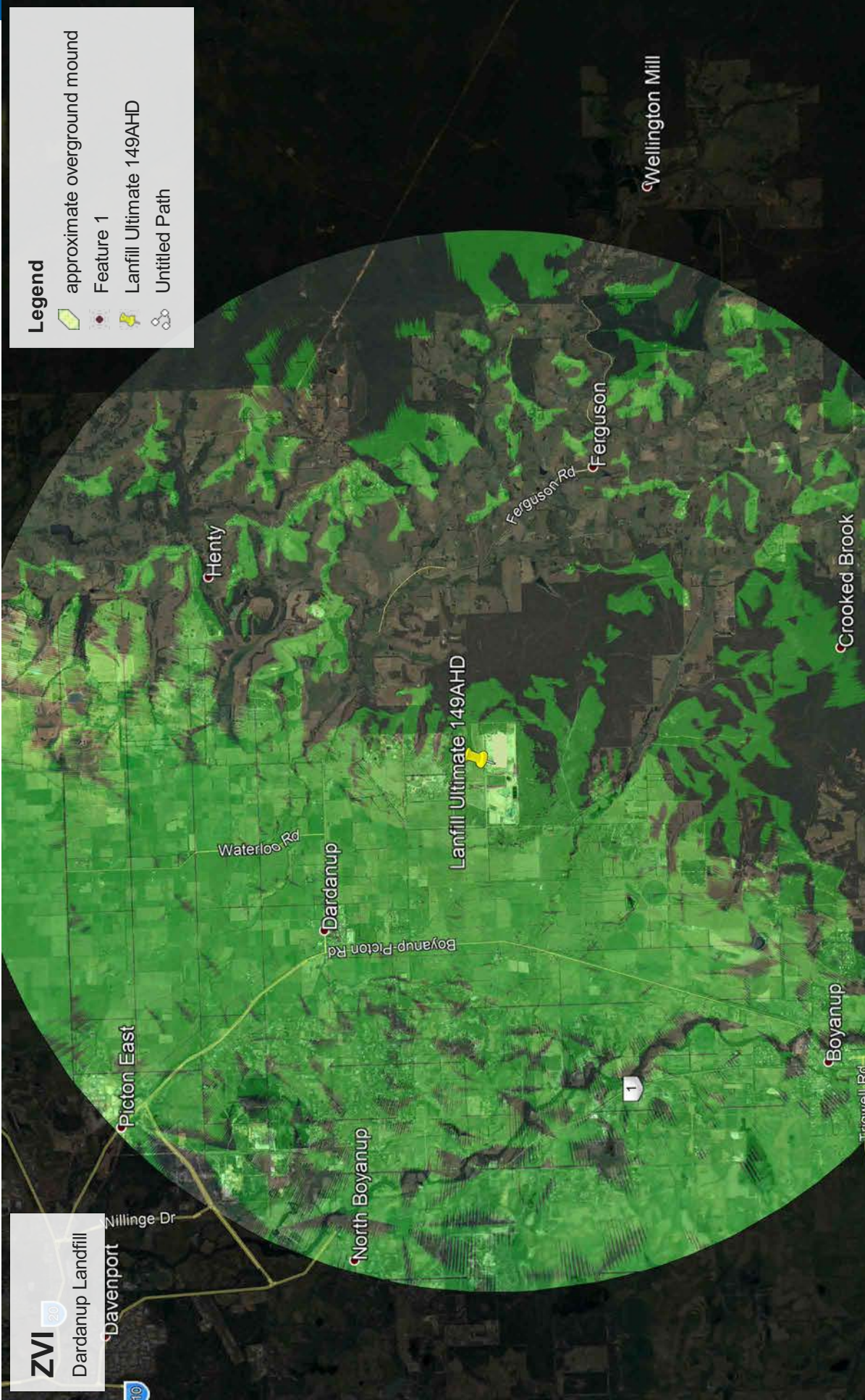
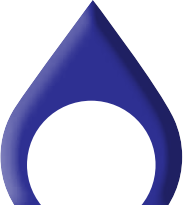


Figure 7: Areas from which the Proposed Works may be Viewable

Key:
Existing land surface is potentially seen



5. Conclusions

Generally views to the site from the greater surrounding landscape are only achievable from a distance within 4km to the north, northwest, west and south-west. Although views are available at a greater distance, for example from high ground in Bunbury 19 kilometers away, visual impacts will not be significant.

Topographically, from locations to the north, northwest and west (as evidenced through the ZVI modelling utilised within this report) views of the site are theoretically possible. However, when factoring in the vegetation present at each of these locations these views become largely obscured, at times entirely.

Typically views from the public realm to the site from the north provide glimpsed views, through existing, mature vegetation located predominantly within roadside verges, and along boundary or fence lines within private lots. From these locations, the development site will be seen. The colours and current landforms allow it to sit within the context of the broader landscape.

There are comprehensive rehabilitation and planting schemes which will be managed and implemented in unison with the staged works. The new landscaping will continue to grow and establish as the works reach ultimate completion. The primary visual impact prior to established planting is likely to be ongoing works including vehicular movements.

Typically any views of the site from the south are from Crooked Brook Road. This vehicle corridor has no pedestrian infrastructure. It is traversed in vehicles. Pull over opportunities are irregular and informal in nature. Located to the south of the site is the Dardanup Conservation Park. This large parkland is full of remnant, mature vegetation, providing

significant screening of the development site from the south. As such, views along this road (southern portion), and others including Ironstone Road, south of the site are extremely limited.

Views from the public realm within the Dardanup township are limited, due to the distance, but also due to the areas of vegetation between the township and the subject site. Most notably is the screening vegetation located on the west and north-west of the subject site. This vegetation provides a buffer between Dardanup and the subject site. Views are obtainable from the new development Roseland, located to the south of Dardanup. These views are obtained through breaks in vegetation and across flat pasture lands. From these locations, the distance means that an observer would have to have knowledge of the location or it would appear as another open field or pasture at a higher elevation. The site's colour and siting within the landscape, mean it sits within the context of the landscape when view from the north-west.

Views from the west towards the site are typically viewed from Boyup-Picton Road. A bitumenised, road with no formal pedestrian footpaths either side, the development site is perpendicular to the line of travel. This means views are predominantly from within vehicles, moving at a speed of up to 110km/h, and are glimpsed through the extensive road side vegetation located along this road corridor. Vegetation along this corridor ranges in height but is typically between 8 and 12m tall. As with other locations in the district landscape, due to the siting of the development site, if a viewer was unaware of what they were viewing, it would appear as if it was an open field or pasture. In addition, the site's colour at this distance allows it to sit within the context of the landscape.

Views from Ferguson Valley, and from the east, as shown in the Zone of Visual Influence are limited. This is due to the topography and the mature



vegetation that makes up the Dardanup Conservation Park.

In summary:

1. Existing works at the subject site are discrete. The surrounding vegetation and landforms combine to restrict views.

These works do not currently adversely impact the broader landscape character.

2. The incremental implementation of the proposal includes the staged delivery of rehabilitation landscape works. As filling progresses, the planting will mature. As the scale and height of the new landform increases the landscape planting will ameliorate effects.

In the long term, the proposed top of cell height, 149 AHD (excluding capping) will form a slightly higher skyline from some views to the approved 128 AHD (excluding capping). This will be observed as an integral part of the rural landscape.

In the long term, the works will be revegetated with woodland plants, and will not be discernible from the wider landscape. The grassland rehabilitation will form an open paddock similar in character to many areas of the contextual rural landscape.

3. The majority of viewing opportunities are from public roads. The roads have speed limits of 50km/h to 110km/h. The proposal is located generally obliquely to the direction of travel.

There are no formal footpaths within the local road network, nor formal pull over areas or parking along the immediate road network.

Dardanup town itself has both formal parking and formal footpaths, which provide for limited views towards the subject site.



4. The Town of Dardanup is the nearest community. It has distant views from the public realm and it can be inferred that there may be distant views from some private residences.

At a distance, it is hard to discern the existing works from the broader landscape. As such, it is likely, that the proposed works will also be difficult to discern from the broader landscape when complete as the resultant landform and vegetation will be in character with the area.

5. Current works, visually, have a minimal visual impact on the interface with the adjacent conservation park.

Proposed works will not change this minimal visual impact, and long term plans to rehabilitate the subject site, will further decrease any visual impacts.

The incremental staged creation of elevated topography, will be combined with the staged planting of vegetation and establishment of grass areas. The long time frame to completion in 2045 suggests that changes in the views will not be rapid but a progression. As such it is not considered that the proposals will represent an obtrusive element in views during the works. They will be observed when sought out within a wider panorama when seen.

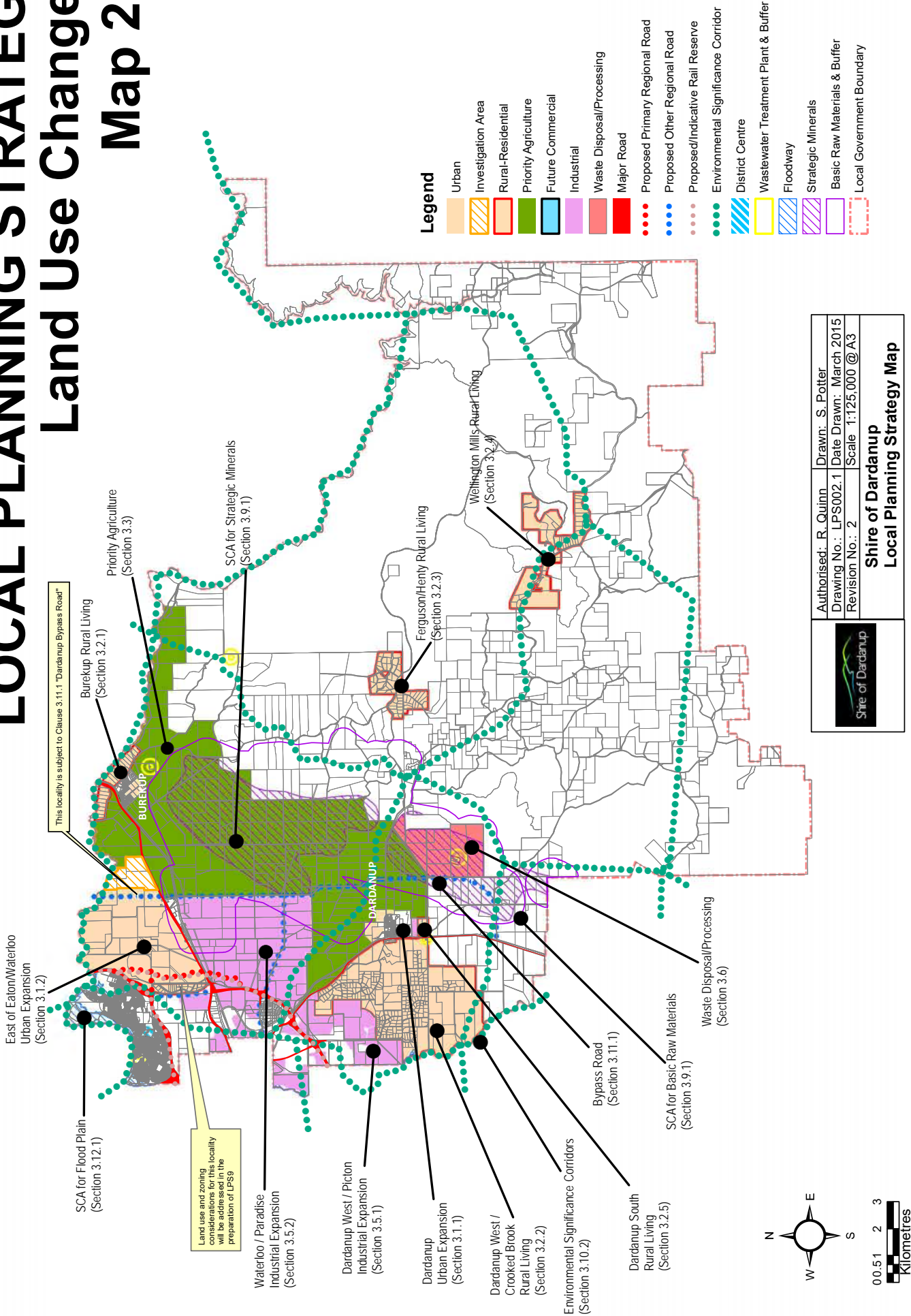
APPENDIX I
LOCAL PLANNING STRATEGY



LOCAL PLANNING STRATEGY

Land Use Changes

Map 2.1



APPENDIX II
EXTRACT FROM BANKSIA ROAD LANDFILL
REHABILITATION AND CLOSURE PLAN - LANDSCAPING
PLAN





tonkin
tonkin.com.au

PERLIMINARY

CLEANAWAY SOLID WASTE
AERIAL BUDGET MODEL CONCEPT
DARDANUP LANDFILL, WA
CONCEPT ZONE LAYOUT

JOB NUMBER: 201515
SHEET NUMBER: P101
REVISION: C
4/02/2015 2:36:30 PM

Scale: 1: 2500
SURVEYED BY: [Name]
SURVEY DATE: 08.06.2010
COORDINATES & DATUM: GDA94 TO GDA2011
COORDINATE SYSTEM: AUSTRALIAN NATIONAL GRID
DATUM: GDA94

