

105 Dane Road, Stawell 3380
Allot. 19 Sec. Z PARISH OF STAWELL
Council: Northern Grampians
Council Property Number: 19-Z\PP3499
Directory Reference: VicRoads 56 E2



ECOLOGICAL ASSESSMENT

21 October 2020
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1. INTRODUCTION

1.1. Project Background

Cumbre Consulting was commissioned by ACenergy Pty Ltd to assess the environmental value of vegetation at 105 Dane Road, Stawell 3380, Allot. 19 Sec. Z PARISH OF STAWELL, Northern Grampians in relation to the development of a Solar Farm. See Figure 1 Location of Study Area, Figure 2 Development Design Over Aerial and Figure 3 Detail Design. See Figures 1, 2 & 3



Figure 1: Proposed developments and managed defendable space

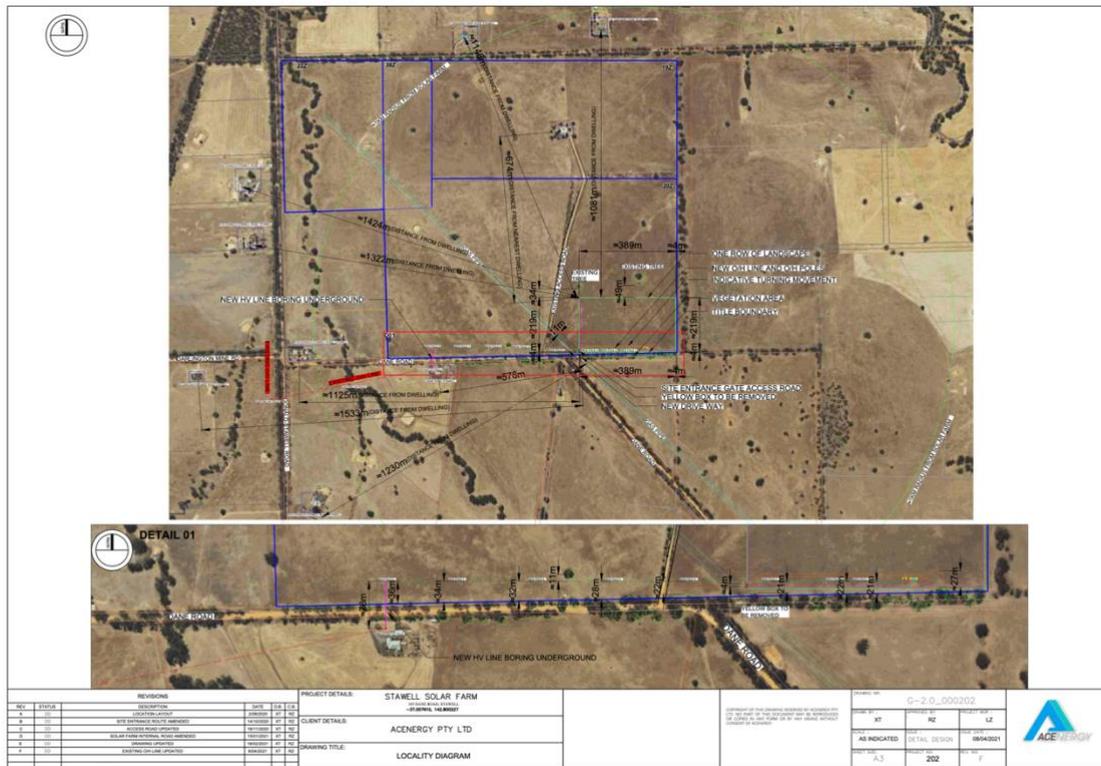


Figure 2: Development design over aerial (Revision with under boring western end of Dane Rd)

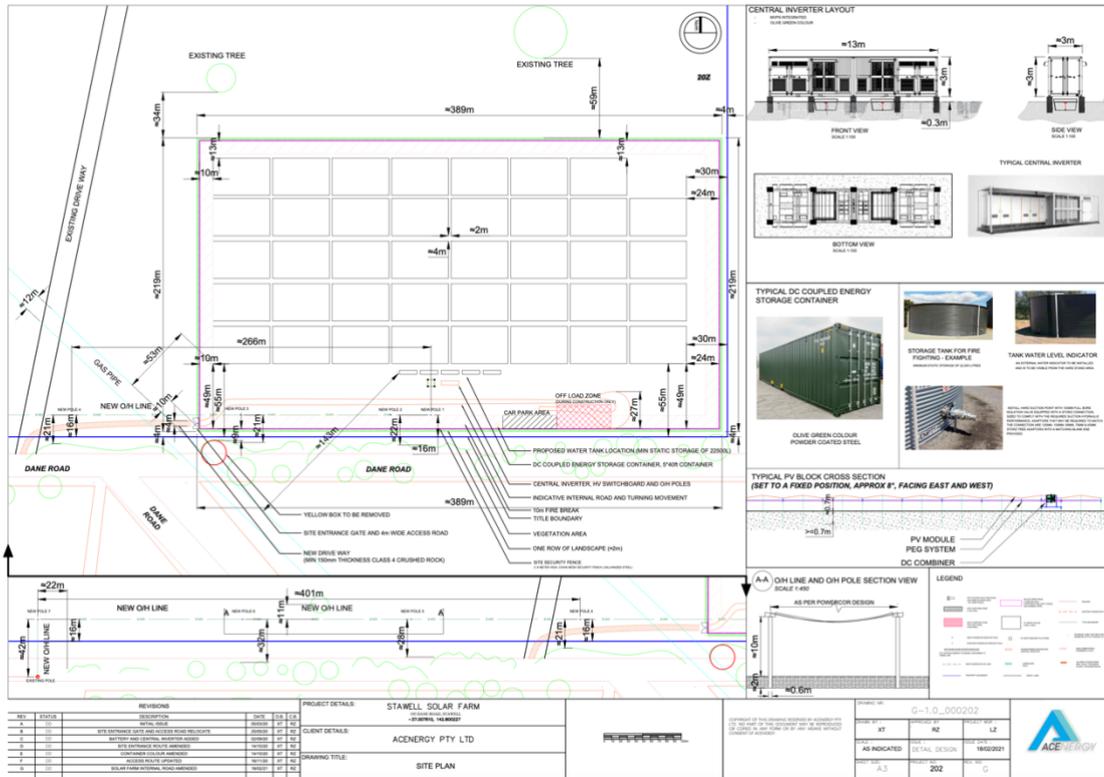


Figure 3: Detail Design

1.2. Objectives

The objectives of this assessment are:

- Assess the conservation significance of the habitat
- Map the extent, type and condition of the native vegetation
- Assess potential impacts of the proposed development on ecological values
- Consider measures that could avoid or reduce any impacts
- Assess and quantify measures to offset impacts and achieve a Net Gain

1.3. Study Area

The property is located at 105 Dane Road, Stawell 3380 within the municipality of the Northern Grampians Council, and is zoned Farming Zone (FZ). The following Planning Scheme Overlays pertain to this project:

Table 1 Planning Scheme Overlays

Clause Number	Name	Associated Schedules
44.04	Land Subject to Inundation Overlay (LSIO)	Schedule 1 (LSIO1)
44.03	Floodway (FO)	Schedule 1 (FO1)

The property falls into the Goldfields Bioregion and North Central Catchment Management Authority. The Department of Environment, Land, Water and Planning (DELWP) NatureKit¹ list the 1750 Ecological Vegetation Classes (EVC's) as: 175 Grassy Woodland.

