



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8793/1
Permit Holder:	SE Campbell Development Pty Ltd
Duration of Permit:	20 August 2020 to 20 August 2025

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Development of the Benger Solar Farm and continued use of the land for the purpose of grazing.

2. Land on which clearing is to be done

Lot 0 on Diagram 685, Benger

3. Area of Clearing

The Permit Holder shall not clear more than 0.94 hectares of native vegetation within the areas cross-hatched yellow on attached Plan 8793/1.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise and reduce the impacts and extent of clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- avoid the clearing of native vegetation;
- minimise the amount of native vegetation to be cleared; and
- reduce the impact of clearing on any environmental value.

6. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

PART III – RECORD KEEPING AND REPORTING

7. Record keeping

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date that the area was cleared;
- (c) the size of the area cleared (in hectares);
- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit; and
- (e) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 2 of this Permit.

8. Reporting

The Permit Holder must provide to the *CEO* the records required under condition 5 of this Permit, when requested by the *CEO*.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO: means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

dieback means the effect of *Phytophthora* species on native vegetation;

fill means material used to increase the ground level, or fill a hollow;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*;
or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.

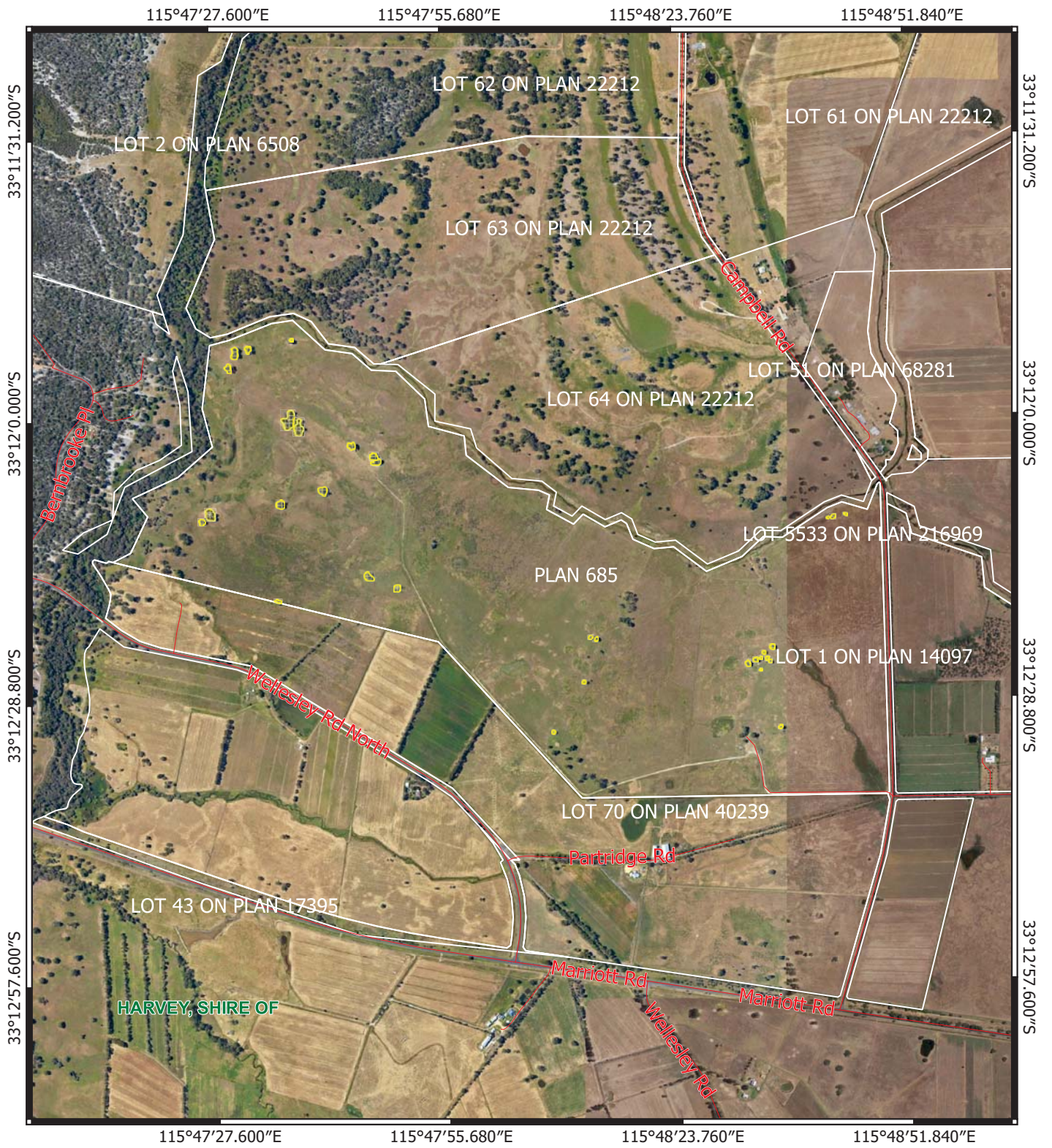


Richard Newman
DIRECTOR
NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*


29 July 2020

Plan 8793/1





Legend

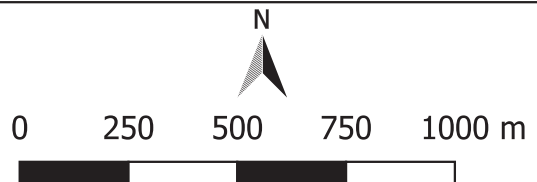
CPS layers


 CPS areas approved to clear

base layers

 Road Centrelines
 Cadastre - LGATE 218

LGA Boundaries (LGATE-233)




 29 / 7 / 2020
 Richard Newman, Director Native Vegetation Protection

Officer delegated under section 20 of the
 Environmental Protection Act 1986



GOVERNMENT OF
 WESTERN AUSTRALIA



Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 8793/1
Permit type:	Purpose permit
Applicant name:	SE Campbell Development Pty Ltd
Application received:	28 January 2020
Application area:	0.94 hectares (ha) of native vegetation
Purpose of clearing:	Development of Bengier Solar Farm
Method of clearing:	Mechanical
Property:	Lot 0 on Diagram 685, Bengier
Location (LGA area/s):	Shire of Harvey
Localities (suburb/s):	Bengier

1.2. Description of clearing activities

The vegetation applied to be cleared includes approximately 55 isolated paddock trees with a total canopy area of 0.94 hectares, to allow for the development of the Bengier Solar Farm and for continued use of the land for the purpose of grazing (refer to Figure 1, Section 1.3).

The application was revised during the assessment process following reconsideration of the proposed Bengier Solar Farm design (SE Campbell Development Pty Ltd, 2020c). This revision resulted in the removal of two trees from the proposed clearing area in the north-eastern portion of the application area, and the inclusion of one additional tree in the north-western portion (SE Campbell Development Pty Ltd, 2020c). The revised application area resulted in no changes to the total proposed clearing area of 0.94 hectares.

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	29 July 2020
Decision area:	0.94 hectares of native vegetation, as outlined in Section 1.4, below

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Water and Environmental Regulation (DWER) on 29 January 2020. DWER advertised the application for public comment and one submission was received.