Sheet Size: A1

NO.	DATE	BY	CHKD.	REVISION
C	05.07.21	JJ	JJ	AMENDED AS PER CLIENT COMMENT
B	19.01.21	JJ	JJ	CONCEPT FOR COMMENT
A	29.09.20	JJ	JJ	CONCEPT FOR COMMENT

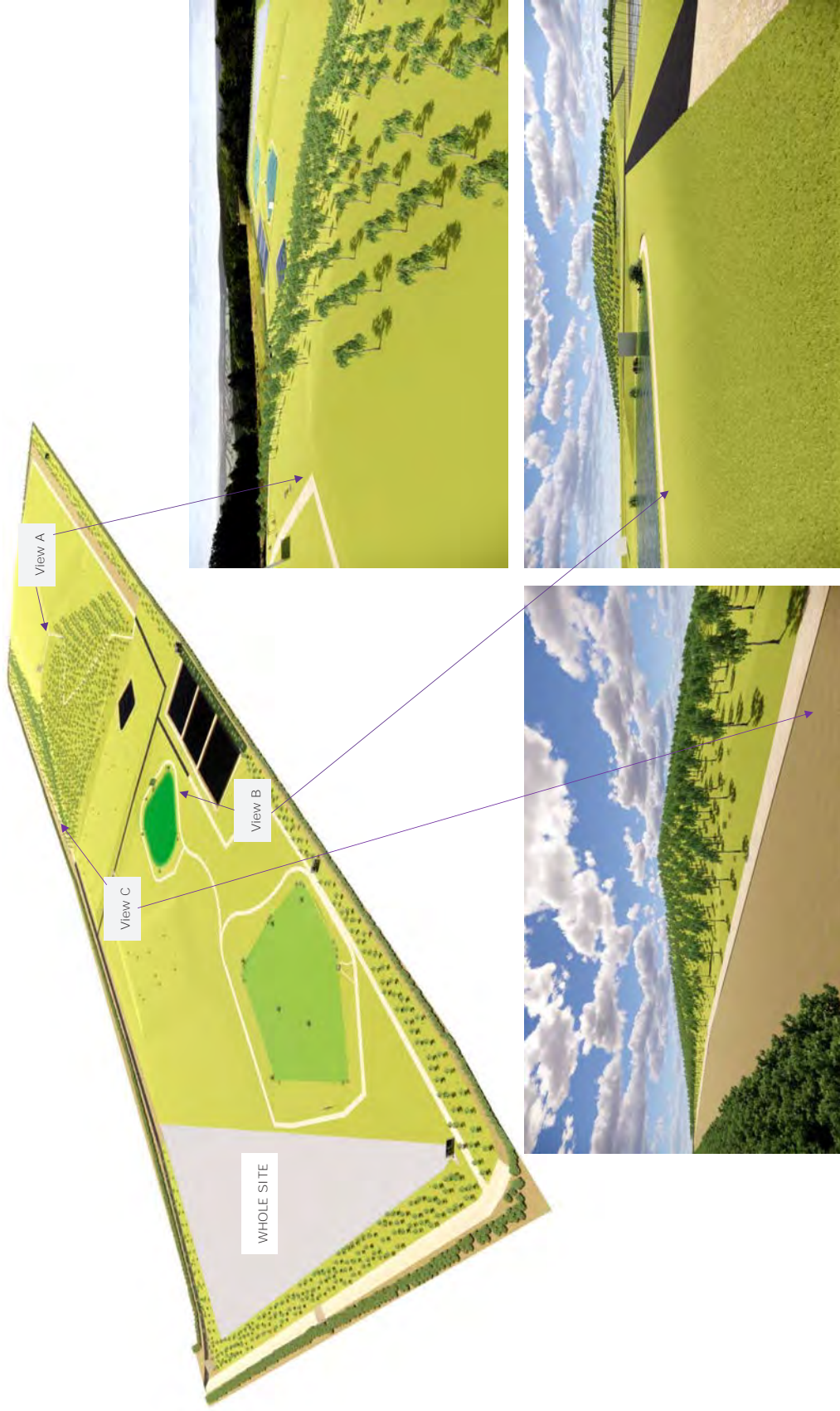


Figure 2 | Isometric and Vantage Point: Photos of Final Landscape



Native Trees and Shrubs		Native grasses and forbs	
Species	Common Name	Species	Common Name
<i>Eucalyptus calophylla</i>	Marri – Red Gum	<i>Austrodanthonia</i> spp	Wallaby Grass
<i>Eucalyptus decipiens</i>	Redheart molt	<i>Austrostipa compressa</i>	Compact needlegrass
<i>Eucalyptus drummondii</i>	Drummond's gum	<i>Austrostipa semibarbata</i>	Bearded spear-grass
<i>Eucalyptus haematoxylon</i>	Mountain Marri	<i>Ficinia nodosa</i>	Club rush
<i>Eucalyptus marginata</i>	Jarra	<i>Lomandra sericea</i>	Silky mat rush
<i>Eucalyptus megacarpa</i>	Bullich	<i>Mesomelaena tetragona</i>	Semaphore sedge
<i>Eucalyptus patens</i>	Blackbutt	<i>Microalaena stipoides</i> var <i>stipoides</i>	Weeping grass
<i>Acacia lasiocarpa</i> var <i>lasiocarpa</i>	Wattle	<i>Paterosonia occidentalis</i>	Purple flag
<i>Acacia pulchella</i> var <i>glaberrima</i>	Prickly Moses	<i>Themeda triandra</i>	Kangaroo grass
<i>Acacia saligna</i>	Golden Wreath Wattle		
<i>Allocasuarina fraseriana</i>	Sheoak		
<i>Banksia grandis</i>	Bull Banksia		
<i>Banksia littoralis</i>	Swamp Banksia		
<i>Hakea cyclocarpa</i>	Ramshorn		
<i>Hakea ruscifolia</i>	Candle Hakea		
<i>Hakea undulata</i>	Way leaf Hakea		
<i>Hibbertia hypericoides</i>	Yellow buttercups		
<i>Hibbertia subvaginata</i>	-		
<i>Kunzea glabrescens</i>	Spearwood		
<i>Kunzea micrantha</i>	-		
<i>Leucopogon glabellus</i>	-		
<i>Melaleuca preissiana</i>	Stout Paperback		
<i>Melaleuca viminea</i>	Mohan		
<i>Persoonia longifolia</i>	Long-leaf Persoonia		
<i>Pityrodia bartlingii</i>	Woolly Dragon		
<i>Podocarpus drouynianus</i>	Wild Plum		
<i>Pultenaea reticulata</i>	Bush Pea		

(Appendix ORD: 12.2.3B)

Chief Executive Office
Shire of Dardanup
PO Box 7016
Eaton, WA 6232

Dear Chief Executive Officer:

We received the invitation letter from Shire of Dardanup to comment on the Draft Local Development Plan – Lot 2 Banksia Road, Crooked Brook.

I concur with the shire on the objectives of the local development plan which ensures onsite development in an orderly manner, minimises adverse development impacts and provides guidance for current and future developments.

We acquired the land next to the Cleanaway's landfill site owing to the fact that it has the potential to be developed into a waste processing site. Currently our land has Shire of Dardanup leasing part of the lot as a transfer station and Bunbury Harvey Regional Council as a composting facility. They are both waste related operations.

During our due diligence research, we find out the aquifer system is well below the ground level which makes it an ideal place for waste disposal. The underground water monitoring reports from Shire of Dardanup and Cleanaway further enhanced this point.

Environmental dumping has become an increasing problem over the past decades. This concept implies that rich Western countries often ship large amounts of their waste to poor developing countries in order to get rid of it. However, this often leads to serious issues in those waste-receiving countries. In fact, environmental dumping is not a sustainable concept at all and we should take measures in order to stop environmental dumping. One way to prevent environmental dumping is to construct additional landfills so that waste can be processed in the countries where it is produced instead of having it to ship to foreign countries.

Investing in a land within a waste precinct has a long-term prospect. Waste generation are getting more and more with the growth of population. After the landfill site is filled with waste, gas can be extracted to generate electricity which is not only environmentally friendly but also form part of sustainable circular economy. Eventually after landfill being rehabilitated these waste hills will be turned into green mountains or even attractive golf course. In the US about 70 of the nation's golf courses use old landfills, strip mines or industrial "brownfields". Players at the US' McCullough's and a growing number of other layouts have found that a course doesn't have to be trashy just because it is built on garbage.

I have been to the Cleanaway site regularly and am pleased to see how it is being managed. I took some photos every time when I visited the site. People hardly believe it is actually a landfill site when I showed them these photos. I am happy to share some with you as in the attached.

(Appendix ORD: 12.2.3B)

Some people complain it is not proper to have a landfill here and claim it is a scar on the horizon. If that is the case, I would say it is an honorable scar like the one on a soldier's body. Because of the scar people are protected from waste stockpiled in your room or at the backyard. It is caused by you and need the sacrifice for the waste you generate. Most import of all, the scar can heal and will heal beautifully.

We unreservedly support the draft development plan which was initiated out of Shire's long-term vision. A wider population will undoubtedly appreciate it.

Charles Hull
On behalf of
Directors
CPSS Pty Ltd

(Appendix ORD: 12.2.3B)



(Appendix ORD: 12.2.3B)



(Appendix ORD: 12.2.3B)





Your ref: CMP-R0937790
Our ref: 46943 2019/000800
Enquiries: Tracy Teede
Phone: 9725 4300
Email: swlanduseplanning@dbca.wa.gov.au

Chief Executive Officer
Shire of Dardanup
PO Box 7016
EATON WA 6232

Attention: Gareth Webber

DRAFT LOCAL DEVELOPMENT PLAN – LOT 2 BANKSIA ROAD CROOKED BROOK

I refer to your letter dated 20 April 2021 seeking the Department of Biodiversity, Conservation and Attractions' (DBCA) Parks and Wildlife Service's preliminary comments on the above application.

Parks and Wildlife Service's South West Region provides the following preliminary comments.

Advice to Shire

Biodiversity values

The Dardanup Conservation Park adjoins the Lot 2 eastern and southern boundaries. The Dardanup Conservation Park is managed by DBCA to maintain and restore the natural environment and to protect native flora and fauna.

The native vegetation within the eastern portion of Lot 2 consists of poorly reserved Whicher Scarp Vegetation complexes which are known to support priority flora species and threatened fauna.

The Lot 2 native vegetation provides habitat for threatened black cockatoos. Black cockatoos are listed as threatened species under Western Australia's *Biodiversity Conservation Act 2016* (BC Act) and the Commonwealth of Australia's Environmental Protection Biodiversity Conservation Act 1999 (EPBC Act).

General comments

The Lot 2 eastern native vegetation is contiguous with, and provides a buffer to, the Dardanup Conservation Park in addition to having significant conservation values itself.

The draft Local Development Plan (LDP) depicts Cells 8 to 20 along the eastern portion of Lot 2 for "proposed uses subject to approval", some of which overlap the existing Lot 2 eastern native vegetation, in excellent condition. Development of these cells will result in the clearing of native vegetation.

DBCA's preference would be that the existing native vegetation within the eastern portion of Lot 2 be retained to protect the poorly reserved native vegetation and black cockatoo habitat, while also providing a buffer to the adjoining Dardanup Conservation Park.

Prior to any approval that will lead to clearing of excellent quality eastern vegetation on Lot 2, DBCA considers the application should be referred to the Department of Water and

(Appendix ORD: 12.2.3B)

Environment Regulation for assessment for clearing permit and industry regulation requirements. DBCA also considers that the application should be referred to the Federal Department of Agriculture, Water and the Environment for assessment of potential impacts to threatened species under the EPBC Act.

The Lot 2 Banksia Road landfill site is subject to an agreement with DBCA for adequate drainage management along the southern boundary. This agreement formed part of an earlier Shire of Dardanup development application.

DBCA may provide more detailed comments separately, subject to any additional DBCA internal feedback that may yet be obtained.

Thank you for the opportunity to comment on this application. Please contact Tracy Teede at the Parks and Wildlife Service South West Region office on 9725 4300 or by email to swlanduseplanning@dbca.wa.gov.au if you have any queries regarding this advice.

Yours sincerely



Bob Hagan
Regional Manager

10 May 2021

(Appendix ORD: 12.2.3B)

From: [Heather Elliott](#)
To: [Submissions Planning](#); [Councillors](#); [André Schönfeldt](#)
Cc: [DEAG Inc](#)
Subject: Lot 2 Banksia Rd Development Plan
Date: Friday, 7 May 2021 8:05:05 AM
Attachments: [Dardanup development Plan Lot 2.docx](#)
[Notes from EPA Planning Guidance for Lot 2 DA.docx](#)

Please find attached DEAG's submission for the Lot 2 Banksia Rd Development Plan

I have appended an additional document (Notes from EPA Planning Guidance for Lot 2 Dardanup) which includes extracts regarding relevant planning requirements and EPA Guidance for Local Government which need to be considered in this Development Plan.

*ENVIRONMENTAL GUIDANCE FOR PLANNING AND DEVELOPMENT MAY 2008
GUIDANCE STATEMENT NO 33*

Thank you

Heather Elliott



Thank you for the opportunity to make a submission on the Draft Local Development Plan. Whilst we acknowledge the effort that officers have taken to develop this document, we believe there are omissions which need to be added or amended.

