

4 April 2023

Our ref: 22MEL4419

BNRG
1/141 McEwan Road
Heidelberg West
Victoria 3081

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Attention: Jesse Nicholls

Dear Jesse,

Maffra Solar Farm targeted surveys

BNRG engaged Eco Logical Australia (ELA) to provide ecological advice on the proposed solar farm located within Lot 13 DP23981 on Maffra-Briagolong Road, Maffra, Victoria.

A previous ecological assessment of the proposed development has been undertaken by NGH. Following this assessment, BNRG received a request for further information from Department of Environment, Land, Water and Planning (DELWP) dated 15th December 2022. The principal objective of the advice presented in this letter is to address the key concerns raised by DELWP and supplement the existing NGH report.

The assessment study area is based on the potential site location provided by BNRG (Figure 1).

If you have any questions about any aspect of this report, please contact me on 0406 784 243 or through the ELA office on 1300 646 131.

Regards,



James Garden
Ecology Team Lead (Victoria)

Introduction

BNRG are proposing to develop a Sub-5 Mega Watt battery supported solar farm within Lot 13 DP23981, along Maffra-Briagolong Road, Maffra, Victoria (the study area; Figure 1). The study area is in east Victoria approximately 4.5 km north of the township of Maffra, within the Wellington Shire Local Government Area. The surrounding landscape comprises primarily farming land, including within the study area. A channel occurs along the eastern boundary of the study area, which forms part of the Stratford Town supply.

Previous assessment

NGH consulting undertook an ecological assessment in 2022 for the proposed solar farm (NGH 2022). The aim of this ecological assessment was to:

- address the planning permit triggers under Clause 52.17 – native vegetation of the *Planning and Environment Act 1987*, and
- consider the likelihood of occurrence of threatened ecological communities (TEC), flora and fauna under the *Flora and Fauna Guarantee Act 1988* (FFG Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

As part of this assessment, NGH undertook a desktop survey, to determine the likelihood of occurrence of threatened species and communities within the study area. A field assessment was undertaken on 5 May 2022, which included an assessment of native vegetation, scattered tree assessment, and incidental fauna observations. There were no targeted surveys for threatened flora or fauna species undertaken during this field assessment.

The ecological assessment determined that one threatened flora species, *Eragrostis trachycarpa* (Rough-grain Love-grass), which is listed as endangered under the FFG Act, had the potential to occur within the study area. There were no targeted surveys undertaken for this species, as the field survey occurred outside the flowering period. There were two threatened fauna species, Gang-gang Cockatoo (*Callocephalon fimbriatum*) and Swift Parrot (*Lathamus discolor*) which were considered to have a low-moderate likelihood of occurrence within the study area.

One TEC was identified as having the potential to occur within the study area, *Gippsland Red Gum* (*Eucalyptus tereticornis subsp. mediana*) *Grassy Woodland and Associated Grassland*, which is listed as Critically Endangered under the EPBC Act. An assessment of the study area undertaken by NGH against the condition thresholds for this TEC (DEWHA 2008) concluded that the grassy woodland form of this TEC occurs within the study area, however the grassland form of this TEC does not occur within the study area, due to there being less than seven native plant species present within this patch. As the grassy woodland form will not be impacted by the proposed works, it was concluded that no EPBC referral is required.

DELWP referral response

BNRG received a request for further information from DELWP Gippsland dated 15th December 2022. In particular, further information was required on:

- Information about the native vegetation to be removed, including information on the extent and location of native vegetation.
- Dated photographs of all native vegetation proposed to be removed.
- Further information regarding the avoid and minimise statement, including information on all options for location of the infrastructure on the subject land and justification of why the area chosen presents the least impact to native vegetation.
- Updated offset requirement in accordance with Section 5 of the Guidelines.
- Updating the site assessment report, including:
 - Assessing the derived grassland component of EVC 55 *Plains Grassy Woodland* as treeless vegetation as per page 14 of the *Vegetation Quality Assessment Manual*, version 1.3 (DSE 2004).
 - Addressing DELWP's preference to undertake site assessment for grasslands during spring to allow for the ideal flowering time for grass species.