In undertaking their assessment, and in accordance with section 51O of the EP Act, the Delegated Officer has given consideration to the Clearing Principles in Schedule 5 of the EP Act (see Appendix D), relevant planning instruments, and any other pertinent matters they deemed relevant to the assessment (see section 3.3). Consideration of matters raised in the public submission is summarised in Appendix B.

In particular, the Delegated Officer has determined that:

- the applicant has suitably demonstrated avoidance and minimisation measures (see section 3.1);
- the proposed clearing is not likely to have a significant impact on the environmental values of biological values including habitat for flora and fauna species, significant remnant vegetation, or land and water resources (see section 3.2);
- the implementation of a suitable weed management condition is appropriate to mitigate the risk of spreading weeds into adjacent vegetation (see Section 3.2.3).

In determining to grant a clearing permit subject to avoiding and minimising clearing, and weed and dieback conditions, the Delegated Officer found that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

1.4. Site map

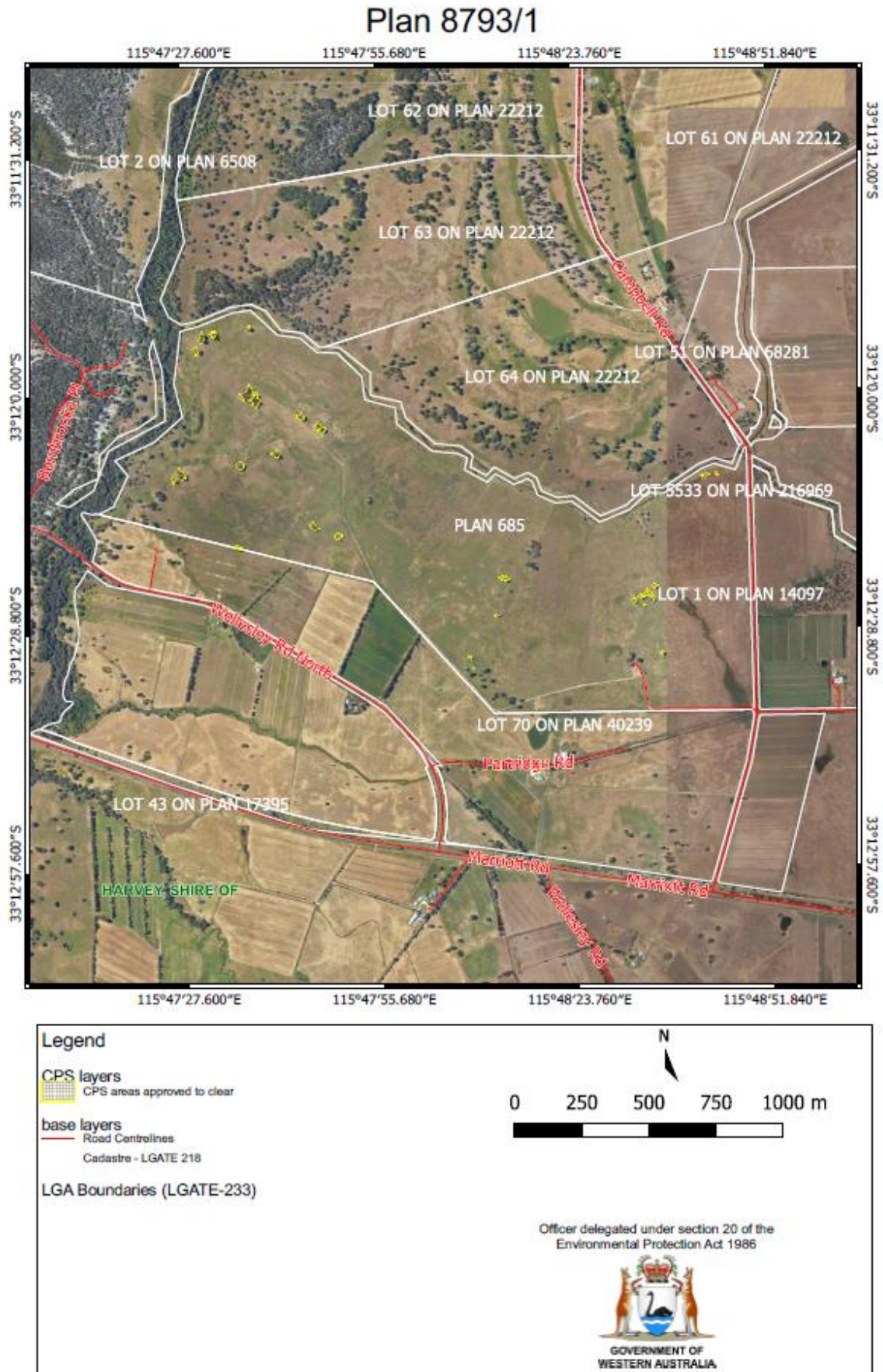


Figure 1. The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

2. Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act, the Delegated Officer shall have regard to the objects and principles under section 4A of the EP Act, particularly:

1. The precautionary principle;
2. The principle of intergenerational equity; and
3. The principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*
- *Biodiversity Conservation Act 2016 (BC Act)*

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

A reconnaissance vegetation survey was submitted by the applicant, demonstrating that the proposed clearing area was limited to isolated paddock trees in Completely Degraded (Keighery, 1994) condition (AECOM, 2019b). The applicant advised that areas of better quality vegetation, i.e. riparian and floodplain vegetation in Good (Keighery, 1994) condition (AECOM, 2019b), were selected to be retained and clearing would be avoided in these areas (SE Campbell Development Pty Ltd, 2020b).

Within the paddock vegetation, the applicant has advised that all trees identified as suitable breeding habitat for black cockatoo species (*Calyptorhynchus banksii naso*, *Calyptorhynchus baudinii*, and *Calyptorhynchus latirostris*) through a black cockatoo habitat assessment (see section 3.2.1) will be retained (SE Campbell Development Pty Ltd, 2020a). Additionally, the applicant has advised that patches of paddock trees constituting high quality foraging habitat for black cockatoo species (see section 3.2.1) will also be excluded from the application area (SE Campbell Development Pty Ltd, 2020a).

Noting the above, the Delegated Officer considers that the applicant has demonstrated that a sufficient effort has been made to avoid the clearing of better quality vegetation that constitutes significant habitat for fauna, and that the proposed clearing has been minimised to the extent necessary to enable the construction of the solar array at the proposed Bengel Solar Farm (see Appendix F).

3.2. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix C) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix D.

This assessment identified that the clearing may pose a risk to the environmental values of suitable habitat for conservation significant fauna, significant remnant vegetation, and land and water resources, and that these required further consideration. The detailed consideration and assessment of the clearing impacts against the specific environmental values is provided below. Where the assessment found that the clearing presents an unacceptable risk to environmental values, conditions aimed at controlling and/or ameliorating the impacts have been imposed under sections 51H and 51I of the EP Act. These are also identified below.