We object strongly that Cleanaway's 'Master Plan' has been considered in the drafting of this Development Plan. Cleanaway's expansion ambitions are strongly opposed by the Dardanup community and the Masterplan has not yet been endorsed by Council or made available for public comment. We believe all reference to it should be deleted from this Plan as it could be seen as tacit approval.

In addition to the three stated objectives for this Local Development Plan it is critical that Council consider responsibilities they have in complying with Planning guidance for Local Government from the EPA and other regulatory bodies and the application of 'best practice'. This needs to be recognised and added to the objectives.

We wish to draw your attention to the *ENVIRONMENTAL GUIDANCE FOR PLANNING AND DEVELOPMENT MAY 2008 GUIDANCE STATEMENT NO 33*. This Guidance document identifies a number of areas which Local Council must incorporate in planning requirements and should be applied to any future Amendments and Development Applications for this site.

We have attached some relevant extracts from the document to accompany this Submission. Some aspects have been cited in this document to support our reasoning.

VISUAL AMENITY AND THE ENVIRONMENTAL PROTECTION ACT (D3.1)

'Visual amenity, as a key component of aesthetics, is thus a potentially relevant factor in environmental impact assessment as carried out by the EPA in Western Australia'. EPA

1. Any additional development on Lot 2 should require a visual impact assessment based on a recognised methodology (generally, one acceptable to the Department for Planning and Infrastructure or DEC in the case of development and land use that concerns those agencies).
2. Consideration of the visual impact of any development should consider, not only local residents, but also the vista from the road network and Plains and further afield and the impact on tourism. This is an area of outstanding natural beauty.
3. The checklist for Local Government consideration, as required by the EPA Guidance includes:
 - a. *'Propose management measures and modifications to the original project as appropriate, and demonstrate that any concerns raised by the community and stakeholders have been adequately considered'*
 - b. *Retain natural landforms and bushland vegetation in visually prominent places, as well as in other parts of a site, in order to maintain local landscape character.*



- c. *Avoid locating development where it would be visually obtrusive.*
 - d. *Construction materials and colours that reflect local character and are harmonious with the surroundings.*
 - e. *Rehabilitate disturbed natural areas.*
 - f. *Carry out landscaping works, to meet completion criteria*
4. An appropriate height limit which is significantly less than present should apply to all structures, including the capped, final contour of any more cells and meet guideline components for aesthetics. This should be based on science and well below the adjacent landform profile.

FENCING

The Council's recommendation for fencing is supported, however, it should be required to the standard stated on all boundaries of Lot 2 to minimise the impact on fauna from the Landfill from vectors and litter.

BOUNDARY SETBACKS

Council's recommendation of a vegetated buffer of 20 metres is inadequate and out of line with best practice.

AREAS OF HIGH CONSERVATION SIGNIFICANCE 1.2.1

The EPA is unlikely to recommend the approval of projects that have significant adverse impacts on these natural areas.

i) State and regional conservation areas, Nature reserves, national parks, conservation parks, regional parks, marine parks, marine • nature reserves and marine management areas in accordance with Conservation and Land Management Act 1984 and Land Administration Act 1997

In general, there is a presumption against recommending approval for proposals that are likely to have significant adverse impacts on 'Critical Assets'

1. No development should be considered without a referral to the EPA for an Environmental Assessment.

The EPA encourages initiatives to achieve the maximum retention of native vegetation, restoration of the quality of bushland. Buffer areas around natural areas of high environmental values.

NT Guidelines requires 250 metres buffer for area of significant environmental or conservation value identified under relevant legislation. Victoria requires 100 m.

The absence of setbacks for earlier development applications for this site has led to significant planning and environmental problems. This EPA Guidance was introduced in 2008, after Cleanaway received their Licence. They need to comply with current Legislation and address the lack of vegetated setbacks. We support the use of mature native trees with understorey planting.

2. A minimum setback should be 100metres. This is in line with acknowledged best practice in Australia and acknowledges the Conservation Park status as a Critical Asset.



Council conditions in the Local Development Plan should be drawn from this EPA Guidance for Local Government, to protect flora and fauna

3. **Conditions on development may include:**

- *maintaining vegetated buffers*
- *stormwater management to maintain the pre-development water regime in conservation areas/ fencing*
- *weed and predator control*
- *erecting clear signage*
- *providing information to contractors*
- *dieback and disease prevention measures*
- *prohibiting disposal of earth or any other debris in the bushland*
- *requiring only clean weed-free fill to be used adjacent to bushland*
- *installing a physical barrier to control grass invasion*
- *positioning water reticulation systems away from bushland*
- *rehabilitating bushland in the event that it is disturbed during construction.*
- *where there is a risk from pathogens, such as dieback, implement dieback prevention*
- *measures in accordance with Department of Environment and Conservation (DEC) protocols.*
- *Environmental management plans'(EPA Guidance Statement No 33pg89)*

POLLUTION MANAGEMENT

The EPA's hierarchy for the management of emissions from industry and infrastructure is, in order of preference:

- avoid emissions and wastes
- minimise emissions and waste by implementing best practice (EPA 2003b)
- contain emissions within the individual industry site boundary
- contain emissions within a buffer area

'To protect the environment and the health, welfare and amenity of people and their activities, air pollutants from individual land uses should:

- *be as low as reasonably practicable at the point of discharge*
- *comply with best practice measures as outlined in EPA (2003b)*
- *meet agreed environmental objectives and recognised criteria for each pollutant*
- ***keep contributions to cumulative impacts within acceptable levels.'***

1. Management for emissions must also meet EPA's hierarchy. The buffer zone will be adjacent to a high value Conservation park, it is critical that **Cleanaway contain emissions within the individual site boundary.** Whatever strategies are implemented is immaterial, the requirement must be that this is achieved and is enforced. Zero emissions should leave the site.
2. Cumulative impacts are recognised by the EPA in this guidance so previous development should be considered for inclusion in any future



Development Applications and the cumulative impact assessed in approving or denying approval for additional cells.

Section C1.3 presents a comprehensive list of considerations that help to ensure that the potential impacts of emissions, including air emissions, are adequately taken into account by planning agencies and applicants during decision-making on rezonings, detailed structure plans, subdivisions and development applications.

3. *'To ensure environmental objectives are met, **enforceable planning conditions may need to be applied by the planning agency.** Consider whether conditions are required for particular stages of development, for example, construction, operation and/or decommissioning'.*

The Environmental Plans used for Cleanaway have been unsuccessful to date. They are not enforced or complied with and need to be revisited prior to any future expansion on Lot 2 to meet the above objectives.

4. Air quality, odour and dust need to be considered in any future development. Dust and particulate matter may have significant ecological impacts. Plants can be affected by accumulation of large amounts of dust on leaves, which also impacts foliate grazing fauna.

NOISE AND VIBRATION

To manage noise emissions, the preferred treatment hierarchy is to treat the source to eliminate or limit noise;

Measures identified in EPA Guidance C4.3.2 LOCAL AREA PLANNING are potentially applicable Cleanaway's site:

1. procure specific new equipment which dampens earthworking machinery and vehicle sounds eg beepers
2. adjust site layout to create separation distances between noise sources and receivers
3. manage operations or limit the use of equipment according to the time of day or weather conditions.
4. buffers/separation distances between noise sources and noise-sensitive development
5. It is important to note that vegetation, such as a vegetated buffer, is not very effective in the treatment of noise, and should not be considered a noise management option.

C4.3.6 ROAD TRANSPORT NOISE

We support the recommendations made by the Council for this aspect but would ascertain that the hours of operation need to be reduced to address the disparity to the ambient noise level. This is recognised by the EPA and should be factored in to future developments.

Previous assessments by the EPA of proposals involving road and rail noise impacts have established the following principles:

'Special consideration is needed in areas where the ambient noise level is relatively low.'

This is very relevant for Banksia Rd and Waterloo Rd, which are quiet rural areas.



(See Attachment C4 -1) Typical sounds and their loudness:

75-80dbA Trucks passing in the street

25-30dbA Rural area at night

1. Cleanaway's hours of operation are unreasonable – 6am to 9pm with Tronox loads around 2am. The impact on the amenity of the locale is untenable. Future developments' hours should be limited to 7am -7pm, six days a week.
2. Cumulative contributions of additional noise vectors need to be considered with any development proposal

LIGHT SPILL AND VIBRATION

'C5.1.2 LIGHT SPILL AND FAUNA AND FLORA

Sources of light can adversely affect a range of fauna, including insects, mammals and birds, and the growth and development of flora.' EPA

1. The proximity of the Conservation park should be considered for the impacts of light spill on fauna and flora in assessing whether projects are suitable at this location. This aspect reinforces the need for a best practice vegetated buffer and reduced hours of operation.

WASTE MANAGEMENT

The following extract highlights Local Government planners' role to ensure informed decision-making and vigilance in applying conditions

C7.3.2 LOCAL AREA PLANNING pg 245

'Identify the potential environmental impacts. Modelling of impacts may be appropriate to enable informed decision-making. The applicant may need to engage consultants with appropriate expertise to demonstrate whether environmental objectives and criteria can be met. In some instances, independent expert advice will need to be sought to confirm whether studies have been carried out adequately.

Ensure that adequate buffers to sensitive land uses are maintained. Advice on buffers is provided in EPA Guidance Statement No. 3 Separation Distances Between Industrial and Sensitive Land Uses (EPA 2005b). Ensure that adequate buffers to natural resources and conservation areas are maintained.

Apply planning conditions. These may depend on the extent to which other decision-making processes will address issues. Consider conditions that require: the preparation and implementation of a Waste Management Plan (see

Attachment A1-2 for the main components of an environmental management

plan)criteria to be met (including litter management) Monitoring of environmental

impacts, reporting of monitoring results and management Actions to be implemented if triggered by specified events or monitoring results.'

CONTAMINATION

Over the past decade there has been an increasing recognition of the problems associated with contaminated sites. The issue is of special importance in Western Australia because of our great reliance on groundwater and the threat



posed by land contamination to groundwater quality. Impacts on public health from contaminated sites can occur as a result of exposure via pollution of surface water and groundwater, uptake and subsequent bioaccumulation of pollutants by plants and animals, inhalation of vapours and ingestion and dermal contact with contaminated soil. Impacts on the environment occur as a result of direct uptake of contaminants by plants and animals and the migration of contaminants to ground or surface waters.

The Act provides for the identification, recording, management and remediation of contaminated sites in Western Australia. Major reforms contained in the Act include: requirements for owners, occupiers and people who caused contamination and contaminated sites auditors to report known or suspected contaminated sites to the DEC

The EPA recommends that the following broad principles are applied to the issue of contaminated sites: Avoid creating new contaminated sites. • Give priority to the investigation and clean-up of sites known to be a public health or environmental risk.

C6.3.2 LOCAL AREA PLANNING

Prior to decision-making on a rezoning, subdivision or planning application, the potential for site contamination should be considered.

Site investigations should be in accordance with the DEC's Contaminated Site Management Series (see E3.3). Any limitations on known information should be acknowledged and taken into account during decision-making.

1. This site has been the recipient of Wren Oil (contain PCBs), Mineral Sands Refinery Waste, Municipal Waste, Industrial Waste. PFAS have been located in bores. The Dardanup Shire should consider the potential for site contamination and have the site investigated prior to further expansion on Lot 2. If the site is identified as contaminated then the possibility of clean up for environmental and public health reasons should be prioritised. Have Cleanaway neglected to follow the requirement in the Act as the occupier and persons who caused the contamination in failing to report this suspected or known contaminated site to DEC? Is this a breach of the EP Act?

ENVIRONMENTAL IMPACT ASSESSMENT

It is not critical that this operation is located in such an inappropriate location where management of emissions has such a profound impact on a Declared Critical Asset. No development should be considered without a referral to the EPA for an Environmental Assessment. No mining ore sets the location as unavoidable. Alternative sites should be investigated.

EPA Guidance clearly states *"When assessing the environmental acceptability of a project, consider:*

- *the site location*
- *the site layout and design*
- *the conditions that will be applied relevant to the construction, operation and decommissioning phases of development.*

Where a proposed land use, development or subdivision is not likely to meet environmental objectives and criteria (having regard for the advice of advisory



agencies or experts where appropriate), refusal of the proposal by the relevant decision-making authority should be considered.”

Any additional development on this site must be conditional on an Environmental Impact Assessment.

- An environmental impact assessment should be requested for any new projects on this site for the following reasons:
 - *In general, there is a presumption against recommending approval for proposals that are likely to have significant adverse impacts on ‘Critical Assets’ (EPA Guidance Statement) No development should be considered without a referral to the EPA for an Environmental Assessment.*
 - *Prior to decision-making on a rezoning, subdivision or planning application, the potential for site contamination should be considered.*
 - *The EPA expects that any proposal that is not consistent with the Water Quality Protection Note Land Use Compatibility in Public Drinking Water Source Areas (latest version) will not be approved by a decision-making authority. Referral of the proposal to the EPA under s38 Environmental Protection Act 1986 (EP Act) should be considered if it is not likely to be refused.*
 - *‘The EPA does not normally expect a proposal to be referred on the basis of visual amenity alone. Occasionally, referral may be appropriate if the issue is of key significance for Western Australia and the issue is not to be, or cannot be, fully and publicly examined through land use planning or other legislative processes.’*

Heather Elliott

Chairperson
Dardanup Environmental Action Group
7th May 2021

(Appendix ORD: 12.2.3B)

LOT 2 BANKSIA ROAD – FUTURE DEVELOPMENT APPLICATIONS

ENVIRONMENTAL GUIDANCE FOR PLANNING AND DEVELOPMENT MAY 2008 GUIDANCE STATEMENT NO 33

This Guidance document identifies a number of areas which Local Council must incorporate in planning requirements for any future Amendments and Development Applications for this site.