¹ DELWP 2020. NatureKit <http://maps.biodiversity.vic.gov.au/viewer/?viewer=NatureKit>

See EVC Figure 4 for Pre 1750 Ecological Vegetation Classes Modelled for the study area and Figure 5 for 2005 Ecological Vegetation Classes Modelled for the study area.

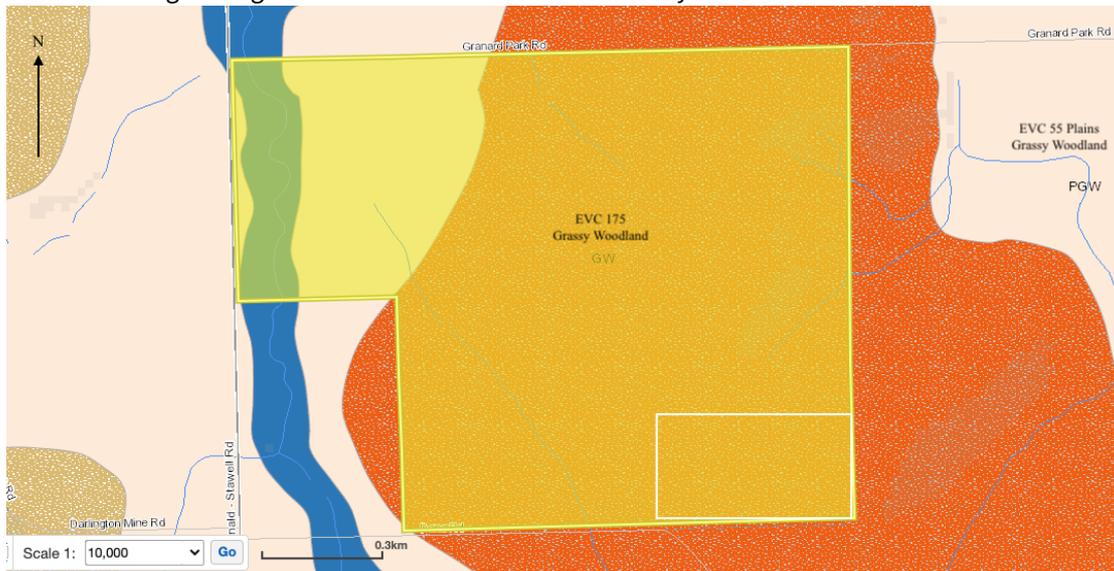


Figure 4: Pre 1750 Ecological Vegetation Class(es) modelled for study area

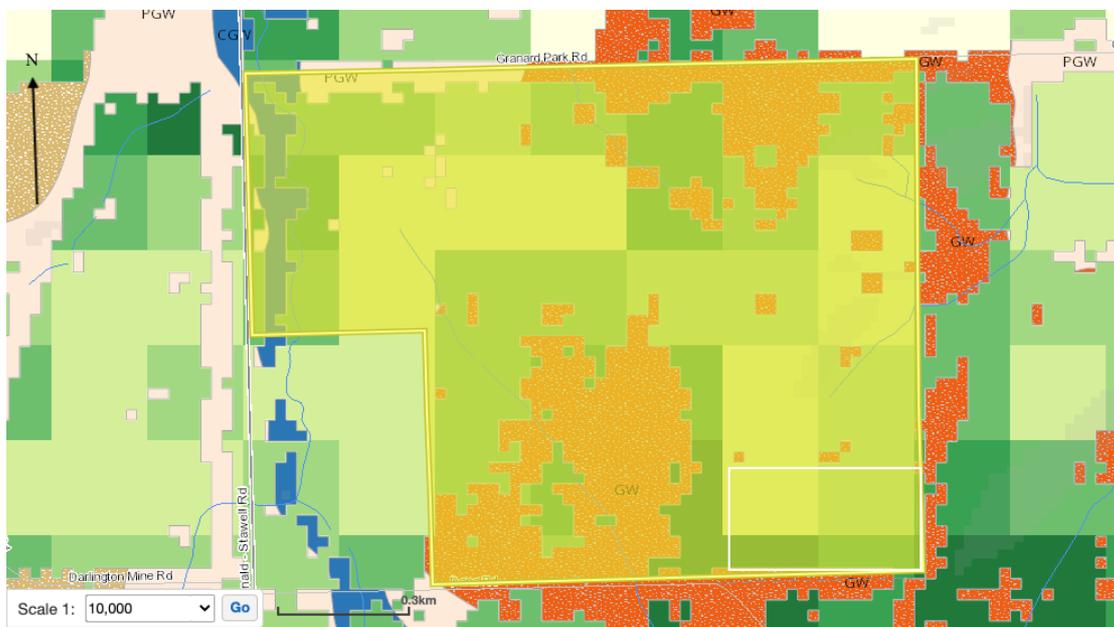


Figure 5: 2005 Ecological Vegetation Class(es) modelled for proposed development area.

2. DESCRIPTION OF METHODS

2.1. Field Survey

The EVC was identified using state-wide EVC mapping and then ground truthed on 18 September 2020 and 24 November 2020. The entire site was traversed by foot. Records were taken of all indigenous vascular plant species on site. Native vegetation areas were recorded and mapped. The

Diameter at Breast Height of the southern road reserve overstorey vegetation potentially impacted by development was measured and Tree Protection Zones calculated. See Table 3.

2.2. Defining and Assessing Vegetation

Native vegetation in Victoria has been defined by DELWP as belonging to two categories. These are:

REMNANT PATCH

A remnant patch of native vegetation is either:

- any area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native
- any area with three or more native canopy trees where the dripline of at least one other tree, forming a continuous canopy, or
- any mapped wetland included in the Current wetlands map, available in DELWP systems and tools.