3.2.1. Environmental value: biological values (fauna) – Clearing Principle (b)

Assessment: According to available databases and with consideration of the site characteristics of the proposed clearing area, including biological survey information (see Appendix C), the proposed clearing area may contain suitable habitat for the south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*), western ringtail possum (*Pseudocheirus occidentalis*), chuditch (*Dasyurus geoffroii*), forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*), and Carnaby's cockatoo (*Calyptorhynchus latirostris*).

The south-western brush-tailed phascogale and western ringtail possum (*Pseudocheirus occidentalis*) are arboreal mammals, typically associated with woodlands dominated by a variety of canopy species, but often characterised by the presence of hollow-bearing trees, as well as high canopy cover and connectivity (DEC, 2012b; DPAW, 2017). The chuditch (*Dasyurus geoffroi*) is a carnivorous marsupial, typically associated with riparian jarrah forest or other forest, woodland or shrubland habitats that contain suitable den sites, including hollow logs and tree hollows, and sufficient prey biomass (DEC, 2012a). Given that the application area comprises mature marri (*Corymbia calophylla*) and *Eucalyptus* spp., the application area may contain suitable habitat for these three conservation significant fauna species (AECOM, 2019b). However, the trees within the application area are isolated within Completely Degraded (Keighery, 1994) paddocks and do not provide a continuous canopy or connectivity to larger remnants of native vegetation, making it unlikely that arboreal mammals would be utilising the trees. Further, the application area is adjacent to riparian vegetation along the Collie River, including mature flooded gums (*Eucalyptus rudis*) and paperbarks (*Melaleuca* spp.) in Good (Keighery, 1994) vegetation condition (AECOM, 2019b), which is likely to provide more suitable habitat for these species. Noting the condition of the vegetation in the application area, the isolation of trees, and the proximity to more suitable habitat that will be retained, the application area is not considered likely to comprise significant habitat for the south-western brush-tailed phascogale, western ringtail possum or chuditch.

Collectively known as black cockatoo species, the forest red-tailed black-cockatoo, Baudin's cockatoo and Carnaby's cockatoo are known to nest in hollows of live and dead trees, including marri, jarrah (*Eucalyptus marginata*), karri (*Eucalyptus diversicolor*), wandoo (*Eucalyptus wandoo*), tuart (*Eucalyptus gomphocephala*), flooded gum, and other *Eucalyptus* spp. (Commonwealth of Australia, 2012). 'Breeding habitat' for black cockatoos includes trees of these species that either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow, where suitable DBH for nest hollows is 500 millimetres for most tree species (Commonwealth of Australia, 2012). While breeding, black cockatoos also generally forage within a 6 kilometre to 12 kilometre radius of their nesting site (Commonwealth of Australia, 2012). According to available datasets, mapped potential black cockatoo feeding habitat is recorded within 12 kilometres of the application area, making it a suitable location for breeding if appropriate hollows are present. The application area is also mapped within the known breeding range of Carnaby's cockatoo and within the predicted occurrence and potential breeding range for both Baudin's cockatoo and the forest red-tailed black cockatoo (Commonwealth of Australia, 2012).

A reconnaissance fauna survey conducted by AECOM in December 2018 identified that the application area includes large, mature hollow-bearing eucalypts that may be suitable for use as breeding trees by black cockatoo species (AECOM, 2019b). A subsequent targeted black cockatoo habitat survey was conducted by AECOM in May 2019, in accordance with the Commonwealth of Australia's guidelines (Commonwealth of Australia, 2012). The targeted black cockatoo habitat survey identified a total of 109 trees within the application area and adjacent vegetation of suitable DBH to be classified as breeding habitat, of which seven trees contained hollows of suitable size for use as breeding habitat for black cockatoo species (AECOM 2019a). Following the findings of this survey, the proposed clearing area was established to ensure all seven suitable breeding trees were excluded (SE Campbell Development, 2020a). Given all suitable breeding trees will be retained and the application area does not include trees with hollows of suitable size for breeding by black cockatoo species, the proposed clearing is not considered to comprise significant breeding habitat for black cockatoo species and is not considered likely to significantly impact breeding by black cockatoo species in the local area.

Black cockatoo species are noted to forage on a range of plant species, predominantly the seeds and flowers of marri, jarrah and proteaceous species (e.g. *Banksia* spp., *Hakea* spp. and *Grevillea* spp.) (Commonwealth of Australia, 2012). As the application area contains marri and *Eucalyptus* spp. and is mapped within 12 kilometres of known breeding sites, the application area is likely to provide suitable foraging habitat for black cockatoo species. The reconnaissance fauna survey also noted that a small flock of Carnaby's cockatoos were heard in mature eucalypts within riparian vegetation adjacent to the application area, however no evidence of individuals or foraging by black cockatoo species was observed within the application area itself during either the reconnaissance survey or subsequent targeted black cockatoo habitat survey (AECOM, 2019a; AECOM, 2019b). The targeted black cockatoo habitat survey examined the quality of foraging habitat within the application area and surrounding vegetation, using parameters broadly consistent with the Commonwealth of Australia's draft referral guidelines for black cockatoo species. These parameters include the flora species present, proximity to suitable nest hollows and known roosting or breeding sites, presence of potential breeding habitat, proximity to other foraging habitat, and evidence of foraging by black cockatoo species (Commonwealth of Australia, 2017).

The targeted survey identified that the application area and surrounding vegetation comprises 0.56 hectares of high quality, 1.57 hectares of quality, and 0.04 hectares of low quality foraging habitat for Carnaby's cockatoo, as well as 0.56 hectares of high quality and 1.57 hectares of quality foraging habitat for Baudin's cockatoo and forest red-tailed black cockatoo (AECOM, 2019a). Following these findings, the proposed clearing area was established to

exclude all areas considered to be high quality foraging habitat for all three black cockatoo species (SE Campbell Development, 2020a). It is noted that while high quality foraging habitat has been excluded, the proposed clearing will result in the loss of 0.94 hectares of quality to low quality foraging habitat for black cockatoo species in an area where remnant vegetation has been significantly reduced (see section 3.2.2). However, given the extent of the proposed clearing, that adjacent suitable foraging habitat along the Collie River will be retained, that higher quality foraging habitat within the paddock vegetation will be retained, and that majority of remnant vegetation within the local area is mapped as potential foraging habitat, the application area is not likely to comprise significant foraging habitat for black cockatoo species and the proposed clearing is not considered likely to significantly impact black cockatoo foraging in the local area.

Based on the above assessment, and given the applicant has committed to avoiding suitable breeding habitat and high quality foraging habitat for black cockatoo species, the proposed clearing is not considered likely to impact on significant habitat for conservation significant fauna.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable in relation to this environmental value.

3.2.2. Environmental value: significant remnant vegetation – Clearing Principle (e)

Assessment: The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The application area is located within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion which retains approximately 38.6 per cent of its pre-European vegetation extent (Government of Western Australia, 2019). The mapped Swan Coastal Plain vegetation complexes, Guildford and Cannington, retain approximately 5.09 and 11.8 per cent, respectively, of their pre-European extent within the Swan Coastal Plain IBRA Bioregion (see Appendix C). The local area retains approximately 19.03 per cent of vegetation cover. Noting that the current vegetation extent for both the mapped Swan Coastal Plain vegetation complexes and the local area fall below the 30 per cent threshold, the application area is considered to be a remnant within an extensively cleared landscape.