SECTION A PROTECTION (A1.4.1)

Local government is required to consider all relevant environmental factors and issues, including:

- *The protection of special and representative natural areas*
- *Prevention of pollution*
- *Protect community's health, safety, amenity and cultural diversity.*

A1.4.2 LOCAL AREA PLANNING

Provides a framework of actions that help to ensure environmental issues are fully considered during decision-making on rezonings, detailed guide plans, subdivision and development applications.

- *Identify and consider all potential environmental factors and issues.*
- *Consider the existing environment and its attributes, values and significance for each environmental factor.*
- *Consider environmental objectives, priorities and criteria/targets relevant to the site and the proposed land use or development for each relevant environmental factor.*
- *Identify potential emissions and environmental impacts from the proposed new development on the surrounding environment and people.*
- *Identify whether off-site emissions may affect the proposed rezoning, subdivision or development.*
- *Evaluate whether environmental objectives can be met. Does the available information demonstrate that environmental objectives and criteria can be met?*

When assessing the environmental acceptability of a project, consider:

- *the site location*
- *the site layout and design*
- *the conditions that will be applied relevant to the construction, operation and decommissioning phases of development.*

Where a proposed land use, development or subdivision is not likely to meet environmental objectives and criteria (having regard for the advice of advisory agencies or experts where appropriate), refusal of the proposal by the relevant decision-making authority should be considered.

Attachment A1-1 provides suggested environmental information base for local government

(A) AREAS OF HIGH CONSERVATION SIGNIFICANCE 1.2.1

(Appendix ORD: 12.2.3B)

The EPA is unlikely to recommend the approval of projects that have significant adverse impacts on these natural areas.

i) State and regional conservation areas Nature reserves, national parks, conservation parks, regional parks, marine parks, marine • nature reserves and marine management areas in accordance with Conservation and Land Management Act 1984 and Land Administration Act 1997

In general, there is a presumption against recommending approval for proposals that are likely to have significant adverse impacts on 'Critical Assets'

Banksia Road is immediately adjacent to a Critical Asset. No Additional development should be considered without a referral to the EPA for an Environmental Assessment.

Environmental impact assessment is described by the EPA as an orderly and systematic process for evaluating a scheme or a proposal, including its alternatives where relevant, and its effects on the environment, including the mitigation and management of those effects.

SECTION B PROTECTION OF NATIVE FAUNA AND FLORA

B2.3.2 LOCAL AREA PLANNING GUIDELINES pg89

The EPA encourages initiatives to achieve the maximum retention of native vegetation, restoration of the quality of bushland, and the rehabilitation of land (using local provenance) in association with rezonings, subdivision and development.

Management of designated natural areas and rehabilitation areas

Consider: repair for portions of the land degraded due to erosion or other problems

- ① the stabilising and revegetation of land prone to degradation*
- ② repair or protection of areas recommended in catchment or other strategic plans*
- ③ provision of fauna habitat*
- ④ plantings around wetlands and drainage lines*
- ⑤ buffer areas around natural areas with high environmental values*
- ⑥ fencing*
- ⑦ fire management and access control*
- ⑧ predator and weed control*
- ⑨ control of rubbish and soil dumping.*

Conditions on development may include:

maintaining vegetated buffers

- ⑩ stormwater management to maintain the pre-development water regime in*
- ⑪ conservation areas/ fencing*
- ⑫ weed and predator control*

(Appendix ORD: 12.2.3B)

- Erecting clear signage
 - Providing information to contractors
 - Dieback and disease prevention measures
 - Prohibiting disposal of earth or any other debris in the bushland
 - Requiring only clean weed-free fill to be used adjacent to bushland
 - Installing a physical barrier to control grass invasion
 - Positioning water reticulation systems away from bushland
 - Rehabilitating bushland in the event that it is disturbed during construction.
 - Where there is a risk from pathogens, such as dieback, implement dieback prevention
 - Measures in accordance with Department of Environment and Conservation (DEC) protocols.
- Environmental management plans

DRINKING WATER PROTECTION (PDWSA)

The State Sustainability Strategy (Government of Western Australia 2003a) highlights the significance of drinking water protection:

EPA's objectives The EPA's objectives for public drinking water sources (PDWSA) are to ensure that: groundwater and surface water resources used for public water supply are protected in accordance with the Australian Drinking Water Guidelines (NHMRC & ARMCANZ 2001 as periodically updated) land uses which could affect the quantity and/or quality of water are appropriately managed.

B6.3.2 LOCAL AREA PLANNING

The EPA recommends that consideration is given to: the acceptability of the location of the proposed land use or development having regard to PDWSA protection the detailed design, intensity of development and management measures to be implemented

B6.4.1 TRIGGERS FOR REFERRAL OF A PROPOSAL TO THE EPA *The EPA expects that any proposal that is not consistent with the Water Quality Protection Note Land Use Compatibility in Public Drinking Water Source Areas (latest version) will not be approved by a decision-making authority. Referral of the proposal to the EPA under s38 Environmental Protection Act 1986 (EP Act) should be considered if it is not likely to be refused.*

SECTION C POLICY AND REGULATORY OVERVIEW FOR POLLUTION MANAGEMENT FACTORS

Table C.1 page 199 – Pollution Management Factors

The EPA's hierarchy for the management of emissions from industry and infrastructure is, in order of preference:

- avoid emissions and wastes
- minimise emissions and waste by implementing

(Appendix ORD: 12.2.3B)

- best practice (EPA 2003b) contain emissions within the individual industry site boundary
- contain emissions within the industrial estate
- contain emissions within a buffer area
- demonstrate that there is no unacceptable impact on nearby sensitive land uses and the environment.

SITE SPECIFIC BUFFER PG 204

Minimise emissions and meet acceptable standards To protect the environment and the health, welfare and amenity of people and their activities, air pollutants from individual land uses should:

- *be as low as reasonably practicable at the point of discharge*
 - *comply with best practice measures as outlined in EPA (2003b)*
 - *meet agreed environmental objectives and recognised criteria for each pollutant*
- **keep contributions to cumulative impacts within acceptable levels.**

C2.3.2 LOCAL AREA PLANNING pg 208 Section C1.3 presents a comprehensive list of considerations that help to ensure that the potential impacts of emissions, including air emissions, are adequately taken into account by planning agencies and applicants during decision-making on rezonings, detailed structure plans, subdivisions and development applications.

The considerations are applicable to proposed developments and land uses associated with air pollutants, and to new sensitive land uses near potential sources of air pollution.

*To ensure environmental objectives are met, **enforceable planning conditions may need to be applied by the planning agency.** Consider whether conditions are required for particular stages of development, for example, construction, operation and/or decommissioning.*

C2.3.3 AIR QUALITY STUDIES Air quality studies can assist planning decision-makers to establish whether planning proposals can meet air quality objectives and criteria. Studies may include both monitoring and modelling components.

C2.3.4 ODOUR

Advice on separation distances between sensitive land uses and land uses with gaseous, noise, dust and/or odour emissions is provided in EPA (2005b). The EPA recommends that generic separation distances are maintained unless adequate site-specific studies have been carried out that demonstrate that a lesser distance will not cause unacceptable amenity impacts.

C2.3.5 DUST

Dust and particulate matter may also have significant ecological impacts. For example, plants such as mangroves, can be affected by the accumulation of large amounts of dust on leaves, which may result in the deterioration of plant health or death. Many dust issues are most appropriately managed through planning and local government requirements, such as subdivision and development requirements. Where activities that may create atmospheric dust and particulates are proposed, the EPA recommends that applicants and

(Appendix ORD: 12.2.3B)

decision-making authorities implement a best practice management plan to control dust.

C3.2 EPA'S BROAD PRINCIPLES FOR WATER MANAGEMENT

EPA's objectives To maintain the quantity of water (surface and ground) so that existing and potential environmental values, including ecosystem maintenance, are protected. To ensure that the quality of water emissions (surface, ground, and marine) does not adversely affect environmental values or the health, welfare and amenity of people and land uses, and meets statutory requirements and acceptable standards.

C3.3.2 LOCAL AREA PLANNING

Section A1.4.2 presents a comprehensive framework of actions and considerations to help ensure that environmental issues are adequately taken into account during decision-making on rezonings, detailed plans, subdivisions and development applications. To achieve water management objectives, the EPA particularly urges that planning decision-makers (where planning processes allow) and applicants:

*Ensure consistency with overarching and regional water, catchment and natural resource management strategies, principles, policies, guidelines and plans.
Ensure sufficient information is available for informed decision-making on the particular proposed development or land use. The information should be sufficient to demonstrate whether or not the projected water use and water discharges will be managed consistent with recognised environmental objectives and criteria.*

C3.3.3 STORMWATER MANAGEMENT

New stormwater infrastructure should be designed to ensure the impact of stormwater on receiving environment is minimal'.

C3.3.4 POINT SOURCE POLLUTION pg 219

Require the preparation and implementation of environmental management plans as appropriate, for example:

a management plan for potentially polluting materials

① waste management plan

② stormwater management plan

③ contingency plan or emergency response plan for spills

④ an overarching environmental management system prepared in accordance with AS/NZS ISO 14004

Ensure that monitoring, reporting and follow-up action as appropriate will be carried out after approvals have been issued

NOISE AND VIBRATION

Hierarchy for the management of noise and vibration Activities that generate noise and vibration should be managed in accordance with the following order of preference:

(Appendix ORD: 12.2.3B)

Avoid activities that create noise and vibration.

- Contain emissions within the individual land use site boundary.
- Manage emissions so that there are no unacceptable noise and vibration impacts on nearby land uses and the environment.

To manage noise emissions, the preferred treatment hierarchy is as follows: treat the source to eliminate or limit noise; treat the pathway between the source and the receiver (for example, build noise walls); and treat the receiver (for example, install double glazing in windows).

C4.3.2 LOCAL AREA PLANNING

Measures potentially applicable to noise-emitting premises are as follows: procure specific new equipment • retrofit existing premises (for example, enclosures, noise walls, insulation) • adjust site layout to create separation distances between noise sources and receivers • manage operations or limit the use of equipment according to the time of day or weather conditions. Measures applicable to new noise receivers may also include: buffers/separation distances between noise sources and noise-sensitive development to be secured by scheme provisions plans to show building envelopes located beyond the designated separation distance

It is important to note that vegetation, such as a vegetated buffer, is not very effective in the treatment of noise, and should not be considered a noise management option.

C4.3.6 ROAD AND RAIL TRANSPORT NOISE

Previous assessments by the EPA of proposals involving road and rail noise impacts have established the following principles:

Special consideration is needed in areas where the ambient noise level is relatively low.

This is relevant for Banksia Rd and Waterloo Rd. (See Attachment C4 -1) Typical sounds and their loudness:

75-80 Trucks passing in the street, Chainsaw nearby, Burglar alarm next door
25-30 Rural area at night, Light wind in the grass, Far distant traffic

In the case of a proposal involving an existing road or railway that is likely to cause a significant increase in noise, the proponent should assess likely noise impacts and identify potential solutions. 'As low as reasonably practicable' considerations should be based on the costs and benefits of noise reduction measures, and their acceptance within the community.

C4.3.7 VIBRATION

While vibration at high levels may indeed cause building damage, the EPA does not assess this as an environmental issue. The EPA's objective is to ensure that vibration is managed to within acceptable levels for human annoyance. The criteria are more stringent than those for building damage. Assessments are conducted on a case-by-case basis. AS 2670.2-1990 Evaluation of Human Exposure to Whole-body Vibration - Continuous and Shock-induced Vibration in Buildings (1 to 80 Hz) does, however, provide a context in which to consider environmental vibration impacts, and is taken into account by the EPA.

C5.1 LIGHT SPILL

(Appendix ORD: 12.2.3B)

C5.1.2 LIGHT SPILL AND FAUNA AND FLORA

Sources of light can adversely affect a range of fauna, including insects, mammals and birds, and the growth and development of flora.

CONTAMINATED SITES

Over the past decade there has been an increasing recognition of the problems associated with contaminated sites. The issue is of special importance in Western Australia because of our great reliance on groundwater and the threat posed by land contamination to groundwater quality. Impacts on public health from contaminated sites can occur as a result of exposure via pollution of surface water and groundwater, uptake and subsequent bioaccumulation of pollutants by plants and animals, inhalation of vapours and ingestion and dermal contact with contaminated soil. Impacts on the environment occur as a result of direct uptake of contaminants by plants and animals and the migration of contaminants to ground or surface waters.

The Act provides for the identification, recording, management and remediation of contaminated sites in Western Australia. Major reforms contained in the Act include: requirements for owners, occupiers and people who caused contamination and contaminated • sites auditors to report known or suspected contaminated sites to the DEC

The EPA recommends that the following broad principles are applied to the issue of contaminated sites: Avoid creating new contaminated sites. • Give priority to the investigation and clean-up of sites known to be a public health or environmental risk.

C6.3.2 LOCAL AREA PLANNING

Prior to decision-making on a rezoning, subdivision or planning application, the potential for site contamination should be considered.