SCATTERED TREE

A scattered tree is:

- a native canopy tree that does not form part of a remnant patch.²

HABITAT HECTARE

Habitat hectare (Vegetation Quality Assessment) is a site-based measure that combines extent and condition of native vegetation. The current condition of native vegetation is assessed against a benchmark for its Ecological Vegetation Class (EVC). EVCs are classifications of native vegetation types. The benchmark for an EVC describes the attributes of the vegetation type in its mature natural state, which reflects the pre- settlement circumstances. The condition score of native vegetation at a site can be determined through undertaking a habitat hectare assessment.

The habitat hectare assessment takes the following features into account: large trees; tree canopy cover; under-storey; cover of weeds; regeneration; organic litter; logs (condition score); patch size; neighbourhood; distance to core area (viability score)

The habitat hectares of native vegetation are calculated by multiplying the current condition of the vegetation (condition score) by the extent of native vegetation.

2.3. Limitations/Special Considerations

The survey was done in Spring, there are native species and introduced Crop/pasture/weed species on the study site. The site is very modified having been used in a mixed farming cropping rotation. The last crop planted on this site with use of herbicides was 2018. There is not considered to be any significant limitations to this study.

3. FLORA

The following Ecological Vegetation Class (EVC) from the Goldfields Bioregion was identified in this study using the DELWP Native Vegetation Information Management tool and field assessment:

² DELWP 2017. Guidelines for the removal, destruction or lopping of native vegetation
<https://www.environment.vic.gov.au/native-vegetation/native-vegetation>

3.1. Pre-European Settlement – 1750 Map of Victorian Goldfields EVCs Present in Study Area

3.1.1. EVC 175_61 Low Rises Grassy Woodlands (LRGW)

A variable open eucalypt woodland to 15 m tall over a diverse ground layer of grasses and herbs. The shrub component is usually diverse but sparse in cover. In the Goldfields bioregion, Grassy Woodland occurs on sedimentary soils on the lowest slopes at the interface between the plains and the infertile woodlands of the sedimentary hills.

4. FAUNA

4.1. Species found by survey

No threatened fauna species were recorded through field work on site as part of this study.

5. RESULTS

5.1. Flora species recorded on the development site.

5.1.1. Flora species recorded on the proposed development site.

Table 2: Flora species identified on site

Scientific Name	Common Name
<i>Arctotheca calendula</i>	Capeweed
<i>Asphodelus fistulosus</i>	Onion weed
<i>Avena fatua</i> & <i>Avena ludoviciana</i>	Wild Oats
<i>Austrodanthonia</i> sp.#	Wallaby grass
<i>Austrostipa</i> sp. #	Spear grass
<i>Erodium</i> Sp.	Corkscrew
<i>Hordeum glaucum</i>	Barley grass
<i>Hypochaeris radicata</i>	Cats Ear
<i>Lolium</i> species	Rye Grass
<i>Poa Bulbosa</i>	Bulbosa bluegrass
<i>Trifolium</i> species	Clover
	Cereal Crop

Native species

5.1.2. Vegetation not included in the assessment

- *Planted natives and exotic trees were not included in this assessment.* There was no vegetation in this category near the development.
- **Planted pastures and weed species.** The development site is an unimproved pasture paddock used in a cropping rotation last sown down in 2018 to a cereal crop with application of herbicides to control broad leaf and grass species.
- *Indigenous vegetation with TPZ (> 15m from base) not considered to be impacted by the proposed development.* There are two large trees located north of the site >30m from the proposed development site. The revision of the design has resulted in all trees except one tree (Tee No. 11) not impacted along the southern road reserve.
- *Regrowth: Native vegetation that is to be removed, destroyed or lopped that has naturally established or regenerated on land lawfully cleared of native vegetation and is less than 10 years old.* There are indigenous grasses present in light coverage in places along the southern boundary and varying density along the eastern margin of the proposed

development site considered less than 10 years old (approximately 2 years old re-established after crop in 2018).

- *Canopy trees located near or adjacent the route of the powerlines but not impacted.* There is one mature Yellow gum tree located within the paddock of 105 Dane Road Stawell west of the solar farm that is not impacted by the powerline leaving the development to meet up with the existing pole on the northern side of the Dane Road reserve. The position of the poles and the overhead powerlines have been positioned to avoid the native vegetation along the Dane road reserve by 21-32m south of the proposed lines. The poles and overhead lines have been positioned south to avoid the one paddock tree (Yellow gum's south aspect of the canopy) by 2-3m. Given trees can be trimmed 1/3 of foliage there should be no future impact to this paddock tree from the overhead infrastructure. See Appendix 2 Photo 29.

After considering the above criteria. There was no assessable remnant vegetation on the proposed development site or the route of overhead powerlines and poles leaving the site to the west and joining the existing pole.

5.2. Assessment of Southern road reserve overstorey trees

The trees along the southern road reserve considered potentially impacted by development of the solar farm road and carpark have been assessed. The diameter of the trees at breast height (DBH) have been measured and the tree protection zones (TPZ) have been calculated by considering each trees Tree protection (roots) radius and how far the tree is located from the proposed development zone, which is this case is a 6m road entering from the west (current landholders' driveway) with carpark located towards the eastern end of the proposed development site. See Figure 2.

5.3. Calculated Tree Protection Zones

The following trees located in the road reserve along the southern boundary of the proposed development site were assessed and Tree protection zones (TPZ) calculated. Trees with greater than or equal to 10% impact are considered impacted for offset. See Figure 6 for location of trees assessed in the road reserve and Table 3 for the Description of the trees assessed in the road reserve for impact (design with access from landholder's driveway 6m from the southern boundary).



Figure 6: Trees assessed for impact along road reserve (1-10).

Table 3 Description of trees assessed for impact (road 6m from southern boundary)

Tree ID	Species	Distance from development zone 6m from boundary (m)	DBH (cm)	Tree Protection zone (DBH in metres x 12) (m)	Calculations of TPZ impact (area of segment impacted m ² /total area m ²)	Scenario Road shifted to 11m from boundary at entry to solar farm from landholder's property	Photo
1	Yellow box	>65	110	13.2	No impact	No impact	18
2	Yellow box	8	83	9.96	15.8/312 = 5%	No impact	19
3	Yellow box	7	76	9.12	17/261 = 6%	No impact	19
4	Yellow box	6	55	6.6	2/137 = 1%	No impact	19
5	Long-leaved box	13	84	10.08	No impact	No impact	20
6	Yellow gum	14	85	10.20	No impact	No impact	21
7	Long-leaved box	6	74	8.88	26/243 = 10.7%	No impact	22
8	Yellow box	10	136	15	77/706 = 10.9%	No impact	23
9	Yellow box	6	54	6.48	1.6/132 = 1%	No impact	24

10	Yellow gum	6.5	91	10.92	63/375 = 17%	Impacted	1 & 2
11	Yellow box	6	59	7.08	5.5/157 = 3%	No impact	25
12	Yellow gum	11	90	10.8	No impact	No impact	26

Based on the results of this assessment, the access road has been moved from 6m parallel with the southern boundary to 5m further north (11m) from point of entry to the development site 8m east of Gas pipe easement to avoid impact to two large trees 7 & 8. The final design has the impact shown in the 7th shaded blue column. See Appendix 2 photos (1-2 & 18-26) for trees assessed for impact along road reserve.