While it is noted that the application area consists of isolated marri trees and *Eucalyptus* spp., these canopy species may be representative of the Guildford vegetation complex (see Appendix C). Noting that the pre-European vegetation extent of the Guildford complex has been significantly reduced and that only 0.32 per cent of remaining vegetation mapped within this complex lies within conservation estate, occurrences of vegetation representative of the Guildford complex are likely to be significant for its maintenance. However, given the lack of representative mid- and understorey species, and the Completely Degraded (Keighery, 1994) condition of the vegetation within the application area, it is unlikely that the proposed clearing will reduce the extent of vegetation representative of the Guildford complex. It is also noted that riparian vegetation in Good (Keighery, 1994) condition adjacent to the application area will be retained, which is likely to be more representative of the Guildford complex.

Noting the above, that the applicant has committed to avoid the clearing of better quality vegetation that constitutes significant habitat for fauna, and that the proposed clearing area consists of isolated trees that are unlikely to contribute to vegetation connectivity in the local area, the application area is not considered to be a significant remnant of native vegetation and the proposed clearing is not likely to have a significant impact on the extensively cleared local area.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable in relation to this environmental value.

3.2.3. Environmental value: land and water resources – Clearing Principles (f), (g), and (i)

Assessment: According to available databases, the application area does not intersect any natural source of surface water. However, the application area is located within 100 metres of the Collie River and its tributaries, as well as the Bengier Main Drain, and is mapped within the Keysbrook Consanguineous Wetland Suite, the Collie River Irrigation District, the Brunswick River and Tributaries proclaimed Surface Water Area, and the South West Coastal Groundwater Area. A reconnaissance vegetation survey conducted by AECOM in December 2018 identified the presence of riparian and floodplain vegetation adjacent to the paddock trees within the application area (AECOM, 2019b). Given the above, the vegetation within the application area is considered to be growing in, or in association with, an environment associated with a watercourse or wetland.

However, the application area itself consists of isolated paddock trees in Completely Degraded (Keighery, 1994) condition that occur a minimum of 75 metres from all permanent, natural watercourses and 25 metres from non-perennial watercourses. Additionally, characteristic riparian and floodplain vegetation, including flooded gums and paperbarks, have been excluded from the proposed clearing area. Noting the distance from all natural sources of surface water, the extent and condition of vegetation proposed to be cleared, and that adjacent riparian vegetation

will be retained, the proposed clearing is not anticipated to cause deterioration in the quality of surface or underground water, or to result in any long-term impacts to the ecological values of the riparian vegetation communities associated with the watercourses and wetland associated with the application area.

The soil types present within the application area are mapped at low risk of land degradation resulting from water erosion, wind erosion, salinity, flooding and phosphorus export (see Appendix C). However, the soil types are mapped at upwards of 50 per cent, high to extreme risk of land degradation, for waterlogging and subsurface acidification (see Appendix C). While the proposed clearing may contribute to increased waterlogging and soil acidification within the application area, it is considered that these impacts are likely to be minimal given the extent of the proposed clearing, that vegetation within the application area is in Completely Degraded (Keighery, 1994) condition, that the local area is extensively cleared for agricultural purposes, and that adjacent riparian vegetation will be retained. Given the above, it is unlikely that the proposed clearing will result in appreciable land degradation.

It is noted that, as the application area is in Completely Degraded (Keighery, 1994) condition and has been subject to weed invasion, the proposed clearing may contribute to land degradation by facilitating the spread of weeds and dieback to remnant vegetation in the local area, including adjacent retained riparian vegetation. A weed and dieback condition is considered to minimise this risk.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable subject to relevant conditions (see below) in relation to this environmental value.

Conditions: To address the above impacts, the following condition will be added to the permit:

- Dieback and weed control, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on the Department of Water and Environmental Regulation's website on 26 May 2020, inviting submissions from the public within a 21 day period. One submission was received in relation to this application (see Appendix B).

Other relevant authorisations required for the proposed land use include development approval under the *Planning and Development Act 2005* (issued by the Shire of Harvey). The Shire of Harvey (the Shire) advised DWER that the proposal relating to CPS 8793/1 was consistent with Development Application P120/19, and that the Shire did not have any further comments regarding the proposed clearing (Shire of Harvey, 2020). The Shire's determination on Development Application P120/19 stated that the application is appropriate for consideration as a "Renewable Energy Facility" land use and compatible with the objectives of the Zoning and Development Standards for Intensive Farming in accordance with District Planning Scheme No. 1 clause 4.2.5 of the Shire of Harvey and Part 4 – Zones clause 12(e) Rural in accordance with the Greater Bunbury Region Scheme (SE Campbell Development, 2020a). Consequently, Development Application P120/19 was approved subject to conditions in accordance with Clause 68 of Schedule 2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions of the clause 4.2.5(b) of the Shire of Harvey District Planning Scheme No. 1, and pursuant to clause 24(b) of the Greater Bunbury Region Scheme (SE Campbell Development, 2020a).

It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Appendix A – Additional information provided by applicant

Summary of comments	Consideration of comment
<p>Additional information provided by the applicant on 25 June 2020:</p> <ul style="list-style-type: none"> • Further information regarding the measures taken by the applicant to avoid and minimise the need for clearing; • Evidence that Development Approval for the Benger Solar Farm had been obtained; and • Queries around retention of black cockatoo habitat trees (SE Campbell Development, 2020a). 	<p>These comments were considered as follows:</p> <ul style="list-style-type: none"> • Summary of efforts taken to avoid and minimise the need for clearing were considered in the detailed assessment of the application (see section 3.1); • Development Approvals were considered under relevant planning instruments and other matters (see section 3.3); and • Retention of black cockatoo habitat trees was considered in discussion of avoidance and minimisation measures (see section 3.1) and the assessment of impacts to environmental values (refer to section 3.2.1).
<p>A black cockatoo habitat assessment was provided by the applicant on 26 June 2020.</p>	<p>This information was considered in the assessment of impacts to environmental values (refer to section 3.2.1).</p>

Appendix B – Details of public submissions

Summary of comments	Consideration of comment
<p>A public submission was received that raised the following issues:</p> <ul style="list-style-type: none"> • Trees in close proximity to watercourses should be retained; • The applicant has not provided justification as to why the proposed clearing is required, particularly why some areas will be retained but others will be cleared; • The trees proposed to be cleared may provide shelter for fauna, particularly those occurring in patches and along the property boundary; and • The trees proposed to be cleared may provide significant foraging, breeding and/or roosting trees for black cockatoo species now and in the future. 	<p>These comments were considered as follows:</p> <ul style="list-style-type: none"> • The potential for vegetation to be retained was considered under discussion of avoidance and minimisation measures (see section 3.1); • A plan and Development Approval for the proposed Benger Solar Farm that were consistent with the proposed clearing area was provided during the assessment of this application (see Appendix F); and • The potential for the proposed clearing to impact fauna, including black cockatoo species, was considered in the assessment of impacts to biological values, including consideration of a targeted black cockatoo habitat survey provided during the assessment of the application and after this submission was received (refer to section 3.2.1).