Site investigations should be in accordance with the DEC's Contaminated Site Management Series (see E3.3). Any limitations on known information should be acknowledged and taken into account during decision-making.

WASTE MANAGEMENT

C7.3.2 LOCAL AREA PLANNING pg 245

Identify the potential environmental impacts. Modelling of impacts may be appropriate to enable informed decision-making. The applicant may need to engage consultants with appropriate expertise to demonstrate whether environmental objectives and criteria can be met. In some instances, independent expert advice will need to be sought to confirm whether studies have been carried out adequately.

Ensure that adequate buffers to sensitive land uses are maintained. Advice on buffers is provided in EPA Guidance Statement No. 3 Separation Distances Between Industrial and Sensitive Land Uses (EPA 2005b). Ensure that adequate buffers to natural resources and conservation areas are maintained.

Apply planning conditions. These may depend on the extent to which other decision-making processes will address issues. Consider conditions that require: the preparation and implementation of a Waste Management Plan (see

Attachment A1-2 for the main components of an environmental management

(Appendix ORD: 12.2.3B)

plan) criteria to be met (including litter management) *Monitoring of environmental impacts, reporting of monitoring results and management actions to be implemented if triggered by specified events or monitoring results.*

VISUAL AMENITY AND THE ENVIRONMENTAL PROTECTION ACT D3.1

Under the EP Act, the definition of environment includes the community's aesthetic surroundings to the extent that those surroundings are affected by the physical or biological environment. The definition of environmental value includes aesthetic enjoyment of the environment. Visual amenity, as a key component of aesthetics, is thus a potentially relevant factor in environmental impact assessment as carried out by the EPA in Western Australia.

EPA's objective: To ensure that visual amenity is considered and measures are adopted to reduce adverse visual impacts on the surrounding environment as low as reasonably practicable.

Key principles that the EPA takes into account when visual amenity is examined during the environmental impact assessment process include the retention of natural landscape character in areas of high conservation significance the visual harmony of new development with the natural surrounds, where the development is in proximity to areas of high conservation significance the visual harmony of new development with the surrounds, where the development may be visually dominant.

D3.3 CONSIDERING VISUAL AMENITY DURING PLANNING

Carry out studies to assist the consideration of visual amenity issues, for example, a visual impact assessment based on a recognised methodology (generally, one acceptable to the Department for Planning and Infrastructure or DEC in the case of development and land use that concerns those agencies). Where there is a potential for a development project or land use to affect valued visual landscape character, the EPA recommends the following procedures. Consult with the community, stakeholders and relevant agencies. • Propose management measures and modifications to the original project as appropriate, • and demonstrate that any concerns raised by the community and stakeholders have been adequately considered. Where approval is granted, incorporate visual management measures as appropriate. • Implement visual management measures.

Checklist of visual management strategies to protect Natural Visual Character

- *Retain natural landforms and bushland vegetation in visually prominent places, as well as in other parts of a site, in order to maintain local landscape character.*
- *Avoid locating development where it would be visually obtrusive.*
- *construction materials and colours that reflect local character and are harmonious with the surroundings.*
- *Rehabilitate disturbed natural areas.*
- *Carry out landscaping works, to meet completion criteria.*
-

(Appendix ORD: 12.2.3B)

D3.4 REFERRAL TO THE EPA The EPA does not normally expect a proposal to be referred on the basis of visual amenity alone. Occasionally, referral may be appropriate if the issue is of key significance for Western Australia and the issue is not to be, or cannot be, fully and publicly examined through land use planning or other legislative processes.

D4.1 RECREATION AND THE ENVIRONMENTAL PROTECTION ACT

In relation to land use planning projects which are likely to have impacts on the environment that adversely affect recreation activities, the EPA recommends the following procedures and actions. Identify the potential impacts on recreation and the related elements of the environment, and their significance.

(Appendix ORD: 12.2.3B)



Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**
Resource and Environmental Regulation

Your ref CMP-R0937796 - 9724-0349
Our ref A0851/202101
Enquiries Steven Batty — 9222 3104
Steven.BATTY@dmirs.wa.gov.au

Murray Connell
Manager Development Services
Shire of Dardanup
Sent by Email — Murray.connell@dardanup.wa.gov.au;
submissions@dardanup.wa.gov.au
EATON WA 6232

Dear Sir/Madam

SHIRE OF DARDANUP - DRAFT LOCAL DEVELOPMENT PLAN - LOT 2 BANKSIA ROAD CROOKED BROOK

Thank you for your letter dated 20 April 2021 inviting comment on the draft Local Development Plan for Lot 2 Banksia Road, Crooked Brook — Shire of Dardanup -

The Department of Mines, Industry Regulation and Safety (DMIRS) has determined that this proposal raises no significant issues with respect to mineral and petroleum resources, geothermal energy, and basic raw materials.

Yours sincerely

Dr Steven Batty
Senior Geologist — Land Use Planning
Minerals and Petroleum Resources Directorate

28/04/2021

(Appendix ORD: 12.2.3B)



Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**

Your ref CMP-R0937796
Our ref A0156/202101
Enquiries Hannah Wallace
9222 3235
Hannah.WALLACE@dmirs.wa.gov.au

Mr Liam Yates
Governance Officer
Shire of Dardanup
Sent by Email: submissions@dardanup.wa.gov.au
Eaton, WA, 6232

Attention: Murray Connell

Dear Mr Yates

DRAFT LOCAL DEVELOPMENT PLAN - LOT 2 BANKSIA ROAD, CROOKED BROOK

Thank you for your letter dated 20 April 2021, inviting comment on the above Draft Local Development Plan.

The Department of Mines, Industry Regulation and Safety (DMIRS) has assessed this proposal with respect to mineral and petroleum resources, geothermal energy, and basic raw materials and makes the following comment(s).

- Lot 2 Banksia Road, Crooked Brook (the Site), overlies a strategic mineral resource (titanium) referred to as Dardanup (South Ferguson).
- Two mining leases and a mineral exploration licence cover the Site. These are held by Cable Sands (W.A.) Pty Ltd. and Doral Mineral Sands Pty Ltd (Doral).
- The site also has extractive industry activity (gravel extraction) on the western end.
- Sequential land use would have been preferred in this instance once the strategic resource had been adequately extracted, however it is noted that this is a plan for the extension of the existing use of the Site.

Comments received from Doral regarding the proposal are added here:

(Appendix ORD: 12.2.3B)

'It is Doral's strong preference that no further expansions of this site occur on adjacent land that may sterilise in situ mineral resources. The Dardanup (South Ferguson) area contains a viable resource jointly held by Cable Sands and Doral Mineral Sands that may be mined in coming years. Further waste storage facility expansion may hinder either company's ability to extract this strategic resource. Doral would like to be consulted before works commence.'

DMIRS supports this proposal with the recommendation that both mining companies are consulted before works commence.

Yours sincerely

Hannah Wallace

Hannah Wallace
Senior Geologist
Minerals and Petroleum Resources Directorate
06 May 2021



Department of
**Primary Industries and
Regional Development**

Your reference: CMP-R0937820
Our reference: LUP 1075
Enquiries: Heather Percy

Chief Executive Officer
Shire of Dardanup
PO Box 7016
Eaton WA 6232
submissions@dardanup.wa.gov.au

Date: 6 May 2021

Dear Sir

Draft Local Development Plan – Lot 2 Banksia Road, Crooked Brook

Thank you for inviting the Department of Primary Industries and Regional Development (DPIRD) to comment on the Shire of Dardanup's draft Local Development Plan (plan) for land use and development on Lot 2 Banksia Road, Crooked Brook.

DPIRD supports the draft plan for the following reasons:

- The plan allows planning decisions to consider cumulative impacts of different developments on the site, on adjacent landholdings and the locality.
- The plan requires vegetated buffers and fencing along the boundary of the development plan area which improves the site's biosecurity.
- The plan includes guidance on the visual impact of the land uses, noting the current development is highly visible to residents and visitors to Dardanup, Crooked Brook and the Ferguson Valley.

The plan refers to a 'Stormwater Management Plan where the development will impact upon the management of stormwater on site'. DPIRD suggests that the Stormwater Management Plan also mitigates the offsite impacts of stormwater, including water erosion risk, on neighbouring properties including the Dardanup Conservation Park.

For more information please contact Ms Heather Percy on 9780 6262 or heather.percy@dpiird.wa.gov.au

Yours sincerely

Dr Melanie Strawbridge
**Director Agriculture Resource Management Assessment
Sustainability and Biosecurity**

1 Nash Street East Perth 6004
Locked Bag 4 Bentley Delivery Centre 6983
Telephone +61 (0)8 9368 3333 landuse.planning@dpiird.wa.gov.au
dpiird.wa.gov.au
ABN: 18 951 343 745



Your ref: CMP-R0937808
Our ref: PLH2019P0205
Doc ref: A11004402
Enquiries: Kath La Nauze (97910577)

The Chief Executive Officer
Shire of Dardanup
PO Box 7016
Eaton WA 6232

Attention: Murray Connell, Manager Development Services

Dear Sir,

Draft Local Development Plan - Lot 2 Banksia Road, Crooked Brook

Thank you for your letter dated 20 April 2021 and for the opportunity for the Department to provide comments on the abovementioned proposal. For this proposal the Department has no comments to offer.

However, if you need any other planning matters that need further information, please contact the Bunbury office on 9791 0577.

Yours sincerely

A handwritten signature in black ink, appearing to read 'M Selby'.

Mat Selby
Planning Director - Regional South West

28 April 2021

(Appendix ORD: 12.2.3B)

From: [Casey Drinkwater](#)
To: [Submissions Planning](#)
Subject: Banksia Road development
Date: Friday, 7 May 2021 1:19:55 PM

To whom it may concern.

I write to you on behalf of my family, of Paradise, Dardanup and Henty. We share the concerns of the Dardanup Environmental Action Group and agree with all of their objections to the proposed development of Lot 2 Banksia Rd. The local people are growing angry at the trucks and their associated problems, the ludicrous amount of waste taken to the Banksia Rd facility and the unsuitability of the site.

We ask that the voices of those who live in the Dardanup Shire are listened to, the agricultural producers and tourism providers passionate about the Dardanup area are listened to and the facility be moved to a more suitable location.

Yours sincerely

Casey Drinkwater
31 Paradise Road, Paradise.

(Appendix ORD: 12.2.3B)



Government of **Western Australia**
Department of **Water and Environmental Regulation**

Your ref: CMP-R0937829
Our ref: DMO1534, DER2016/2395
Enquiries: Penny Woodberry, Ph 6364 7197
Email: penny.woodberry@dwer.wa.gov.au

Mr Murray Connell
Manager Development Services
Shire of Dardanup
PO Box 7016
EATON WA 6232

By email murray.connell@dardanup.wa.gov.au

Dear Mr Connell

DRAFT LOCAL DEVELOPMENT PLAN – LOT 2 BANKSIA ROAD, CROOKED BROOK

I refer to your letter dated 20 April 2021 to the Department of Water and Environmental Regulation (the department) regarding the preparation of a local development plan for the above-mentioned lot.

As per the requirements under section 58(6)(b) of the *Contaminated Sites Act 2003* (CS Act), advice is required as to the suitability of the land for the proposed development. Lot 2 is currently zoned 'general farming' under the Shire of Dardanup's town planning scheme. The department understands that the existing land use as a resource extraction area and landfill facility is not proposed to be changed.

Land at Lot 2 on Diagram 65861, as shown on certificate of title 1670/568, was classified under section 13 of the CS Act as *possibly contaminated – investigation required* on 28 May 2014 and a memorial (reference number M675551) was placed on the certificate of title.

The classification was based on groundwater monitoring results submitted to the former Department of Environment and Conservation (DEC) by May 2014 which found that groundwater was potentially impacted by landfill leachate. The groundwater investigations were limited and were not intended to meet the standard required as outlined in the department's 'Contaminated Sites Guidelines' (2014) and the 'National Environment Protection (Assessment of Site Contamination) Measure 1999'.

The site is located within an area of moderate to low risk of acid sulfate soils which may have been disturbed during construction of the landfill (and previous prospecting and quarrying activity) and may be impacting groundwater quality in the area.

The department understands that the Shire of Dardanup is seeking advice on the studies that are required to be referred to in the local development plan.

(Appendix ORD: 12.2.3B)

Given the risks associated with potential disturbance of landfill material or acid sulfate soils, and the potential for groundwater contamination, the department recommends that the following advice note be applied to the local development plan:

Advice

An appropriate management plan should be prepared to address risks associated with site activities which will disturb landfill material or potentially contaminated groundwater. Please refer to Department of Water and Environmental Regulation's contaminated sites guidelines for information to assist with the management of contamination.

Acid sulfate soils (ASS) risk mapping indicates that the site is located within an area identified as representing a low to moderate risk of ASS occurring within 3 metres of the natural soil surface. Please refer to Department of Water and Environmental Regulation's acid sulfate soil guidelines for information to assist with the management of ground and/or groundwater disturbing works. <https://www.der.wa.gov.au/your-environment/acid-sulfate-soils/69-acidsulfatesoils-guidelines>

As Lot 2 is subject to potentially contaminating activities and is located within a mapped acid sulfate soil risk area, future development approvals may require conditions for the investigation and management of contamination or acid sulfate soils.

If you have any queries in relation to the above, please contact Environmental Officer, Penny Woodberry, on 6364 7197.