Furthermore, it was noted that the application did not identify Latham's Snipe (*Gallinago hardwickii*), which is listed as marine and migratory under the EPBC Act. This species is known to occur within the locality, with records within 5 km of the subject land. DELWP requested proper consideration of the impacts of the proposed solar facility on Latham's Snipe.

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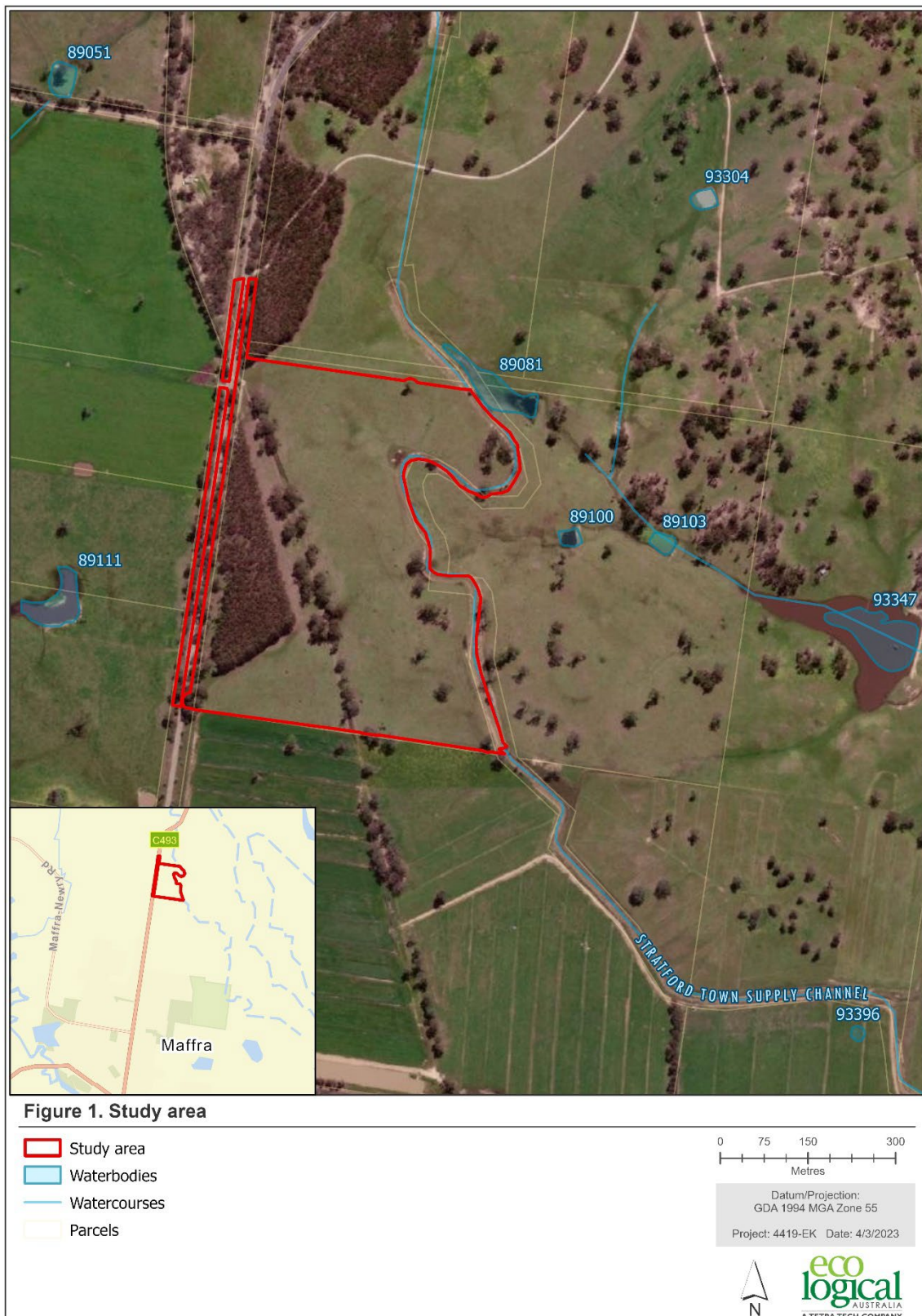