Appendix C – Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix D.

1. Site characteristics

Site characteristic	Details
Local context	The proposed clearing area includes approximately 55 isolated native paddock trees with a total canopy area of 0.94 hectares, within Lot 0 on Diagram 685, Benger. The proposed clearing area is surrounded by previously cleared agricultural land including sparsely distributed paddock trees to the north, east and south, and is adjacent to Collie River and associated riparian vegetation to the west. The application area is adjacent to a mapped South West Region Ecological Linkage (Molloy et al., 2009), however given the isolated nature of the trees, the application area is not considered to contribute significantly to the function of this ecological linkage. Spatial data indicates the local area (10 km radius of the proposed clearing area) retains approximately 19.02% of the pre-European native vegetation cover.
Vegetation description	<p>Photographs supplied by the applicant and a reconnaissance vegetation survey (AECOM, 2019b) indicate the vegetation within the proposed clearing area consists of isolated marri (<i>Corymbia calophylla</i>) and <i>Eucalyptus</i> spp. trees with no native mid- or understorey species and high weed cover. Representative photos are available in Appendix F.</p> <p>Given the lack of representative mid- and understorey species, and the Completely Degraded (Keighery, 1994) condition of the vegetation, this is inconsistent with the mapped Swan Coastal Plain vegetation types:</p> <ul style="list-style-type: none"> • Guildford complex, described as a mixture of open forest to tall open forest of <i>Corymbia calophylla</i> (marri), <i>Eucalyptus wandoo</i> (wandoo) and <i>Eucalyptus marginata</i> (jarrah), and wandoo woodland (with rare occurrences of <i>Eucalyptus lane-poolei</i> (salmon white gum). Minor components include <i>Eucalyptus rudis</i> (flooded gum) and <i>Melaleuca raphiophylla</i> (swamp paperbark); and • Cannington complex, described as mosaic of vegetation from adjacent vegetation complexes of Bassendean, Karrakatta, Southern River and Vasse (Hedde et al., 1980).
Vegetation condition	<p>Photographs supplied by the applicant and a reconnaissance vegetation survey (AECOM, 2019b) indicate the vegetation within the proposed clearing area is in Completely Degraded (Keighery, 1994) condition, described as the structure of the vegetation is no longer intact and the area is completely or almost completely without native species.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix E, below. Representative photos are available in Appendix F.</p>
Soil description	<p>The application area is mapped within the following soil types:</p> <ul style="list-style-type: none"> • Pinjarra P2 Phase (213Pj_P2), described as flat to very gently undulating plain with deep alkaline mottled yellow duplex soils which generally consist of shallow pale sand to sandy loam over clay, which comprises approximately 60 per cent of the application area; • Pinjarra P8 Phase (213Pj_P8), described as broad poorly drained flats and poorly defined stream channels with moderately deep to deep sands over mottled clays; acidic or less commonly alkaline grey and yellow duplex soils to uniform bleached or pale brown sands over clay, which comprises approximately 35 per cent of the application area; and • Pinjarra P1a Phase (213Pj_P1a), described as flat to very gently undulating plain with deep acidic yellow mottled duplex (or effective duplex) soils. Shallow pale sand to sandy loam over clay; imperfect to poorly drained and generally

Site characteristic	Details			
	not acceptable to salinity, comprising approximately 5% of the application area (DPIRD, 2017).			
Land degradation risk	Land degradation risk (DPIRD, 2017) for the mapped soil types are summarised in the following table:			
	Risk categories	Pinjarra P2 Phase (213Pj_P2)	Pinjarra P8 Phase (213Pj_P8)	Pinjarra P1a Phase (213Pj_P1a)
	Wind erosion	3-10% of map unit has a high to extreme wind erosion risk	10-30% of map unit has a high to extreme wind erosion risk	10-30% of map unit has a high to extreme wind erosion risk
	Water erosion	<3% of map unit has a high to extreme water erosion risk	<3% of map unit has a high to extreme water erosion risk	<3% of map unit has a high to extreme water erosion risk
	Salinity	30-50% of map unit has a high salinity risk or is presently saline	3-10% of map unit has a high salinity risk or is presently saline	<3% of map unit has a high salinity risk or is presently saline
	Subsurface Acidification	>70% of map unit has a high subsurface acidification risk or is presently acid	>70% of map unit has a high subsurface acidification risk or is presently acid	>70% of map unit has a high subsurface acidification risk or is presently acid
	Flood risk	<3% of the map unit has a moderate to high flood risk	<3% of the map unit has a moderate to high flood risk	<3% of the map unit has a moderate to high flood risk
	Waterlogging	>70% of map unit has a moderate to very high waterlogging risk	>70% of map unit has a moderate to very high waterlogging risk	>70% of map unit has a moderate to very high waterlogging risk
	Phosphorus export	<3% of map unit has a high to extreme phosphorus export risk	10-30% of map unit has a high to extreme phosphorus export risk	<3% of map unit has a high to extreme phosphorus export risk
Waterbodies	<p>The desktop assessment and aerial imagery indicated that the application area does not intersect any natural sources of surface water. However, the application area is adjacent to a non-perennial tributary of Collie River located approximately 25 metres east, a man-made drainage line (Benger Main Drain) located approximately 40 metres north, and Collie River located approximately 80 metres west of the application area.</p> <p>The application area is also mapped within the Keysbrook Consanguineous Wetland Suite, the Collie River Irrigation District, the Brunswick River and Tributaries proclaimed Surface Water Area, and the South West Coastal Groundwater Area.</p>			
Conservation areas	According to available databases, the closest conservation area, freehold Department of Biodiversity Conservation and Attractions (DBCAs) managed land, occurs approximately 1.2 kilometres west of the application area. This conservation area is separated from the application area by previously cleared agricultural land and the Collie River.			
Climate and landform	The application area occurs within a Mediterranean-type climate, with an average annual rainfall of 900 to 1000 millimetres, average annual evapotranspiration rate of 800 millimetres and average monthly maximum temperatures ranging from 18.5°C to 34.7°C. Topography of the application area is fairly flat, with a shallow slope running west to east.			

2. Flora, fauna and ecosystem analysis

A review of available databases determined that a total of 24 threatened or priority flora have been recorded within the local area, comprising three Priority 1 (P1) flora, one Priority 2 (P2) flora, seven Priority 3 (P3) flora, six Priority 4 (P4) flora, and seven threatened flora (Western Australian Herbarium, 1998-). None of these existing records occur within the application area. With consideration for the site characteristics set out above, relevant datasets (see Appendix F), existing records, and reconnaissance survey information, none of the aforementioned conservation significant flora species (see Appendix D) are likely to be impacted by the clearing.

According to available databases, two state-listed threatened ecological communities (TECs) and three priority ecological communities (PECs) are recorded within the local area. Given the site characteristics set out above, relevant datasets (see Appendix F), and reconnaissance survey information, the application area is not considered likely to be representative of any threatened or priority ecological communities (see Appendix D).