5.4. Quantification of Losses for Scattered Trees

There is one large Yellow gum tree 91cm DBH (tree 10) located along the road reserve considered in this assessment as impacted with TPZ impact calculation of 17%. See Figure 7 Assessed zone. See Appendix 2 Photos 1 & 2.

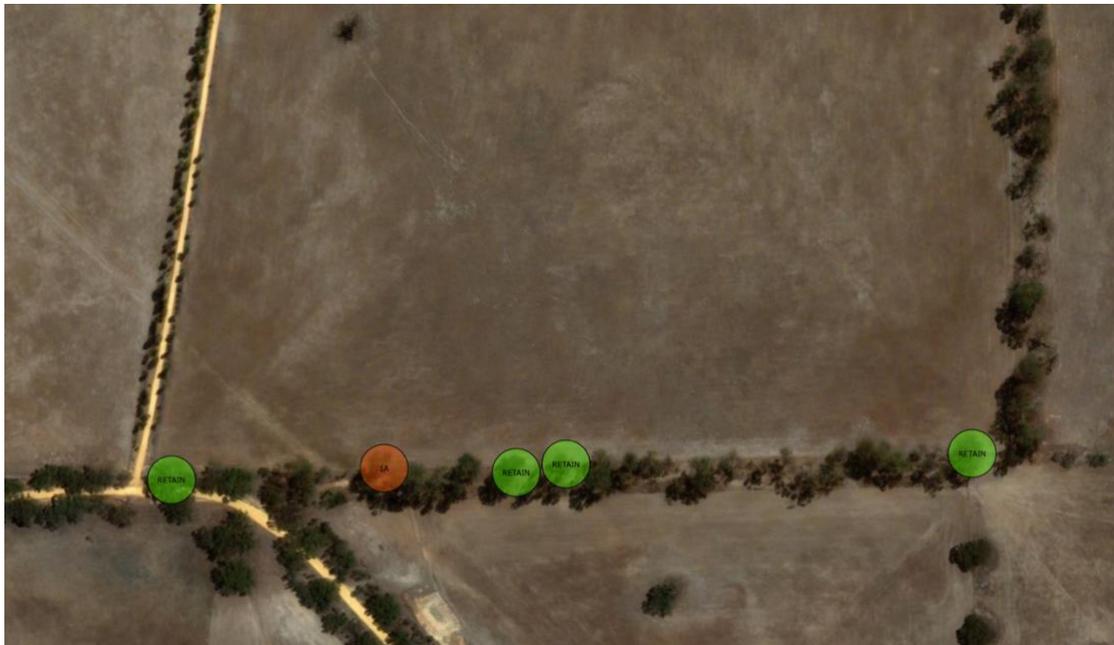


Figure 7: Assessed zone showing trees retained

5.5. Flora and Fauna Guarantee Act 1988 Protected Flora List

This proposal will not traverse or utilise the Crown Land located east and south of this property. The tree included in this assessment is for Tree Protection Zone (TPZ) impact where it is calculated that 17% of the TPZ may be impacted where the access road through the existing landholder's property moves from 6m from the southern boundary (road reserve) to 11m from the southern boundary (road reserve) where it enters the solar farm site. By using the existing landholder's property to access the solar farm, impact to the public land located south is avoided and thus there is no impact to protected flora on crown land.

6. IMPLICATION FOR DEVELOPMENT

6.1 Avoiding Impacts on Native Vegetation and Defendable Space

The solar farm has been located on land that is clear of native overstorey vegetation avoiding two large trees to the north in this landholder's paddock.

This Solar Farm development has had three design revisions to avoid impact to native vegetation associated with accessing the site. The first design had the access to the solar farm from the southern road reserve entering the site at the farm gate east of the gas pipe easement. This would have impacted a patch of vegetation west of the farm gate along the road reserve towards the junction with Dane Road. Negotiations with the landholder to access the site via the existing farm driveway, resulted in revision 2. There is a clear zone close to the front of the property along the driveway that allows entry from the driveway across the paddock 6m from the southern boundary that avoids impact to native vegetation including the planted trees lining the east side of the landholder's driveway. Some of the trees along the road reserve have minor & major TPZ impact with the access route located 6m from the southern boundary. Further assessment resulted in revision 3 that moves the access route a further 5m totalling 11m from the southern boundary and the overstorey vegetation along the road reserve. This has eliminated impact to all large trees on the reserve except the one tree near the entrance to the solar farm site from the existing landholders land where the road cannot be moved further north at that point due to it impacting farming land use (land currently sown to crop).

Revision 6 has seen the assessment of the overhead powerlines and poles west of the site ending towards the western property boundary of 105 Dane road Stawell, in line with the existing power pole located within the property of 58 Dane Road located to the south. The power will go underground (pit within 105 property) and be directionally bored under both north and south road reserves to avoid any native vegetation impact. The pit in 58 Dane Road will be located adjacent the existing power pole and will not impact native vegetation.

See Appendix 2 Photos 29-32.

6.2 Minimising Impacts on Native Vegetation

As discussed in 6.1, the design has been revised to minimise impact to native vegetation. The southern road reserve has not been used for access and the revision is to use the landholder's current access and at 6m into the property leave the existing driveway and swing to the east to reach the beginning of the study area. The road accessing the solar development site at 6m from the southern boundary had impact to two large trees >10% impact to the TPZ. The design has been revised to angle the road a further 5m from the southern boundary (11m) to avoid any TPZ impact to trees east of this point. As mentioned in 6.1 one large tree cannot be avoided at the entrance to the solar farm site where the access impacts this tree (no. 11) by a calculated 17% of the TPZ.

The route leaving the solar farm has avoided any impact to native vegetation and the connection to the existing pole in 58 Dane Road will be directionally bored underground to avoid/minimise any impact to native vegetation along the road reserves at that locality.

No feasible opportunities exist to further avoid removal or minimise impacts without compromising the proposed development.

6.3 Offset Statement

The client will purchase a third party offset from the credit register. Indications of availability of the type and amount of offset have been sought from Vegetation Link and Enviro Offset Trading. Vegetation Link have provided evidence that the offset is available, see Appendix 3.