Figure 1. Study area

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Results and Discussion

Eragrostis trachycarpa (Rough-grain Love-grass)

Eragrostis trachycarpa is a densely tufted perennial grass, which flowers between January and April with the seedhead reaching maturity towards the end of the flowering period. It is mostly confined to seasonally moist sites in the lower catchment of the Gippsland Lakes (between Heyfield and Lakes Entrance). This species has been recorded within 10 km of the study area, with the most recent in 2012, approximately 4.3 kms south east of the study area. This species was considered to have a low-moderate likelihood of occurring within the study area, due to the records within the locality, and the presence of suitable habitat within the study area.

A targeted survey was undertaken for this species by ELA ecologists on 28 March 2023 (Figure 2). Surveys were undertaken in accordance with the Department of Environment and Energy *Survey Guidelines for Australia's Threatened Orchids* (2013), and involved a systematic search using parallel transects approximately 5-20 metres apart across areas of optimal habitat. Targeted surveys focused on the road reserve, as per DELWPs RFI which stated that there is no permit requirement for the removal of this species on private land under the FFG Act. Random meanders were also undertaken through the remaining suitable habitat within the study area, to further determine the presence of this species. This survey timing was considered ideal for this species, as it was within the second half of the flowering period for this species, and therefore was considered to have a high likelihood of being detected and identified.

This species was not recorded during the targeted surveys. The road reserve contained a mix of native and exotic grasses (Plate 1), including *Themeda triandra* (Kangaroo Grass), *Microlaena stipoides* (Weeping Grass), *Rytidosperma* sp. (Wallaby Grass), as well as *Paspalum dilatatum* (Paspalum) and *Plantago lanceolata* (Ribwort).

Latham's Snipe (*Gallinago hardwickii*)

Latham's Snipe is a medium sized wader, which is a non-breeding visitor to south-eastern Australia. In Australia, Latham's Snipe occurs in permanent and ephemeral wetlands, usually inhabiting open, freshwater wetlands with low dense vegetation, such as swamps, flooded grasslands or heathlands around waterbodies. This species may be found in a variety of vegetation types or communities surrounding these waterbodies, including tussock grasslands with rushes, reeds and sedges. Important habitat for Latham's Snipe is considered to occur when the site supports 18 or more individuals. This species has been recorded within 10 km of the study area, with the most recent record in 2019, approximately 2.7km south west of the study area.

An artificial drainage line runs along the eastern boundary of the study area, and there are a number of DELWP mapped wetlands which are in close proximity to the study area, including wetland 89081 which is located in the north east corner, outside of the study area (Figure 1). This wetland contained sparse fringing vegetation, including *Juncus* sp. and *Rubus fruticosus* species aggregate (Blackberry) (Plate 3). Open grassland surrounded this wetland, which appeared to be grazed by cattle. An ephemeral wetland was also observed within the study area, with water levels likely influenced by the drainage line. Water was present at the time of the field survey undertaken by ELA, with vegetation including *Juncus* sp.,

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Paspalum dilatatum and *Phalaris aquatica*. Cattle were observed grazing within this vegetation at the time of survey.

Given the presence of these two wetlands and the recent records within the locality, Latham's Snipe has the potential to utilise the study area. The ephemeral wetland is just outside the proposed development footprint. The grassland habitat within the study area is likely to be low quality habitat for this species. Whilst the *Juncus* sp. within the study area could be utilised by this species, these clumps are scattered, and the remaining vegetation has been grazed by cattle. Furthermore, there are no wetland areas that will be impacted by the current proposed footprint.

An Assessment of Significance as per the Significant Impact Guidelines (DoE 2013) was undertaken for this species, which determined that there is unlikely to be a significant impact to this species as a result of the proposed development (Appendix B).

Native vegetation and tree impacts

A field survey of the study area was undertaken by ELA ecologists on 27 February 2023. The extent of native vegetation across the site was mapped in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017). This included recording the location and DBH of native trees within or adjacent to the impact footprint for the purpose of calculating tree protection zones.