A total of 41 threatened or priority fauna species have been recorded within the local area, including 15 threatened fauna species, eight priority fauna species, 16 fauna species protected under international agreement, and two other specially protected fauna species (DBCA, 2007-). None of these records occur within the application area. Noting the site characteristics set out above, relevant datasets (see Appendix F), and reconnaissance and targeted fauna survey information, the following conservation significant fauna species may be impacted by the clearing.

Species	Distance of closest record to application area (kilometres)	Suitable habitat features (fauna)	Surveys adequate to identify? (Y, N, N/A)
Forest red-tailed black cockatoo (<i>Calyptorhynchus banksii naso</i>)	Approximately 3.3 kilometres	Application area includes hollow-bearing marri and <i>Eucalyptus</i> spp., potentially suitable foraging, breeding and roosting habitat.	Y – targeted black cockatoo survey
Baudin's cockatoo (<i>Calyptorhynchus baudinii</i>)	Approximately 4.4 kilometres	Application area includes hollow-bearing marri and <i>Eucalyptus</i> spp., potentially suitable foraging, breeding and roosting habitat.	Y – targeted black cockatoo survey
Carnaby's cockatoo (<i>Calyptorhynchus latirostris</i>)	Approximately 1.2 kilometres	Application area includes hollow-bearing marri and <i>Eucalyptus</i> spp., potentially suitable foraging, breeding and roosting habitat.	Y – targeted black cockatoo survey
Chuditch (<i>Dasyurus geoffroyi</i>)	Approximately 5.0 kilometres	Application area includes hollow-bearing marri and <i>Eucalyptus</i> spp. adjacent to riparian vegetation, may provide suitable foraging habitat and den resources.	N – reconnaissance survey only
South-western brush-tailed phascogale (<i>Phascogale tapoatafa wambenger</i>)	Approximately 1.7 kilometres	Application area includes hollow-bearing marri and <i>Eucalyptus</i> spp. with sparse understorey, may provide suitable foraging habitat and diurnal refugia	N – reconnaissance survey only
Western ringtail possum (<i>Pseudocheirus occidentalis</i>)	Approximately 6.4 kilometres	Application area includes hollow-bearing marri and <i>Eucalyptus</i> spp. adjacent to riparian vegetation, may provide suitable foraging habitat and diurnal refugia.	N – reconnaissance survey only

3. Vegetation extent

Vegetation representation statistics (Government of Western Australia, 2018).

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current Extent in DBCA Managed Lands	
				(ha)	(%)
IBRA Bioregion					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Swan Coastal Plain vegetation complex					
Guildford Complex	90,513.13	4,607.91	5.09	287.49	0.32
Cannington Complex	16,661.33	1,965.94	11.8	981.34	5.89

Local Area					
10 kilometre radius	35,902.14	6,830.58	19.03	-	-

Appendix D – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment:</u> Although the application area may contain significant habitat for fauna (see Principle (b) below), the application area is not likely to comprise locally or regionally significant flora, vegetation or ecological communities. Given that the proposed clearing area comprises vegetation in Completely Degraded (Keighery, 1994) condition that has been subject to significant disturbance through previous clearing activities, weed invasion and grazing, the proposed clearing area is not considered likely to comprise a high level of biodiversity.</p>	Not likely to be at variance	No
<p><u>Principle (b):</u> “Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</p> <p><u>Assessment:</u> The proposed clearing area may contain significant foraging, roosting and/or breeding habitat for six conservation significant fauna (see Appendix C).</p>	May be at variance	Yes Refer to Section 3.2.1 above.
<p><u>Principle (c):</u> “Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</p> <p><u>Assessment:</u> Noting that the vegetation within the application area is in Completely Degraded (Keighery, 1994) condition with no native understorey observed during reconnaissance surveys, and has been subject to significant disturbance resulting from previous clearing activities, weed invasion and grazing, the proposed clearing area is unlikely to contain suitable or significant habitat for flora species listed under the <i>Biodiversity Conservation Act 2018</i>.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> “Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.”</p> <p><u>Assessment:</u> Given the application area consists of isolated paddock trees in Completely Degraded (Keighery, 1994) condition, the proposed clearing area is not considered to comprise vegetation representative of any threatened ecological community listed under the <i>Biodiversity Conservation Act 2018</i>.</p>	Not likely to be at variance	No
Environmental values: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> “Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</p> <p><u>Assessment:</u> The extent of the mapped vegetation type and native vegetation in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia, 2001).</p>	May be at variance	Yes Refer to Section 3.2.2 above.
<p><u>Principle (h):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</p>	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p><u>Assessment:</u> Given the distance and separation from the nearest conservation area (see Appendix C), the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>		
<p>Environmental values: land and water resources</p>		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> Given a number of watercourses and a wetland are recorded within 100 metres of the proposed clearing area, the clearing may include the removal of vegetation growing in association with an environment associated with a watercourse or wetland.</p>	Is at variance	<p>Yes</p> <p>Refer to Section 3.2.3 above.</p>
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> The mapped soils are not susceptible to land degradation resulting from water erosion, wind erosion, salinity, flooding and phosphorus export, but are highly susceptible to waterlogging and subsurface acidification.</p>	Not likely to be at variance	<p>Yes</p> <p>Refer to Section 3.2.3 above.</p>
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u> Given a number of watercourses, a wetland and proclaimed surface and groundwater areas are recorded within 100 metres of the proposed clearing area, the clearing may impact surface or ground water quality.</p>	Not likely to be at variance	<p>Yes</p> <p>Refer to Section 3.2.3 above.</p>
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u> The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance	<p>No</p>

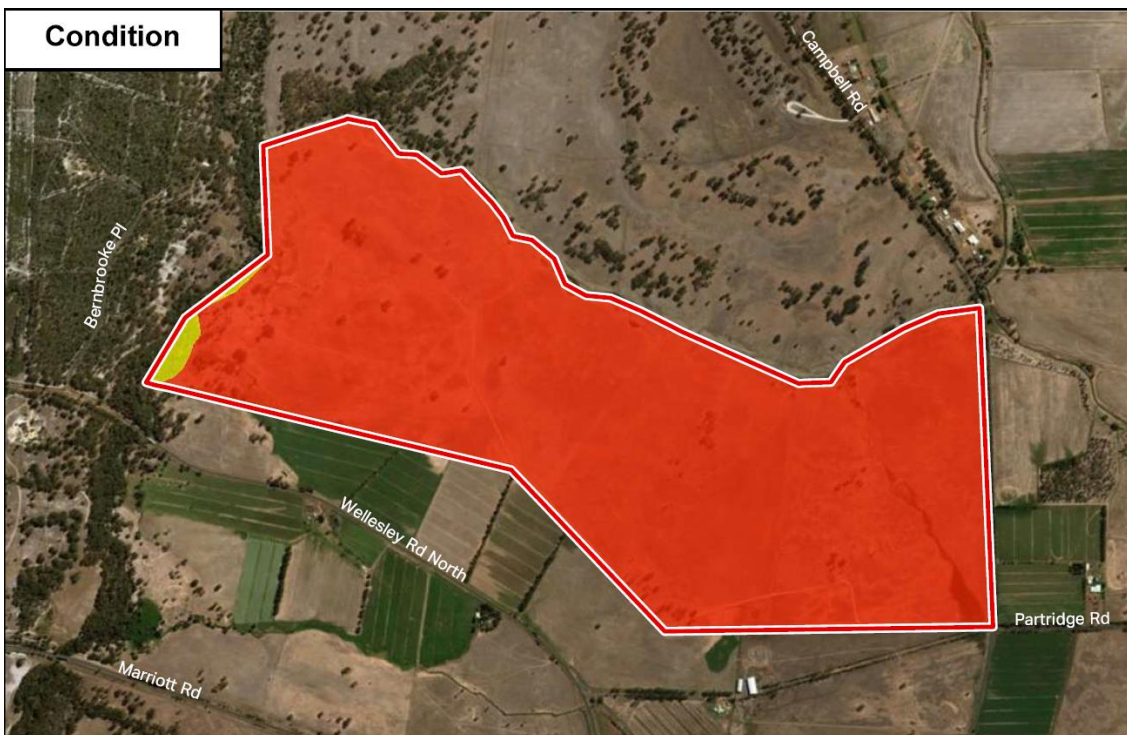
Appendix E – Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