7. SUMMARY OF APPLICANT REQUIREMENTS/ DECISION GUIDELINES

Table 4 Requirements

Number	Decision guideline to be considered	Response
1	<p>Information about the native vegetation to be removed, including: The assessment pathway and reason for the assessment pathway[^]. This includes the location category of the native vegetation to be removed.</p> <p>A description of the native vegetation to be removed. Maps showing the native vegetation and property in context.</p> <p>The offset requirement that will apply if the native vegetation is approved to be removed[^].</p>	<p>See Section 5</p> <p>This project is mapped as Location 3. The total area of removal is 0.07ha. The EnSymNVR tool was used due to the requirement for a detailed pathway.</p> <p>See Section 5 See Figure 2 Development Design over aerial, Figure 6 Trees Assessed for impact & Figure 7 Assessed zone, Appendix 1- Native vegetation removal report.</p> <p>See Appendix 1-Native vegetation removal report. 6.3 Offset statement Appendix 3 evidence of offset availability.</p>
2	<p>Topographic and land information relating to the native vegetation to be removed, showing ridges, crests and hilltops, wetlands and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion, as appropriate.</p>	<p>There is a slight rise central to the proposed development site at 213mASL with the land falling gently to the southwest, east & north See Contour Map in Appendix 4.</p> <p>There is no erosion or evidence of salinisation on site.</p>
3	<p>Recent, dated photographs of the native vegetation to be removed</p>	<p>See Appendix 2, Photos 1 – 29.</p>
4	<p>Details of any other native vegetation approved to be removed, or that was removed without the required approvals, on the same property or on contiguous land in the same ownership as the applicant, in the</p>	<p>N/A</p>

	five-year period before the application for a permit is lodged	
5	An avoid and minimise statement. The statement describes any efforts to avoid the removal of and minimise the impacts on the biodiversity and other values of native vegetation, and how these efforts focussed on areas of native vegetation that have the most value.	See 6.1 & 6.2
6	Property Vegetation Plan applies.	No
7	Where the removal of native vegetation is to create defensible space, a written statement explaining why the removal of native vegetation is necessary.	N/A.
8	Clause 52.16 applications- Native Vegetation Precinct Plan (NVPP)	N/A
9	An offset statement providing evidence that an offset that meets the offset requirements for the native vegetation to be removed has been identified and can be secured.	See Section 6.3
10	A site assessment report of the native vegetation to be removed, completed by an accredited native vegetation assessor.	This ecological report compiled by Heather Beever accredited native vegetation assessor.
11	Information about impacts on rare or threatened species habitat.	See Appendix 1 Native vegetation removal report for modelled rare & threatened species. None identified in field assessment. Three species have minor % habitat value affected. However, these species are not present on site and very unlikely given the mixed farming grazing/cropping history. The road reserve itself is also very weedy.

8. RECOMMENDATIONS/ CONCLUSIONS

The proposal is designated Location 3, a detailed assessment has been completed. It does not cover an endangered Ecological Vegetation Class (EVC) and there is no wetland or significant land features of any type. The development does not impact remnant native vegetation on site. Large remnant trees have been avoided and some young regrowth native grasses are located along the eastern margin of the site are not within the property or the development zone. The road reserve with modelled high Strategic Biodiversity Value (SBV) has been assessed and access has been modified to avoid this zone. A Large Yellow gum tree that's TPZ are impacted by 17% from the revised access arrangements is part of this proposal. Every attempt has been made to avoid and minimise impact to native vegetation with several revisions around access arrangements. The proposed powerlines west of the solar farm has been assessed and designed to avoid impact to Dane Road reserve trees and to avoid the one paddock tree adjacent to the proposed route. Provided the offset is met and other council planning requirements are met, the proposal seems well considered and very sound.

9. REFERENCES

DELWP 2020. Biodiversity EVC Benchmarks Victorian Central Uplands Region. Sourced at <https://www.environment.vic.gov.au/biodiversity/bioregions-and-evc-benchmarks>

DELWP 2020. Native Vegetation Information Management tool. Sourced at <https://nvim.delwp.vic.gov.au/Biodiversity>

DELWP 2020 Planning Schemes Online. Sourced at <http://planning-schemes.delwp.vic.gov.au>

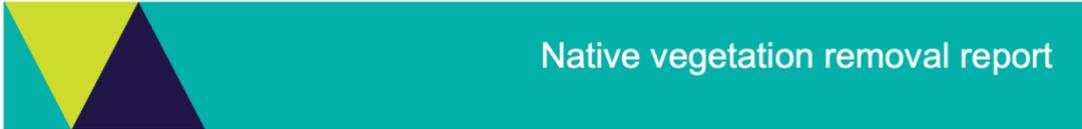
DELWP 2017. Applicant's guide – Applications to remove, destroy or lop native vegetation sourced, https://www.environment.vic.gov.au/_data/assets/pdf_file/0024/90762/Applicants-guide-applications-to-remove,-destroy-or-lop-native-vegetation.pdf

DEWLP 2017. Guidelines for the removal, destruction or lopping of native vegetation sourced, https://www.environment.vic.gov.au/_data/assets/pdf_file/0021/91146/Guidelines-for-the-removal,-destruction-or-logging-of-native-vegetation,-2017.pdf

DEWLP 2017. Assessor's handbook – Applications to remove, destroy or lop native vegetation, sourced, https://www.environment.vic.gov.au/_data/assets/pdf_file/0022/91255/Assessors-handbook-Applications-to-remove,-lop-or-destroy-native-vegetation-V1.0.pdf

DSE 2004. Native Vegetation: sustaining a living landscape. Vegetation Quality Assessment Manual- Guidelines for applying habitat hectares scoring method Version

APPENDIX 1 – Native Vegetation Removal Report



This report provides information to support an application to remove, destroy or lop native vegetation in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*. The report **is not an assessment by DELWP** of the proposed native vegetation removal. Native vegetation information and offset requirements have been determined using spatial data provided by the applicant or their consultant.

Date of issue: 15/12/2020
 Time of issue: 12:13 pm

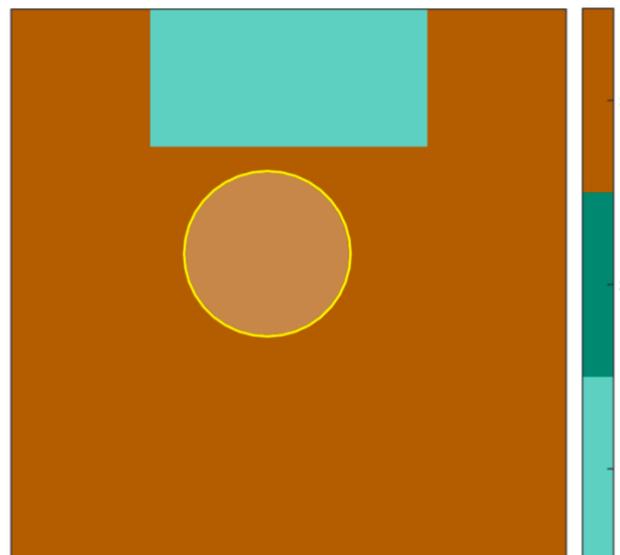
Report ID: CUM_2020_068

Project ID	Job36_DaneRoad_VG94_v1
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Assessment pathway

Assessment pathway	Detailed Assessment Pathway
Extent including past and proposed	0.070 ha
Extent of past removal	0.000 ha
Extent of proposed removal	0.070 ha
No. Large trees proposed to be removed	1
Location category of proposed removal	Location 3 The native vegetation is in an area where the removal of less than 0.5 hectares could have a significant impact on habitat for one or more rare or threatened species.