Yours sincerely



Andrew Miller
SENIOR MANAGER
CONTAMINATED SITES
Delegated Officer under section 91
of the *Contaminated Sites Act 2003*

4 May 2021

(Appendix ORD: 12.2.3B)

William Elliott

41 Wellington Mill Rd
Ferguson 6263

0437965597

Lot 2 Banksia Road Submission

1. Only existing infrastructure should be shown on the development plan. Future possible development should not be included on the map of the site. The masterplan has not been endorsed by Council or open for public comment it should not be referenced lest it be interpreted as some sort of Council approval.
2. The document should set the condition that zero emissions from the site boundary will be required, enforceable and subject to penalties for breaches. We have maintained that the site is unmanageable. It is up to the proponent to satisfy this requirement. This is in line with EPA guidelines.
3. Height and visual amenity is a significant issue. Fully capped and revegetated, the site needs to sit beneath adjacent landforms. Further development should be halted until disfigured, highly visible areas are revegetated and rehabilitated to Council requirements.
4. Further development on Lot 2 should be contingent on an Environmental Impact Assessment to ensure the development meets EPA Requirements and consider given to cumulative impacts. This is a new requirement of the EPA from 2016 for areas that are critical assets (Conservation Park).
5. Light and noise impacts on the rural ambience and Conservation park warrant a reconsideration of reducing operating hours and providing relief from heavy machinery noises for the community. The impact of articulated trucks on tourist traffic and other road users' needs to be factored in, particularly on weekends.
6. Boundaries need to incorporate firebreaks, vegetation and drainage and in line with best practice and maintained. Twenty metres is inadequate, particularly alongside a Conservation Park.
7. Chain mesh Fencing should apply to all boundaries. Fencing needs to be
8. The Planning Document should state that historical precedents should not set the expectation that future planning approvals will be successful.
9. The Gravel extraction area should not be available for landfill. A revegetation plan need to be developed and implemented when extraction is completed.



26 OGDEN. ST
Collie 6225
4-5-21

ATT: Murray Connell,
(Draft Local Development Plan
Lot 2 BANKSIA RD Crooked Brook).
Being the owner of the good clean Lot 2
Banksia. RD.

Regarding the Above Proposal Plan are

- (1) Ground Water Contamination from the above site. this is a big concern because myself and every body else users this water for stock and house hold in the south west.
- (2) monitoring Bores samples should be done on a 3mths Basis and reported to D.A. shire to keep tabs on and be accountable - and for Public to view requirements.
- (3) storm water run off must be strickley monitored. as I dont want it running off site and contamiate my Place, As some other original storm water Use to run through my Place.
- (4) Dust and Rubbish Blow's off' site now on to my Place. which should be strickley monitored. and enforced. by D.A. shire

to prevent this happening:

- (5) Landscaping requirements as proposed eg: 20mtr wide Buffer appear to be good but again this must be strickley enforced.
- (6) Height requirements should stay as is now and go no higher.
- (7) An acoustic report and noise management Plan appears to be acceptable again D.A. shire must inforce it,
- (8) Hours of operation acceptable at the moment but not a 24 hour operation where noise and artificial Light will be a problem.

Thanks for giving me the opportunity to make submission on this important Draft.

Any Enquires or more information required
Please Phone, me on 9734 3558.
or 0487592666

Yours Sincerely
Ross Ferguson
Ross Ferguson.

(Appendix ORD: 12.2.3B)

submissions@dardanup.wa.gov.au

cc_councillors@dardanup.wa.gov.au

RE: Lot 2 Banksia Road, Crooked Brook Development Plan

We are not in favour of the above Development Plan for the following reasons:-


- The Document acknowledges that the visual amenity is a significant issue for neighbours...that is an understatement and the impact on the residents of Dardanup and surrounds should be considered! The scar is visible even from Benger, Bunbury and 10km out to sea!
- Increased traffic on our roads is most annoying and dangerous as well as an extra cost for ratepayers in maintaining roads. Look at Ferguson Road between Little Street and the railway line. That didn't even last 12months.
- 20m vegetated setback is too small.....needs to be at least 100m so stormwater runoff, rubbish, weed infestations etc can be contained on site, not into the Conservation Park and neighbouring paddocks and roads.

The maintenance of this buffer **must be enforceable.**

Penalties for non -compliance must be meaningful and appropriate for the size of the operation.

- Natural landforms and vegetation in visually prominent areas should be maintained. Increase in the height of the landfill should not be allowed or other changes to the topography of the area.
- No development should be considered without a referral to the EPA for an Environmental Assessment.
- Hours of operation should be limited to 7am-7pm 6 days a week. Closure on Sunday and Public Holidays.
- Emissions must be contained on site and this means dust! Currently we suffer from frequent dust storms coming off the landfill which cannot be healthy.
- Prior to decision making on rezoning, or planning applications, the potential for site contamination must be considered.
-

Submitted by
Tony and Lisa Ferris
104 Ferguson Road
Dardanup 6236
Ferrislisa338@gmail.com



7/5/2021

(Appendix ORD: 12.2.3B)

To: Murray Connell and The Shire of Dardanup and Councillors

MY Comments Re: proposed Draft Development Plan Lot 2 Banksia Road Crooked Brook

Development Plan on Lot 2 (SHEET 1) Sensitive Receptor- Residence... There are a lot of house residence missing especially on Ferguson Road area, including my house on Waterloo Road. I have marked in red triangles the houses that are missing. The Plan only covers a 3 km radius, it needs to be at least 5 km radius.

HEALTH IS AT RISK FOR THOSE WHO LIVE WITHIN 5 KILOMETERS OF A LANDFILL SITE.

According to research published today in the International Journal of Epidemiology HEALTH is at risk for those who live within the 5 kilometres of a landfill site.

The results of the Analyses suggest possible associations between living near the landfill and LIVER CANCER, KIDNEY CANCER, PANCREATIC CANCER AND NON-HODGKINS LYMPHOMAS.

There is a lot more information on the health dangers living near a landfill site on GOOGLE.

Read appendix on health studies related to landfill and TOXIC gas exposures. The Dardanup townsite has two schools with 300-400 school children all exposed to these health risks.

Development Plan Lot 2 (SHEET 2) This shows the contours of the land. You can see the valley at the top end hill 15-24. This is the start of Gavin's Gully, as I have indicated in orange highlight on the map. It runs down across Banksia Road, across Panizza Road and down to the Boyanup/Dardanup Road south of the town, goes through Padbury fields, down to the Preston River which ends up in Busbury Victoria Bay and then out the cut into Koombana Bay and the Dolphin Discovery Center about 18 kilometres in total. In the event of a severe weather storm such as the recent N.S.W flood 2021, 800mls fell in 24 hours. If this was to happen on the Banksia road site and forestry beyond, the leachate ponds and the cells and the stormwater ponds would all overflow down the Gavin's Gully and taking the Toxic waste with it. I have seen two rain events in my life at Dardanup one in 1964 which the Ferguson River flooded over Waterloo Road and Recreation Road and were impossible to traffic. In January 1984 we had 250mls fall overnight flooding Ferguson Road, Panizza Road and Crooked Brook Road. Weather patterns tend to repeat themselves so maybe it will happen again in the near future.

WHY IS THE SHIRE OF DARDANUP PROPOSING THIS DEVELOPMENT PLAN, SPENDING RATE PAYER'S MONEY TO SUPPORT CLEANAWAY?

To my Knowledge Cleanaway license is for 9 cells, and is supposed to or should be closed by the year 2035. **SO, WHY IS THE SHIRE BACKING CLEANAWAY WITH A SMOOTH TRANSITION ON CLEANAWAY'S BEHALF? THE DEVELOPMENT OF THIS AREA AND SITE SHOULD BE STOPPED AT THE SIZE IT IS NOW, AND NO FURTHER DEVELOPMENT TO TAKE PLACE.**

Obviously, the shire is making big dollars out of this Cleanaway site, hence wanting the smooth transition.

I AM TOTALLY AGAINST AND DISGUSTED WITH THIS PLANNED DEVELOPMENT PROPOSAL.

Regards

Tom Garbellini, 63 Waterloo Road, Dardanup WA 6236

07/05/2023

(Appendix ORD: 12.2.3B)

From: [Gail George](#)
To: [Submissions Planning](#)
Subject: Local Development plan Lot 2 Banksia Road Crooked Brook
Date: Friday, 7 May 2021 7:10:35 AM

To the Chief Executive Officer, Dardanup Shire

We of course as landowners of a property within proximity to the Dardanup Refuse site on Lot 2 Banksia Road Crooked Brook are very concerned, with regard to the way this property has developed and the impact on the community and the surrounding area.

Of concern are:-

- the number of Feral animals living and feeding on the tip and now in the surrounding area . (Local Bush and Conservation Park) It has all but eradicated the local species of marsupials and birds within the bush in and as a consequence, a far wide radius.
- There is a landscape protection area for much of the Dardanup Shire, <http://www.dardanup.wa.gov.au/wp-content/uploads/sites/105/2014/05/Landscape-Protection-Area.pdf> this does not seem to be having any impact on this particular development. The Waste Facility has become a literal rubbish mountain and has ruined the appearance of a pristine rural area and tourism precinct. The Rubbish mountain can be seen from a great distance and boaties can use it as a navigation aid when coming into Bunbury from out at Sea. This is of great concern with regard to the appearance of the shire and Ferguson Valley.
- Ethical concerns with regard to the stress locals are placed under having to fight this development. They are concerned about the dumping of toxic liquids, rubbish in land fill and the effect on the environment and the air pollution caused by aromas, and dust.
- The impact on water supplies and ground water by runoff and leakage into ground water. This is immense as the Dardanup town water supply is in direct line for future contamination. Along with many rural water supplies by local residents.
- The traffic on local roads and the impact of trucks entering onto the Ferguson Road.

It makes no sense to increase the addition to the amount of refuse being added to this area. The waste facility should never have been allowed to go so high into the landscape. I know this block well, as we have lived within the area since 1988. I have ridden around it on my horse over the years and seen the incredible increase in size of the landscape into what can only be described as a mountain. I have seen the deterioration of the bush tracks adjacent to the block due to water runoff over the years. The destruction of local wildlife.

Bringing rubbish into this area from state wide sources is abhorrent. The waste management should be shared across many other regions. Plus the whole state wide community should be made aware of more responsible waste management.

Thank you

Kind Regards

Gail

Gail George

151 Tyrrell Road

Ferguson

Mobile 0447 902 213

(Appendix ORD: 12.2.3B)

From: [Wendy Hughes](#)
To: [Submissions Planning](#)
Subject: Dardanup banksia Road Waste site
Date: Thursday, 22 April 2021 5:33:02 PM

I am saddened that the Clean away facility is still applying for extensions. This is an American/Chinese company from what I understand , so all they care about is money. i realise this is also a concern for our state-run departments. However, this is different. The powers that be, sit in their Perth city offices, without any regard to "the country folk", out of sight out of mind. They appear to have very little care or understanding of the land. (Inc BORR in this)

This waste facility is on a fault line, there are 3 water courses below this waste sight. The government of 2006 saw it as a good site without and environmental checks. The minister concerned now runs our state.

Do you realise that not so long-ago Pinjarra and Mandurah(1 hour from Perth or Fremantle) were the "country" areas also, they are now in the metro boundaries. Well Bunbury/ Dardanup now an hour from Mandurah, seems it won't be long till they are Metropolitan.

I hope that someone starts to listen to the Dardanup people, as we are in fact fighting for the safety of the State and its people, on our own.

When, not if, when the water becomes poisoned and people get sick, who will bare this cost? Will it be clean away, will it be the State government in their greed, will it be DWER, or the Shire of Dardanup ?

Its time to consider the health and safety of the people, of their water, their agriculture (Milk, Crops, beef, sheep, and wine/ grapes).

This waste site should never have been granted its extended licence, nor have been allowed to dump toxic waste on a fault or above water and it should NEVER have become a STATE dumping ground.

Thank you
Wendy Hughes
89 Waterloo Road,
Dardanup 6236

I experience the speeding trucks past my front door that Main roads thinks is ok on a blind s bend.

(Appendix ORD: 12.2.3B)

Dear André Schönfeldt,

I am writing this letter to provide comments on the Draft Local Development Plan – Lot 2 Banksia Road, Crooked Brook which was received on the 21st of April 2021.

Firstly, I am very impressed and pleased with the initiative of this development plan to progress orderly and proper planning for the landfill site over the next few years. No doubt Shire of Dardanup have played a vital active role in the drafting of the local development plan with a longer vision.

As the landowner for the landfill site Cleanaway are currently leasing, we are being updated with all the issues with the site. We appreciate the commotion of local community toward the landfill site and its operator – Cleanaway.

Cleanaway's waste cells have been designed by Australian reputable consulting firms and constructed by local highly regarded contractors. Under the guidelines and spotlights of stringent government authorities, Cleanaway give us confidence for managing the landfill site properly and professionally.

That waste precinct area has been dealing with waste disposal over the last 20 years. In the past the Shire of Dardanup have got their own tip operating next to Cleanaway's. Landfill is not the best solution for waste but do have reasons for their existence. As quoted from Rinkesh Kukreja, the founder of Converse Energy Future, landfills have the following advantages:

1. Landfills are an Excellent Energy Source

When trash accumulates and begins to break down, carbon dioxide and methane are produced. These gases can be taken out, filtered out, and used for energy production. In the United States, landfills serve as the third source of methane production. The landfills in the country also produce approximately 95.6 million of these Carbon (IV)oxide per annum.