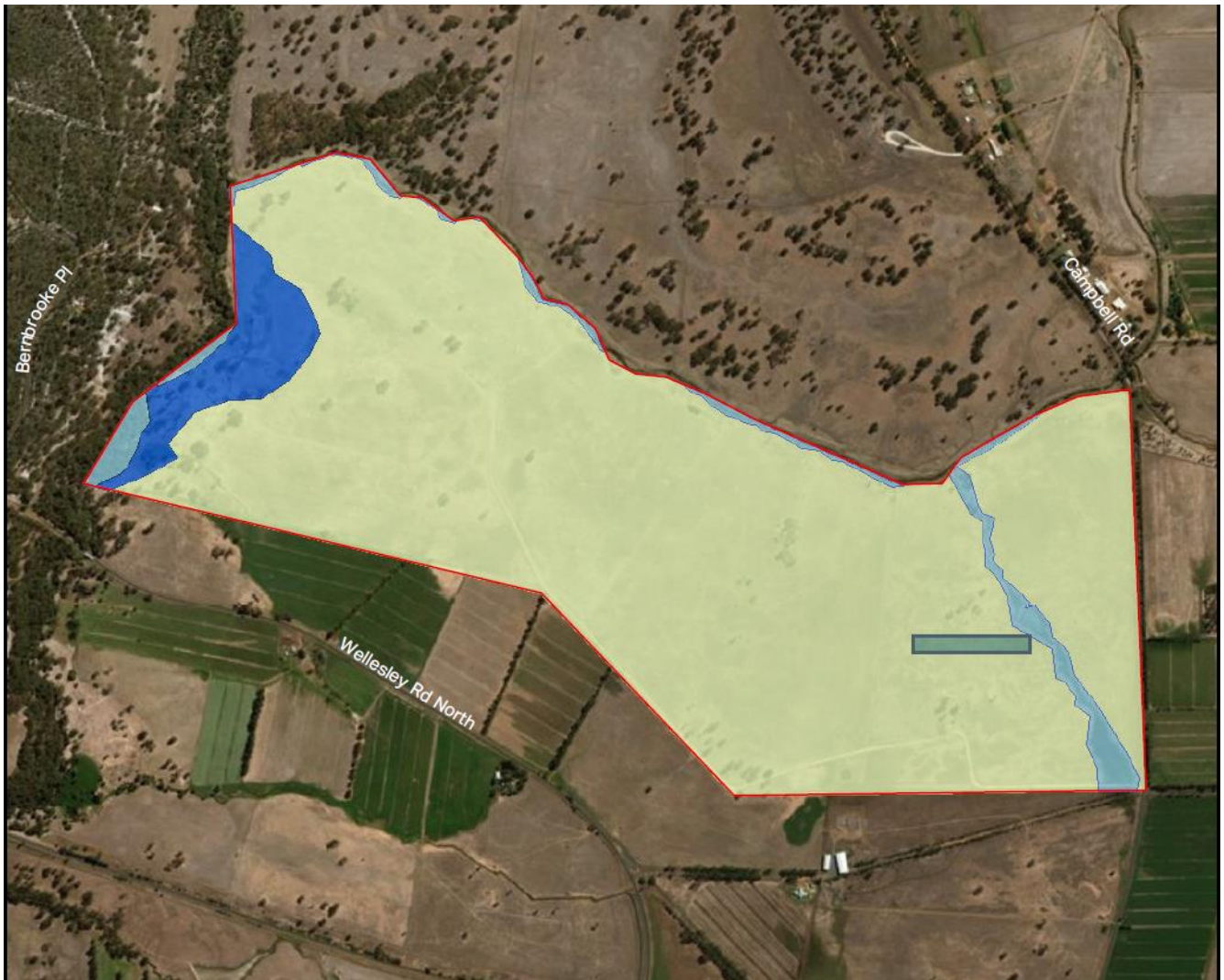
Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very Good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix F – Biological survey information excerpts / photographs of the vegetation



<p>PROJECT ID 60590393 CREATED BY KW APPROVED BY C,Bennison LAST MODIFIED 01 FEB 2019</p>	<p>www.aecom.com</p>	<p>LEGEND</p> <p> Project Area</p> <p>Community</p> <p> Paddock</p> <p> Riparian Vegetation</p> <p> Wetland</p>	<p>Condition</p> <p> Good</p> <p> Completely Degraded</p>
<p>DATUM GDA 1994, PROJECTION MGA ZONE 50</p> <p>0 140 280 420 560</p> <p>metres</p> <p>1:17,500 when printed at A4</p>		<p><small>Data sources: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community</small></p>	

Figure 2. Vegetation communities and condition identified within the application area and surrounding vegetation (AECOM, 2019b).




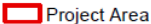
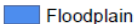
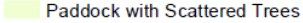
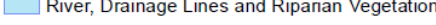


PROJECT ID 60590393 CREATED BY KW APPROVED BY C.Bennison LAST MODIFIED 17 JAN 2019	 www.aecom.com	LEGEND  Project Area Fauna Habitat  Floodplain  Paddock with Scattered Trees  River, Drainage Lines and Riparian Vegetation
 DATUM GDA 1994, PROJECTION MGA ZONE 50  1:15,000 when printed at A4		<small>Data sources: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community</small>

Figure 3. Fauna habitat identified within the application area and surrounding vegetation (AECOM, 2019b).