1. Location map



Native vegetation removal report

Offset requirements if a permit is granted

Any approval granted will include a condition to obtain an offset that meets the following requirements:

General offset amount¹	0.019 general habitat units
Vicinity	Wimmera Catchment Management Authority (CMA) or Northern Grampians Shire Council
Minimum strategic biodiversity value score ²	0.664
Large trees	1 large tree

NB: values within tables in this document may not add to the totals shown above due to rounding

Appendix 1 includes information about the native vegetation to be removed

Appendix 2 includes information about the rare or threatened species mapped at the site.

Appendix 3 includes maps showing native vegetation to be removed and extracts of relevant species habitat importance maps

¹ The general offset amount required is the sum of all general habitat units in Appendix 1.

² Minimum strategic biodiversity score is 80 per cent of the weighted average score across habitat zones where a general offset is required

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Native vegetation removal report

Next steps

Any proposal to remove native vegetation must meet the application requirements of the Detailed Assessment Pathway and it will be assessed under the Detailed Assessment Pathway.

If you wish to remove the mapped native vegetation you are required to apply for a permit from your local council. Council will refer your application to DELWP for assessment, as required. **This report is not a referral assessment by DELWP.**

This *Native vegetation removal report* must be submitted with your application for a permit to remove, destroy or lop native vegetation.

Refer to the *Guidelines for the removal, destruction or lopping of native vegetation* (the Guidelines) for a full list of application requirements. This report provides information that meets the following application requirements:

- The assessment pathway and reason for the assessment pathway
- A description of the native vegetation to be removed (partly met)
- Maps showing the native vegetation and property (partly met)
- Information about the impacts on rare or threatened species.
- The offset requirements determined in accordance with section 5 of the Guidelines that apply if approval is granted to remove native vegetation.

Additional application requirements must be met including:

- Topographical and land information
- Recent dated photographs
- Details of past native vegetation removal
- An avoid and minimise statement
- A copy of any Property Vegetation Plan that applies
- A defensible space statement as applicable
- A statement about the Native Vegetation Precinct Plan as applicable
- A site assessment report including a habitat hectare assessment of any patches of native vegetation and details of trees
- An offset statement that explains that an offset has been identified and how it will be secured.

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Appendix 1: Description of native vegetation to be removed

The species-general offset test was applied to your proposal. This test determines if the proposed removal of native vegetation has a proportional impact on any rare or threatened species habitats above the species offset threshold. The threshold is set at 0.005 per cent of the mapped habitat value for a species. When the proportional impact is above the species offset threshold a species offset is required. This test is done for all species mapped at the site. Multiple species offsets will be required if the species offset threshold is exceeded for multiple species.

Where a zone requires species offset(s), the species habitat units for each species in that zone is calculated by the following equation in accordance with the Guidelines:

$$\text{Species habitat units} = \text{extent} \times \text{condition} \times \text{species landscape factor} \times 2, \text{ where the species landscape factor} = 0.5 + (\text{habitat importance score}/2)$$

The species offset amount(s) required is the sum of all species habitat units per zone

Where a zone does not require a species offset, the general habitat units in that zone is calculated by the following equation in accordance with the Guidelines:

$$\text{General habitat units} = \text{extent} \times \text{condition} \times \text{general landscape factor} \times 1.5, \text{ where the general landscape factor} = 0.5 + (\text{strategic biodiversity value score}/2)$$

The general offset amount required is the sum of all general habitat units per zone.

Native vegetation to be removed

Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
1-A	Scattered Tree	gold0175_61	Vulnerable	1	no	0.200	0.070	0.070	0.830		0.019	General

Appendix 2: Information about impacts to rare or threatened species' habitats on site

This table lists all rare or threatened species' habitats mapped at the site.

Species common name	Species scientific name	Species number	Conservation status	Group	Habitat impacted	% habitat value affected
Elfin Leek-orchid	<i>Prasophyllum aff. fitzgeraldii B</i>	507293	Endangered	Highly Localised Habitat	Habitat importance map	0.0013
Brilliant Sun-orchid	<i>Thelymitra mackibbinii</i>	503376	Endangered	Dispersed	Habitat importance map	0.0003
Tawny Spider-orchid	<i>Caladenia fulva</i>	504498	Endangered	Dispersed	Habitat importance map	0.0001
Candy Spider-orchid	<i>Caladenia versicolor</i>	500522	Endangered	Dispersed	Habitat importance map	0.0000
Rising Star Guinea-flower	<i>Hibbertia humifusa subsp. humifusa</i>	505082	Rare	Dispersed	Habitat importance map	0.0000
Swamp Diuris	<i>Diuris palustris</i>	501082	Vulnerable	Dispersed	Habitat importance map	0.0000
Striped Legless Lizard	<i>Delma impar</i>	12159	Endangered	Dispersed	Habitat importance map	0.0000
Rigid Spider-orchid	<i>Caladenia tensa</i>	500338	Vulnerable	Dispersed	Habitat importance map	0.0000
Large-headed Fireweed	<i>Senecio macrocarpus</i>	503116	Endangered	Dispersed	Habitat importance map	0.0000
Goldfields Grevillea	<i>Grevillea dryophylla</i>	501533	Rare	Dispersed	Habitat importance map	0.0000
Pale Flax-lily	<i>Dianella sp. aff. longifolia (Riverina)</i>	507399	Vulnerable	Dispersed	Habitat importance map	0.0000
Emerald-lip Greenhood	<i>Pterostylis smaragdina</i>	503915	Rare	Dispersed	Habitat importance map	0.0000
Woodland Leek-orchid	<i>Prasophyllum sp. aff. validum A</i>	505904	Endangered	Dispersed	Habitat importance map	0.0000
Wimmera Scentbark	<i>Eucalyptus sabulosa</i>	505174	Rare	Dispersed	Habitat importance map	0.0000
Fringed Sun-orchid	<i>Thelymitra luteocillium</i>	503375	Rare	Dispersed	Habitat importance map	0.0000
Bush Stone-curler	<i>Burhinus grallarius</i>	10174	Endangered	Dispersed	Habitat importance map	0.0000
Golden Sun Moth	<i>Synemon plana</i>	15021	Critically endangered	Dispersed	Habitat importance map	0.0000
Green Leek-orchid	<i>Prasophyllum lindleyanum</i>	502702	Vulnerable	Dispersed	Habitat importance map	0.0000
Golden Cowslips	<i>Diuris behrii</i>	501061	Vulnerable	Dispersed	Habitat importance map	0.0000