2. Modern Landfills are Eco-friendly

Older landfills were just open-air dump for nearly everything but it isn't the case anymore. Thanks to the efforts of environmental experts and conservationists who brought in strict laws, regulations, and standards for landfill sites. Technology is well utilized in the landfills' design; good soil lining and leachate management system ensures no seepage and damage.

3. Keep Cities, Towns, and Districts Clean

Any city that doesn't have a landfill or when people know there is no efficient waste management system in place, they would simply dump waste in the vacant spots. This is not only unhealthy for humans and the environment but impose undue pressure on law enforcement. With properly maintained landfill facilities, local trash will be dealt with locally instead of shifting them to other countries. Remember what a chaos that caused when China stopped accepting Australia's paper and cupboards for recycling.

(Appendix ORD: 12.2.3B)

4. Keeps Hazardous Waste Segregated

Landfills provide a place to dump recyclable and non-recyclable waste separately. Also, they provide a place to keep more hazardous materials that need to be segregated from the public.

5. Landfills are Cheap

Garbage transport costs will be reduced, as our waste will only have to travel a short distance to landfill. This will also reduce the amount of pollution caused by transporting rubbish. That will result in reduced rates everyone has to pay. In the end everyone benefits financially either directly or indirectly through reduced council rates, employment, or your superannuation investment in waste disposal related industries etc.

6. Landfills Support Jobs and Local Business

An effective waste management system of any country is a million-dollar activity with every stage needing workforce. More local landfills mean more job opportunities and better living for the locals.

The Bottomline is: Waste around us needs more attention than ever before. Today's landfills have progressed from a simple pit to meticulously engineered waste management systems. They intend to reduce pollution, control contamination, and protect our health and environment. While we can never rule out contamination risks, landfills are essential to keep the cities clean and healthy as possible.

The development of Banksia Road Landfill site progressed knowing it was a superior location with respect to ground geology and distance to aquifers. The landfill cells have been designed and built to the high quality standard of the Victorian Environmental Protection Agency's – Best Practice Environmental Management – 'Siting, design, operation and rehabilitation of landfills'.

I believe Australia has one of the best governing bodies which are monitoring the landfill operation compliances. Any legitimate issues raised by the local community will be resolved in a very short period of time.

Please bear in mind that waste is a matter being faced by everyone across the world. The fundamental solution to it is not to generate waste by everyone rather than blame people who is solving your issue due to your failure to reduce waste by not recycling.

It sounds marvelous Ferguson Valley could be one of the best tourist spots. But with the population growth and increasing Urbanization, the local waste volume will not drop but increase. So the most viable solution to the issue local community are complaining is: be rational and start recycling. Simply shifting blame to a well-established landfill site to somewhere else is short sighted, narrow minded and self-interest centered.

Jimmie Tolmachoff
Director
J & P Corporation Pty Ltd

(Appendix ORD: 12.2.3B)

PO Box 79,
DARDANUP WA 6236
5 May 2020

Mr Andre Schonfeldt,
Chief Executive Officer,
Dardanup Shire Council,
1 Eaton Drive
EATON WA 6232

Dear Andre,

RE: Local Development Plan – Lot 2 Banksia Rd Dardanup

Tom and I wish the Shire to consider the following comments in relation to the proposed Local Development Plan

- Future development setbacks from the Dardanup Conservation Park should be set at 50m. Anything less is not providing the native flora and fauna with any protection from litter, noise or dust.
- Agree that chain fencing should be established on all boundaries to a height of 2 metres and maintained.
- Agree with all the required Environmental Management Plans listed.
- Hours of operation. Currently there is no consideration given to reduction of hours during the weekend. We constantly hear the noise from machinery operating on Lot 2 Banksia Rd and even though most of the time the noise is within the permitted levels it still invades the once peace and quiet of this rural area so we would like to see the future hours of operation reduced to 7am – 4pm on Saturdays and 8am – 3pm on Sundays and public holidays. Most other industries close to houses have reduced hours on weekends. Machinery currently operating from 6am on weekends and public holidays is giving no consideration to neighbours.

Kind regards

Jill Cross

On behalf of Tom and Jill Cross

(Appendix ORD: 12.2.3B)

From: manahillfarm@bigpond.com
To: [Submissions Planning](#)
Subject: Re: Comment on Cleanaway Masterplan for Lot 2 Banksia Road, Dardanup
Date: Thursday, 22 April 2021 8:09:36 AM

To whom it may concern,

We wish to express our absolute disgust that Cleanaway would dare to submit a proposed plan for an increase to the number of existing cells at Lot 2 Banksia Road, Dardanup.

Dardanup is a small community, choc full of local producers of meat, hay/grain, fleece, wine ... not to mention the fact that the existing waste facilities have already proven to be damaging to underground water supplies. The Ferguson Valley is also a tourist area of note – famous for its vineyards, breweries, bushwalks, mountain bike trails ... and Gnomesville.

Why on earth would anyone want to jeopardise tourism and the pristine rolling hills and valleys that have become synonymous with the Ferguson Valley – for more waste?

It makes us sick to the stomach every time we see massive rubbish trucks from shires in Perth, Busselton and even further afield, making their way through our beautiful streets towards the waste facility.

Waste disposal should be undertaken in designated areas – outside of rural, tourism and residential populations – not right in the middle of them.

Please vote against this – and any other applications by Cleanaway to expand their operations at Lot 2 Banksia Road, Dardanup.

We would be happy to provide further comment if required.

Thank you & kind regards

Nardine & Mark Jones
2309 Ferguson-Lowden Road
Wellington Mill WA 6236

(Appendix ORD: 12.2.3B)

Fiona Moriarty
14 Prout Rd,
FERGUSON

CEO
Councillors
Shire Of Dardanup

submissions@dardanup.wa.gov.au
councillors@dardanup.wa.gov.au

6th May 2021

Re Draft Local Development Plan (LDP) – Lot 2 Banksia Rd, Crooked Brook

Thank you for the opportunity to raise concerns regarding this landfill development.

I would first like to express my full support for the submission made by DEAG Inc - submitted today.

I would like to add a few other points -

Drawings Attached to the LDP

The Masterplan that Cleanaway has submitted is subject to approval and should not be shown on the LDP – only existing and fully approved cells and structures should be noted.

General Support of Wider Community to end Landfill at Banksia Rd

I have just re-submitted to Legislative Council the same Petition #169 submitted October 2020 so this will be considered by the new government. It has been signed by a further 548 people – mostly from places other than Dardanup town and Ferguson, bringing the total signatures up to well over 3192. Most of those that signed were tourists visiting for easter and were horrified by the enormity of the landfill.

I respectfully ask the Councillors to submit a Motion to remove all reference of “Waste Precinct” from any existing documentation or Town Planning Scheme and that “Waste Precinct” will never be applied to any future TPS or LDP. Our legal advice is clear that use of the terminology of “Waste Precinct” will remove all hope of sorting out this landfill debacle. Council would be negligent in their duty to represent their residents and ratepayers if they were to allow this to happen.

“Mound” Type Landfill

While Visual Impact is a massive issue with the enormity of this site, the Council should also now look to best practices and EP advice evidenced by the various Planning Acts for landfill in other states. It seems that this type of “mound” landfill is not just an eyesore but should not be approved for multiple reasons under any circumstances.

Victorian legislation on Siting Design, Operation and Rehabilitation of Landfills – August 2015

Clause 5.1.2

Mound landfills are to be avoided as their exposed nature requires significant litter controls and present a significant visual impact on the landscape. Further difficulties attached to these landfills are leachate seeps from the side of the landfill and the stability of the landfill cap.....

Interestingly this clause is clear and has no caveats or leniencies!

(Appendix ORD: 12.2.3B)

Vertical erosion on the north and western faces of this landfill has been clearly evidenced.

Please endorse on the plan that any further “mounding” or changes to the natural contours will not be approved.

Furthermore, any erosion on the landfill faces must be permanently and effectively repaired.

Buffer Zones

Due to the high winds and obvious bushfire danger, I would like the buffer between any cells and the Dardanup Conservation Park to be the full 250m based on Northern Territory legislated standards. Wind reports submitted by Cleanaway to date are only “average” winds and do not reflect the intense winds that can prevail at any time of the year, especially in summer.

Fires are a constant danger and occurrence, and it is only a matter of time before a fire spreads to the forest.

Failure to observe proper buffer distance could be seen as a negligent decision should extensive bushfire damage occur.

Exit Plan

Extension of the closure date beyond 2032 is unacceptable.

Over 3000 people have signed that a three-year exit plan is demanded.

No extension of the closure date of any landfill operation in the Banksia Road area should be allowed.

The reputation of many businesses in tourism and specialised agriculture will suffer, and these are the major employer and income source for the immediate area.

I urge the Council to endorse the approved closure date on the plan, with a clause to close sooner if legal or contamination issues are revealed

Potable Water Source.

The Bunbury Geographe sub-regional strategy identifies that housing will increase between Boyanup, Dardanup (2500 dwellings) and Wanju (19,200 dwellings) and identifies the major issue that could hold back development in the area is the availability and extra demand for potable water.

There is currently 100% reliance on the aquifers below the Banksia Rd area for mains water.

The major recharge point is also the Banksia Rd section of the Whicher Scarp.

Water table monitoring has already revealed possible contamination under the site and must be investigated further and without warning to Cleanaway or the landowners.

It should be said that these monitoring bores go through one aquifer and into the next aquifer below. It seems this as a disaster waiting to happen. Bore liners corrode over time – exposing an express way for PFAS, PCBs and all manner of pollutants (including radioactive) to both our precious aquifers at any point in the future.

It is incumbent on the Shire to satisfy their residents that this water will remain suitable for agriculture and mains water now and in the future. Currently water reporting is limited, inadequate and impossible to access easily.

(Appendix ORD: 12.2.3B)

The Shire should endorse on the LDP that full testing for all possible contaminants be submitted every six months to the shire in readable plain language, with both layered and longitudinal reports so that the shire can post it on all their own website for public access. This must include testing for PFAS, the full range of PCBs and radioactive particles, soluble or otherwise, that are known to be present in the Class 2 and Class 3 waste, particularly Tronox and Wren Oil and all drilling muds. This must continue into the far future.

Hours of Operation

Hours for all activities at Banksia Rd should be limited to 7am to 6pm Monday to Saturday and closed on Sundays and Public Holidays. This includes Tronox and any construction works.

Closure and Future Uses for the Land

I urge the Council to do all things possible to ensure that Lot 2 be completely rehabilitated as an extension of the Conservation Park with emphasis on Banksias which are the preferred food source of the endangered Carnaby Cockatoos that frequent the park.

Rehabilitation, landscaping, and erosion repair should start immediately where there is any inactive area.

No recreational or any other development should ever be allowed on the site in perpetuity.

Thank you for your time

Yours sincerely

Fiona Moriarty

(Appendix ORD: 12.2.3B)

From: [Terry Rance](#)
To: [Submissions Planning](#)
Subject: Cleanaway landfill site lot 2 banksia rd
Date: Sunday, 9 May 2021 10:40:02 AM

I would like to put in my objection to the proposed development this site is too big already ,they bring waste from all over the area included Perth ,we don't want to be known for the dumping ground of Perth and the South west ,this dump has already damaged the fragile environment of our area let alone the cost to our wine and tourist industry, no amount of money is worth the destruction that will take place if this development is allowed to go ahead Thankyou for your time and right decision

(Appendix ORD: 12.2.3B)

Proposed Local Development Plan lot 2 Banksia Road
Submission: Sheridan Family Twomey Road Dardanup

Dear Councilors and staff

Thank you for advising us on the proposed Plan for lot 2 Banksia Road.

We recognize the value of this endeavor alas have strong doubts about adopting either the master plan or the control measures council is aiming at gaining. I regard the site as potentially dangerous and would urge council first to have the site properly investigated by a contaminated sites investigator. Council need to gain an understanding of what is acceptable practice in planning and managing waste. Western Australia is failing its communities and has been roundly criticized for the performance of its regulations and failures to even follow them. See PUBLIC ACCOUNTS COMMITTEE REPORT NUMBER 6 being a follow up from the Auditor General's report NO 23

I would urge the Council to first see that the operation is safe to proceed. I urge council to first request an Independent Contaminated Sites Investigation to assess the risks before becoming involved in the operations at Banksia Rd. After it is proven to be safe now and into the future, then we'd willingly support council LDP. I trust that council has had legal advice.

1. In the Southwest where (La Porte, Crystal Pigments, Tronox) have dumped their waste have become contaminated sites. THEIR waste is water soluble and radioactive. There is a world of difference between naturally occurring mineral sands radiation and processed ingestible **radionuclides** in our water. Allowing this waste on top of the 3 aquifers critical recharge position before the Swan Coastal Plain close to population and valuable land and water resources would not be permitted in other states.

ALL the other issues and there are many pail before this one. Address this satisfactorily then other measures to control the hazards to the Dardanup Conservation Park, effect on amenity, dust and noise etcetera together illustrate that this is a flawed location for such a massive and complex facility.