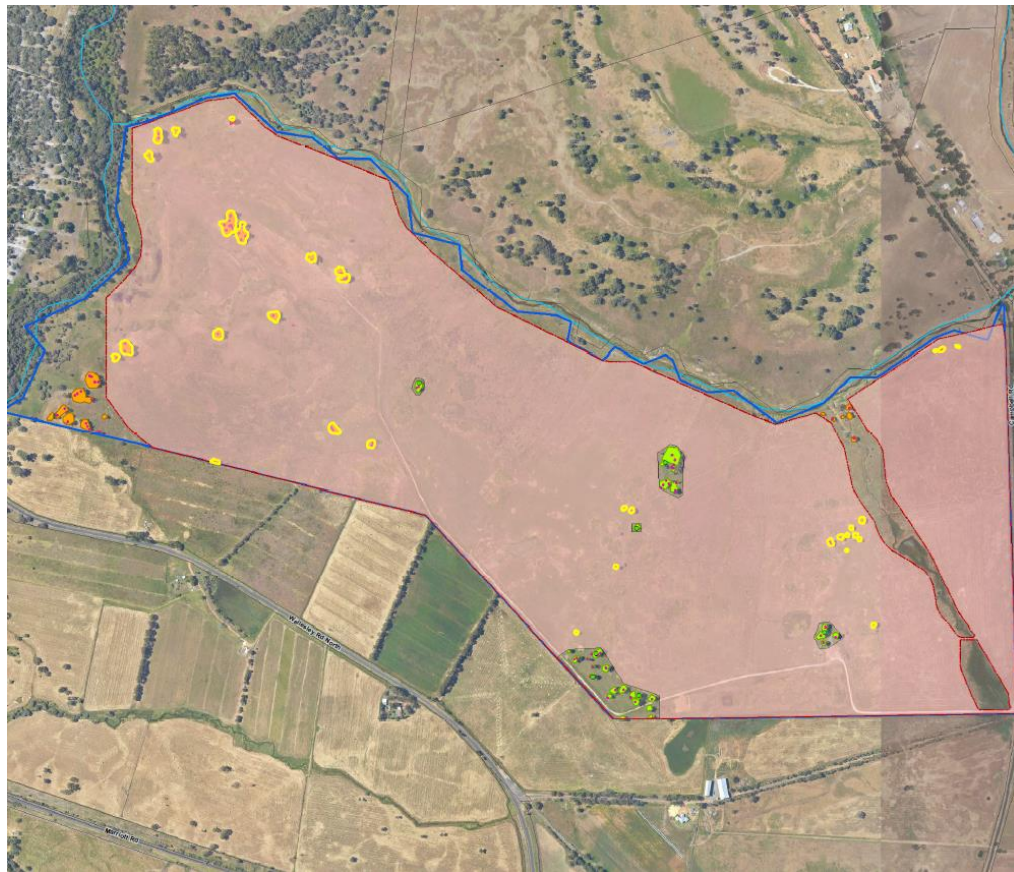


Figure 4. Black cockatoo habitat identified within the application area and surrounding vegetation (SE Campbell Development Pty Ltd 2020b).

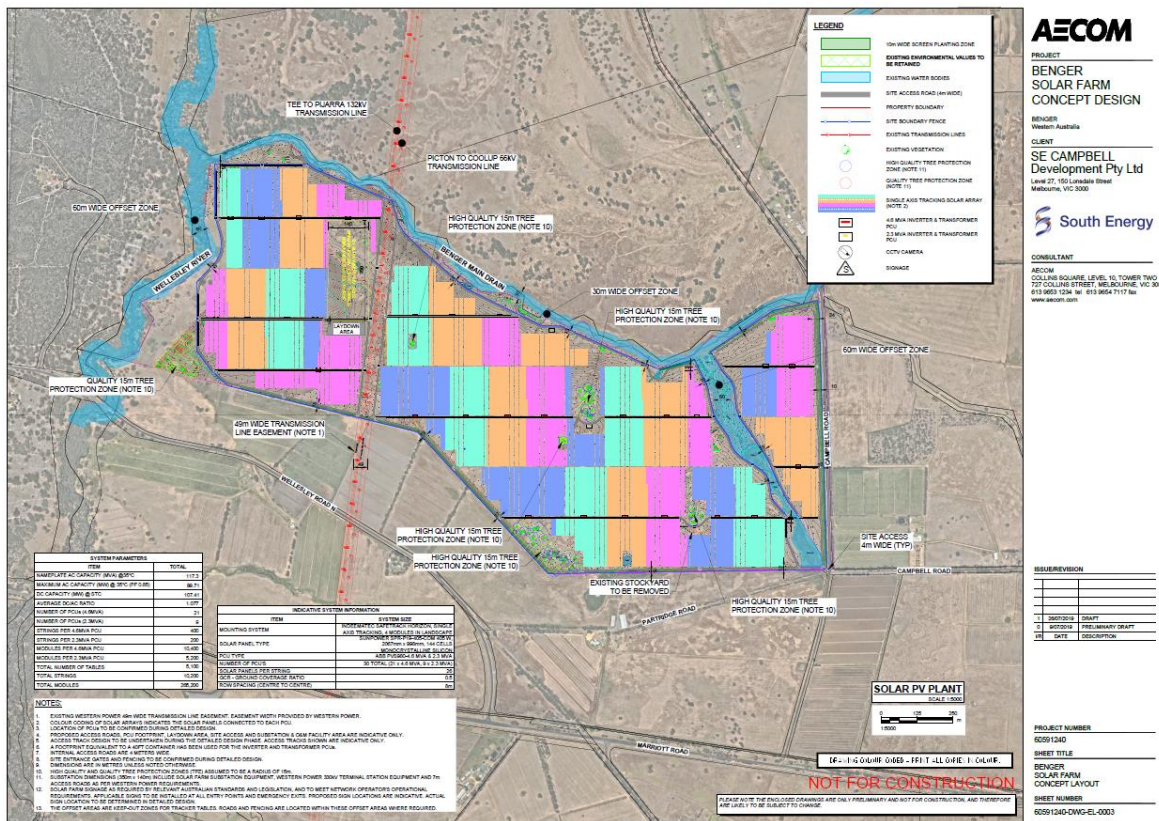


Figure 5. Concept design for the proposed Benger Solar Farm.



Figure 6. Photographs of the application area (AECOM, 2019b).



Figure 6. Photographs of black cockatoo habitat trees to be retained in vegetation adjacent to the application area (AECOM, 2019b).

Appendix G – References

1. GIS datasets

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- Aboriginal Heritage Places (DPLH-001)
- Bush Forever Areas 2000 (DPLH-019)
- Cadastre Address (LGATE-002)
- CAWSA Part 2A Clearing Control Catchments (DWER-004)
- Consanguineous Wetlands Suites (DBCA-020)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- DBCA Statewide Vegetation Statistics

- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography Linear (Hierarchy) (DWER-031)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Vegetation Extent (DPIRD-005)
- Pre-European Vegetation (DPIRD-006)
- Public Drinking Water Source Areas (DWER-033)
- Regional Parks (DBCA-026)
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Rivers (DWER-036)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil and Landscape Mapping – Best Available
- Soil Landscape Land Quality datasets
- Vegetation Complexes - Swan Coastal Plain (DBCA-046)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System)– Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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AECOM (2019b) Benger Solar Farm. Desktop Vegetation, Flora and Fauna Assessment & Reconnaissance Survey prepared for SE Campbell Development Pty Ltd (South Energy). DWER Ref: A1896921.

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SE Campbell Development Pty Ltd (2020b) Application form and supporting documents for CPS 8793/1. DWER Ref: A1869620.

SE Campbell Development Pty Ltd (2020c) Revised application area for CPS 8793/1. DWER Ref: A1914390.

Shire of Harvey (2020) Comments from the Shire of Harvey regarding CPS 8793/1. DWER Ref: A1903432.

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