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Trailing Hop-bush	<i>Dodonaea procumbens</i>	501090	Vulnerable	Dispersed	Habitat importance map	0.0000
Archling Flax-lily	<i>Dianella sp. aff. longifolia (Benambra)</i>	505560	Vulnerable	Dispersed	Habitat importance map	0.0000
Tiny Bog-sedge	<i>Schoenus nanus</i>	503050	Rare	Dispersed	Habitat importance map	0.0000
Bearded Dragon	<i>Pogona barbata</i>	12177	Vulnerable	Dispersed	Habitat importance map	0.0000
Rosemary Grevillea	<i>Grevillea rosmarinifolia subsp. rosmarinifolia</i>	504066	Rare	Dispersed	Habitat importance map	0.0000
Small Milkwort	<i>Comesperma polygaloides</i>	500798	Vulnerable	Dispersed	Habitat importance map	0.0000
Hairy Tails	<i>Ptilotus erubescens</i>	502825	Vulnerable	Dispersed	Habitat importance map	0.0000
Spear-grass	<i>Austrostipa trichophylla</i>	504512	Rare	Dispersed	Habitat importance map	0.0000
Black Falcon	<i>Falco subniger</i>	10238	Vulnerable	Dispersed	Habitat importance map	0.0000
Buloke	<i>Allocasuarina luehmannii</i>	500678	Endangered	Dispersed	Habitat importance map	0.0000

Habitat group

- Highly localised habitat means there is 2000 hectares or less mapped habitat for the species
- Dispersed habitat means there is more than 2000 hectares of mapped habitat for the species

Habitat impacted

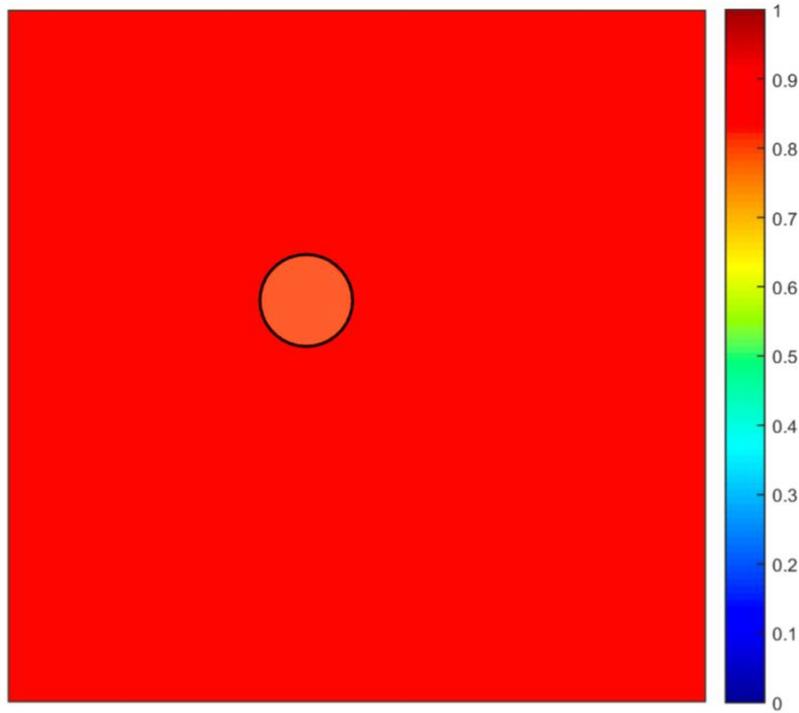
- Habitat importance maps are the maps defined in the Guidelines that include all the mapped habitat for a rare or threatened species
- Top ranking maps are the maps defined in the Guidelines that depict the important areas of a dispersed species habitat, developed from the highest habitat importance scores in dispersed species habitat maps and selected VBA records
- Selected VBA record is an area in Victoria that represents a large population, roosting or breeding site etc.

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Appendix 3 – Images of mapped native vegetation

2. Strategic biodiversity values map



3. Aerial photograph showing mapped native vegetation



4. Map of the property in context



Yellow boundaries denote areas of proposed native vegetation removal.

APPENDIX 2 – Photos of Study area

Vegetation included in the assessment

Photo 1: Southern Road Reserve entry

Looking west along southern boundary at large Yellow gum 91cm DBH located in the road reserve with calculated TPZ impact 17% with the access route located 6m north of this tree.



Photo taken : 23/11/2020

Photo 2: Large Yellow gum in road reserve

Looking east along road reserve at large Yellow gum 91cm DBH impacted and included in this assessment for offset. (Left of photo)



Photo taken: 18/9/2020

Vegetation assessed and not included in the assessment.

Photo 3: Southern Road Reserve entry

Looking west towards Dane Road through road reserve located south of the proposed solar development site . This patch has been avoided with access created of landholders existing driveway.



Photo taken: 19/9/2020

Photo 4: Previously proposed entry through road reserve prior to Ecological assessment

Looking north at previously proposed entry to solar farm through southern road reserve. This is no longer the entry to the site following the ecological assessment and feedback to technical staff/project engineers.



Photo taken: 18/9/2020

Photo 5: Dying Grey Box 138cm DBH

Looking north at Large Grey Box 138cm DBH in poor health located northwest of the proposed solar farm. See Figure 2. This tree is >30m from the northern boundary.



Photo taken: 18/9/2020

Photo 6: Crop west of proposed solar farm

Looking south towards southern road reserve bordering the solar farm development. Entry proposed is right distance between southern boundary and a gap in the plantation trees along the landholder's driveway.



Photo taken: 1/10/2020

Photo 7: Solar Farm northern zone

Looking east from west of the proposed development area at area of proposed solar farm.



Photo taken: 18/9/2020

Photo 8: Large Yellow Box 90cm DBH

Looking north at large Yellow Box tree measuring 90cm DBH, located >50m north of the proposed solar farm.



Photo taken: 18/9/2020

Photo 9: North East Zone of Solar Farm

Looking west across the northern zone of the proposed solar farm development area.



Photo taken: 18/9/2020

Photo 10: Eastern Boundary

Looking south along eastern boundary of proposed solar farm from north eastern end.



Photo taken: 18/9/2020

Photo 11: Proposed Solar Farm Development

Looking south west across the proposed development site from north east corner.



Photo taken: 18/9/2020

Photo 12: Eastern margin of site

Looking south at zone where there are indigenous grass species present along the eastern margin of the site at varying percentages of cover. *Poa Bilbosa* high threat weed is also present which can be noted by the large areas of dead/dry looking organic matter covering the ground.