CODE OF PRACTICE FOR NEAR SURFACE DISPOSAL OF RADIOACTIVE WASTE

2.4.2 Site selection criteria

To be suitable for near-surface disposal of radioactive waste, the site chosen for the facility shall have characteristics that will facilitate its long-term stability and provide adequate isolation of the waste so that the objective in Section 2.1 is achieved. There are 12 criteria, including:

- the groundwater in the region of the site which may be affected by the presence of a facility **should not be suitable for human consumption, pastoral or agricultural use;**
- **the site should have suitable geochemical and geotechnical properties to inhibit migration of radionuclides and to facilitate repository operations.**

(Appendix ORD: 12.2.3B)

- **the facility site should be located in an area of low rainfall, should be free from** flooding and have good surface drainage features, and generally be stable with respect to its geomorphology;
- the water table in the area should be at a sufficient depth below the planned disposal structures to ensure that groundwater is unlikely to rise to within five metres of the waste, and the hydrogeological setting should be such that large fluctuations in the water table are unlikely;
- **the disposal site should be located away from any known or anticipated seismic, tectonic or volcanic activity** which could compromise the stability of the disposal structures and the integrity of the waste;
- **the site should be in an area of low population density and in which the projected population growth or the prospects for future development are also very low;**
- the site for the facility should be located in a region which has no known significant natural resources, including potentially valuable mineral deposits, and which has little or no potential for agriculture or outdoor recreational use;
- the site should not be in an area which has special environmental attraction or appeal, which is of notable ecological significance, or which is the known habitat of rare fauna or flora;
- the site should not be located in an area where land ownership rights or control could compromise retention of long-term control over the facility.

3.3.7 Contaminated sites

The Premises has been classified under the *Contaminated Sites Act 2003* as 'possibly contaminated – investigation required'.

GHD | Report for Cleanaway Solid Waste Pty Ltd - Banksia Road Landfill - New Tailings Storage Cell, 6137572 | 14

To date this investigation has not been done.

Put this together with ALL the gaps in the hydrogeology first written by Golder below in 2015 (below) and in the most recent hydrogeology Dec. 2018 the GAPS are still extant (below that). This shows that the safety evaluation is flawed. With the millions of tonnes of waste being dumped at this site some being toxic and carcinogenic in large volumes, all these GAPS need to be investigated.



7.0 DATA GAP ANALYSIS

Based on the review of the documents list in Section 2.0 and the site visit carried out on 23 September 2015, the following data gaps have been identified with respect to the CSM developed for the site. In general a better understanding of the overall site specific geological and hydrogeological conditions would be required to fully understand the potential contaminant migration pathways and connectivity between groundwater beneath the site and down gradient groundwater users.

7.1 Hydrogeological Understanding of the Site

Based on our review of the hydrogeological information available for the site, the available borehole logs and groundwater analytical results, Golder conclude that qualitative data gaps are present in understanding the hydrogeology at the site. The reason for these data gaps are based on uncertainties in the current dataset available for the site and are described in the following sections.

7.1.1 Monitoring Well Location and Construction

It appears that the deep ("D" series) wells on-site have not been discretely installed within the Superficial or Leederville Aquifer. Therefore, there is the potential that groundwater analytical data for the site is not specific to the Leederville Aquifer, but is a mixture of groundwater from the Superficial and Leederville Aquifers combined. This applies to both groundwater quality samples and also groundwater level elevation measurements.

7.1.2 Groundwater Flow Direction

It was not possible to produce a meaningful set of groundwater level contours based on the October 2015 groundwater level data. This may be due to the groundwater well installations spanning across both aquifers and also the limited spatial distribution of on-site wells (the majority of wells located in a small area).

Nearby, off-site groundwater monitoring wells (BS14) indicate there is a downward hydraulic gradient between the Superficial and Leederville Aquifers, however this has not been confirmed locally at the site to date. It is important to understand the potential vertical movement of groundwater between aquifers as this will dictate whether the Leederville Aquifer (which is considered to be a significant groundwater resource) could be at risk from groundwater impacts if contamination is confirmed in the Superficial Aquifer.

7.1.3 Groundwater Flow Rate

An understanding of the hydrogeological properties (hydraulic conductivity, specific yield/storativity) and hydraulic gradient is required to calculate potential groundwater flow rates. No site specific hydraulic testing has been carried out on either aquifer to date and therefore it is not possible to evaluate the potential migration rate of contaminated groundwater or assess potential for natural attenuation or other possible remedial activities.

7.1.4 Groundwater Quality

Based on the groundwater quality data available to date, it is unclear whether the historic and current landuse has impacted groundwater quality beneath the site. The majority of the uncertainty results from the variability of concentrations of indicator analytes for leachate and hydrocarbon impacts. There are little to no conclusive elevated levels of landfill leachate parameters in groundwater at the site. However, there are spatially variable and temporally inconsistent detections of hydrocarbon in groundwater in some wells.

Collection and review of future groundwater quality monitoring data may provide resolution to the current uncertainty in the event that detections of hydrocarbons diminish over time. This could indicate that these detections have arisen from processes other than the potential leachate seepage or release of hydrocarbons including the use of lubricants in drilling muds during well installation.

(Appendix ORD: 12.2.3B)

For exposure to occur, a complete pathway must exist between the source of contamination and the receptor i.e. complete source-pathway-receptor linkage. The potential receptors at the site and adjacent area are detailed in this section.

Due to the potential for the aquifers to be hydraulically connected, we anticipate that the Superficial Aquifer is the initial receptor and the Leederville Aquifer is a secondary receptor. Based on available drilling data, there is no evidence to support the presence of a confining layer or aquitard between the Superficial and Leederville Aquifers and therefore no impedance to downward migration of contaminants can be inferred. Furthermore, it appears that some of the monitoring wells at the site hydraulically connect these units and provide an enhanced pathway for downward migration of any contaminants in the Superficial Aquifer into the underlying Leederville Aquifer.

Groundwater is abstracted for domestic and livestock watering from both the Superficial and Leederville Aquifers in areas interpreted to be potentially hydraulically down gradient of the site (i.e. to the west and north of the site). Therefore, if groundwater at the site is impacted, it may migrate off-site and be abstracted, resulting in human and/or livestock exposure.

Impacts to the riverine ecosystem are also possible in the long term if contaminated groundwater was allowed to migrate as far as the Preston River and discharge into this water body. Crooked Brook is ephemeral (i.e. does not dissect groundwater table throughout the year) and therefore impacts are considered less likely. The Ferguson River is also located further north and presents another potential discharge point for impacted groundwater.

It should be noted that the distances impacted groundwater would be required to travel for these exposure mechanism to occur are significant (closest registered abstraction point is at least 1 km from the western boundary of the site). If sufficient hydrogeological data was available, it may be possible to evaluate the rate of migration of any impacted groundwater, likely to be very slow, and natural attenuation and dilution of the contaminants in may occur resulting in negligible measureable impacts at the identified exposure points.

IF it is a contaminated site then a down gradient series of nest bores needs to be placed to warn of contaminated plumes beyond the boundaries of the site. Testing bores are not nested beyond the site and not on the perimeter and do not account for the junction of the Whicher Formation and Swan Coastal Plain which is along the western boundary which further complicates the hydrogeology.

To me this is standard duty of care and Negligence if it is not done.

Yours Faithfully
Russell Sheridan

(Appendix ORD: 12.2.3B)

From: [Rod Slater](#)
To: [Submissions Planning](#)
Subject: Absurdity!!!
Date: Thursday, 22 April 2021 8:13:47 PM

To whom it may concern,

Given the breaches that have already happened in the Dardanup location at the hands of Cleanaway, it is absurd to consider granting them any further expansion. This facility should not be in a location where there is residential expansion and a growing tourist industry. I know the organisations with a vested interest value the close location, and the low transport costs, but this should not be a determining factor. The major determinant should be preservation of the local environment, including the precious ground water, and the local communities that have committed their future to living in this pristine locale.

Please dont allow any more dumping of toxins in this site, a very concerned member of the Dardanup community

Rod Slater

(Appendix ORD: 12.2.3B)

From: [James Szabadics](#)
To: [Submissions.Planning](#)
Subject: DRAFT LOCAL DEVELOPMENT PLAN - LOT2 BANKSIA RD CROOKED BROOK
Date: Friday, 7 May 2021 8:23:51 PM
Attachments: [image.png](#)

Location and Planning: The site has been poorly selected and should not be expanded. Applying planning guidelines for waste disposal used in other states and territories in Australia would classify this site as unsuitable for this activity (WA has no waste disposal planning guidelines). Government may leave itself exposed to future litigation planning for expansion and approving licence amendments knowing that other Australian governments would not approve this location for these types of activities based on published and widely accepted standards for assessment of suitability for this type of activity.

a. Edge of Scarp location maximises visual impact on the local community due to its elevation. The trees growing at the road level will do nothing to block the visual impact on the local community.

b. The Scarp location is a geological feature which is a natural fault zone maximising seismic risk.
https://www.researchgate.net/publication/270884633_Field_Investigation_of_Linear_Scarps_South_of_Perth_Western_Australia_Relationships_to_Faulting

c. The Whicher Scarp is a terrain feature subject to powerful easterly winds for 6 months of the year creating high velocity turbulent flow and maximising fugitive dust risks. Image taken from my house March 2020 shows dust emissions from high elevation Banksia Rd site



d. The site sits above the primary water sources used on the swan coastal plain putting agriculture and peoples water supply at risk from Perth to Busselton - the lifeblood of regional horticulture and agriculture. Our food supply is clean, do we need to risk it?

For all of these reasons I believe the shire should not plan to allow the expansion of the site. The conditions whilst better than nothing are very tokenistic and do not seriously address any of the actual serious risks and known impacts.

Kind Regards

James Szabadics
125 Crooked Brook Rd

(Appendix ORD: 12.2.3B)

5th May 2021

The Chief Executive Officer
Shire of Dardanup
WA 6232

Per submissions@dardanup.wa.gov.au

SUBMISSION RE: DRAFT LOCAL DEVELOPMENT PLAN – LOT 2 BANKSIA ROAD, CROOKED BROOK

We commend the initiative shown by the Shire in the creation of this plan, relating specifically to Lot 2 Banksia Road.

Our comments as follows:

1. **SITE PLAN** - The future proposed cells 8 to 20, including 12A; the possible future Leachate Pond; and possible future Stormwater Catchment, should not be specifically identified on the map, even though they are Subject to Approval. We are of the opinion that it would make it more difficult for the Shire to withhold planning approval of one or more of these structures, should it be prudent to do so in the future. It is noted that future cells are not shown on the site plan in the DWER licence, other than those under construction but not operational.
2. **HEIGHT** – The cross section of the Site Plan indicates an overall maximum height of 114m AHD. We agree with this limitation, but will this be enforced if some of the waste disposal cells are above this height and not yet fully capped? Should there be a corresponding maximum below ground depth to the floor of the waste cells to limit the volume per square metre of waste disposal, which would reduce the strain on the liner system and provide less interference with the natural flow of the superficial groundwater which traverses Lot 2 in a north westerly direction?
3. **SITE ACCESS** – Need to stipulate current and future site access only to be via Banksia Road from Ferguson Road. No heavy vehicles to use Panizza Road or Southern part of Banksia Road via Crooked Brook Road.
4. **FENCING** – Chain mesh fencing to a height of 2 metres – We believe this should be a requirement on **ALL** the boundaries to Lot 2.
5. **STATUTORY FRAMEWORK** - In addition to assessment against this LDP, assessment of future Development Applications to be assessed against The Environmental

(Appendix ORD: 12.2.3B)

Guidance for Planning and Development (May 2008) Guidance Statement No 33 or the latest version thereof.

6. **PRECEDENTS** - This Local Development Plan needs to state that historical planning approvals do not set precedents for future planning approvals.
7. **J & P GRAVEL EXTRACTION AREA** – This area should not be available for future waste storage/disposal due to the directly adjacent Swan Coastal Plain. When gravel extraction is complete, the area to be rehabilitated with indigenous species vegetation.
8. **BOUNDARY BUFFER** – The Eastern and Northern boundaries, and the Southern boundary where no development has yet taken place, should incorporate buffers of a minimum of 50 metres inside the Chain link boundary fence. From inside the boundary fence, buffers should consist of a clear firebreak, endemic vegetation, any necessary bunds or drains.

Thank you for the invitation to comment on the draft of this Local Development Plan.



Ian & Jenny Trigwell
PO Box 33
DARDANUP 6236
Phone 08 97280639
ian.trigwell@bigpond.com

(Appendix ORD: 12.2.3B)

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Services

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T (08) 9420 2099
F (08) 9420 3193



Your Ref: CMP-R0938142
Our Ref: 57112799 (SP375221)
Enquiries: Brett Coombes
Direct Tel: 9420 3165
Fax: 9420 3193

30 April 2021

Chief Executive Officer
Shire of Dardanup
P.O. BOX 7016
EATON WA 6232

Attention: Murray Connell – Manager Development Services

Draft Local Development Plan - Lot 2 Banksia Rd, Crooked Brook

Thank you for your correspondence of 20 April 2021 inviting comment on the above local development plan.

The Water Corporation's Dardanup WWTP is located immediately to the north of the LDP area. The odour buffer around the WWTP extends as a 500m radius around the WWTP ponds (as depicted on the attached diagram).

The Water Corporation has no objections to the LDP provided that it does not give rise to any odour sensitive developments or land uses within the odour buffer area.

If you have any queries or require further clarification on any of the above issues, please contact me on Tel. 9420-3165.

A handwritten signature in black ink that reads "B. Coombes".

Brett Coombes
Senior Urban Planner
Development Services