Photo taken: 18/9/2020

Photo 13: Weed cover over much of the site

Area with ground cover dominated by broad leaf weeds.



Photo taken: 18/9/2020

Photo 14: Weed Ground Cover

Ground cover showing broad leaf weeds and high threat *Poa Bulbosa* (dead).



Photo taken: 18/9/2020

Photo 15: Ground cover Indigenous tufted grass & high threat weed

Ground cover showing large percentage cover of Poa Bulbosa a high threat weed. Wallaby grasses and Spear Grasses evident on site in varying percentages, but not considered assessable.



Photo taken: 18/9/2020

Photo 16: South east corner of study area

Looking north north west across the proposed development zone. Indigenous grasses mainly located along the eastern margin of the paddock, but not considered assessable. Coverage varies and is mostly <25% cover. Where there is denser coverage there is no development of the solar farm proposed. Current fencing of the property looks to be further east than shown on Pozi maps and NVIMtool which means the grasses are located in the eastern road reserve. The history of the paddock having been planted to a cereal crop in 2018 means the grasses and broad leaf weeds on site have been sprayed by herbicide as part of farming operation.



Photo taken: 18/9/2020

Photo 17: Indigenous Grass cover

Section with ground cover of mostly indigenous grasses located along eastern margin of paddock. This section has not been included as assessable due to paddock history having been sprayed out in 2018 and being planted to a cereal crop so the grasses are approximately 2 years old. They are also mostly located along the eastern margin of the solar farm in the road reserve and not within the development zone. See Figure 2 for location of title boundary.



Photo taken: 18/9/2020

Photo 18: Tree 1 Large Yellow Box on eastern end of Road reserve

Looking west along southern boundary at Tree 1 not impacted by proposed development.



Photo taken: 23/11/2020

Photo 19: Tree 2, 3 & 4 Road Reserve

Looking west at Trees 2, 3 & 4 located near the proposed turning circle and off load zone but not impacted.



Photo taken: 23/11/2020

Photo 20: Tree 5 Road Reserve

Looking southwest at Tree 5 not impacted by proposed off load zone or carpark.



Photo taken: 23/11/2020

Photo 21: Tree 6 Road Reserve

Looking southwest at Tree 6 located in road reserve not impacted.



Photo taken: 23/11/2020

Photo 22: Tree 7 Road Reserve

Looking west along boundary with road reserve. Tree 7 no longer impacted with relocation of accessway 11m north of the boundary.



Photo taken: 23/11/2020

Photo 23: Tree 8 Road Reserve

Looking west through road reserve. Tree 8 no longer impacted with accessway moved 11m from boundary.



Photo taken: 23/11/2020

Photo 24: Tree 9 Road Reserve

Looking south west at Tree 9 located close to boundary which is not impacted.



Photo taken: 23/11/2020

Photo 25: Tree 11 Road Reserve

Looking west at Tree 11 located along Road reserve near boundary, not impacted.



Photo taken: 23/11/2020

Photo 26: Tree 12 Road Reserve near entrance for 105 Dane Road

Looking west at Large Tree 12 not impacted.



Photo taken: 23/11/2020

Photo 27: 105 Dane Road landholder access to be used
Looking north at entrance off Dane Road.



Photo taken: 23/11/2020

Photo 28: Access from landholders' driveway

Looking north at zone of proposed access which heads east from this point towards solar farm, 6m from the southern boundary. No remnant vegetation impacted.



Photo taken: 23/11/2020

Photo 29: Paddock tree located adjacent connecting powerlines

Looking northwest at mature Yellow gum paddock tree (right centre distance). This tree's southernmost canopy is 2-3m north of the proposed powerlines leaving the solar farm. This tree is not likely to increase its canopy to the point of impact with the powerlines. If needed future trimming <1/3 should be achievable and not considered impacted.



Google Street view March 2021

Photo 30: Location of under boring of cable

Looking east along Dane Road from access of 58 Dane Road. Existing power pole right of photo. Line showing the location of the directional bore drilling under the road reserves (north and south) to avoid impact to native vegetation. Pits to be in the private property of 105 Dane Rd and 58 Dane Road adjacent to the existing power pole.



Google Street view May 2021

Photo 31: 58 Dane Rd existing power pole

Looking south from the middle of Dane Road along the route of the proposed underground line to connect to the existing power pole.



Google Street view May 2021

Photo 32: Route for under boring from 105 Dane Road

Looking north towards end point of overhead route to where the power line will be re-routed underground across the road reserves.



Google Street view May2021

APPENDIX 3 – Evidence of Offset Availability



Our reference: VLQ-6401

17 December 2020

Your reference: 105 Dane Road, Stawell

ACEnergy Pty Ltd

C/-Heather Beever, Cumbre Consultants
heather@cumbre.com.au

Dear Heather,

RE: Quotation for the supply of native vegetation credits

Vegetation Link is an accredited offset provider with the Department of Environment, Land, Water & Planning (DELWP). We offer a specialised brokerage service to enable permit holders and developers to identify suitable native vegetation credits to meet their planning permit offset requirements.

Based on the information you have provided, I understand you require the following native vegetation offset:

Offset type	Attributes	General habitat units (GHU)	Min. strategic biodiversity value (SBV)	Large trees
General	Wimmera CMA <i>or</i> Northern Grampians Shire	0.019	0.664	1

To meet your offset requirements, you can purchase native vegetation credits from a third party as per the option quoted below¹. This quotation is valid for 14 days, subject to credit availability and landholder pricing.

CTA pathway – offset site located in the Northern Grampians Shire Council area (approx. 2-5 week turnaround from acceptance of quote)

Cost of native vegetation credits – invoiced by DELWP	\$2,805.00
Transaction fees – invoiced by Vegetation Link	\$1,020.00
Total (ex. GST)	\$3,825.00
Total (inc. GST)	\$4,207.50

If you would like to purchase credits, let us know that you accept the quote and return the attached **purchaser details form** by email. Upon receipt of the form, we will begin the trade process. Further details of the process for credit allocation is in the FAQ below.

Should you have any queries, please do not hesitate to contact us on 1300 VEG LINK (1300 834 546) or email offsets@vegetationlink.com.au.

Sincerely,

Lisa Gormley
Biodiversity Offset Broker

¹ Note that the transaction fee includes DELWP NVOR transfer and allocation fees and a Vegetation Link fee

Vegetation Link Pty Ltd
ABN: 92 169 702 032
www.vegetationlink.com.au

1300 VEG LINK (1300 834 546) | offsets@vegetationlink.com.au | PO Box 10 Castlemaine VIC 3450

APPENDIX 4 – Contour map of study area