The vegetation identified aligns broadly with that mapped by NGH, noting that in some instances the vegetation extent mapped by ELA was less (Figure 3). This is particularly the case for the 'grassland' vegetation which was mapped by NGH across much of the northern portion of the site in a degraded state. When ELA inspected the site, much of this area supported a very low cover of native species (<5%), with diversity limited to 2-3 native grasses species (*Austrostipa* spp. and *Rytidosperma* spp.). Grazing intensity appeared to have been high across much of the site, despite limited stock visible at the time of assessment. The variation in mapping is likely a result of seasonal variation and grazing pressure, with the vegetation extent mapped by NGH likely to still be accurate and representative of the extent of native vegetation across the site when conditions are favourable.

Images of the vegetation present in the study area during the assessment is provided in Appendix A.

The RFI states that assumed loss should include all trees for which there is more than 10% impacts to the Tree Protection Zones (TPZ) within the development footprint. There are two trees with TPZ that intersect the development footprint, one of which is wholly within the development footprint (Figure 3). For the remaining tree, the following options are recommended for consideration:

1. Update the native vegetation removal report initially prepared by NGH to show all vegetation where there is more than 10% impact to the TPZ as lost. As a result, the offset requirements are likely to be increased.
2. Update development footprint to avoid the partially impacted tree. As per the current proposed footprint, this tree is encroaching into the 10m fire break and fence line. There is the potential to align this fence line and fire break to align with the edge of the solar panels, and therefore avoid the encroachment into the TPZ.

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3. Engage an arborist to survey the partially impacted tree and proposed measures which may result in its retention.

Ephemeral wetlands

The site was also assessed for the presence of ephemeral wetlands. One ephemeral wetland was observed within the study area, with water levels likely influenced by the drainage line (Plate 4, Figure 3). Water was present at the time of the field survey undertaken by ELA, with vegetation including *Juncus* sp., *Paspalum dilatatum* and *Phalaris aquatica*. Cattle were observed grazing within this vegetation at the time of survey. The wetland was in poor condition (low native species cover and diversity) and its limited extent meant it would provide limited, if any, habitat for native flora and fauna species.

Gippsland Red Gum Grassy Woodland and Associated Grassland

The *Gippsland Red Gum* (*Eucalyptus tereticornis* subsp. *mediana*) *Grassy Woodland and Associated Grassland* TEC is listed as Critically Endangered under the EPBC Act. This TEC is a eucalypt woodland with the tree canopy dominated by *Eucalyptus tereticornis* subsp. *mediana* (Gippsland Red Gum) and the ground layer dominated by grasses or grass-like plants (DEWHA 2008). The key defining characteristics for this TEC are:

- The ecological community occurs in two forms:
 - A grassland form in which the ground layer is the dominant vegetation layer. The tree canopy is absent or of scattered trees only.
 - A woodland form in which the tree canopy layer is the dominant vegetation layer.
- The ground layer is dominated by native graminoids. That is, 50% or more of the vegetation cover of the ground layer is made up of native grasses and grass-like plants.
- The tree canopy layer is typically dominated by *Eucalyptus tereticornis* subsp. *mediana* (Gippsland Red Gum).
- The geographic distribution is limited to the eastern Gippsland Plain, generally between the Strzelecki Ranges and the Tambo River valley.

The ecological assessment undertaken by NGH determined that this TEC occurred in the woodland form, however did not meet the condition thresholds for the grassland form, due to having less than seven native plant species present. The listing advice states that native plant species diversity must be assessed during spring (September to November) and after the site has not been disturbed (e.g. by fire, overgrazing, mowing) for at least two months prior to the springtime of sampling (DEWHA 2008). This is recommended as spring is considered the peak flowering period for a number of native ground species.

ELA ecologist James Garden visited the study area on 27 February 2023 to complete tree and habitat assessments. Whilst the survey was not undertaken during Spring, and recent grazing of the study area was visible, the following was observed:

- The majority of the 'grasslands' across the study area supported a very low cover of native species (<5%), and was heavily modified as a result of grazing and trampling from cattle. The

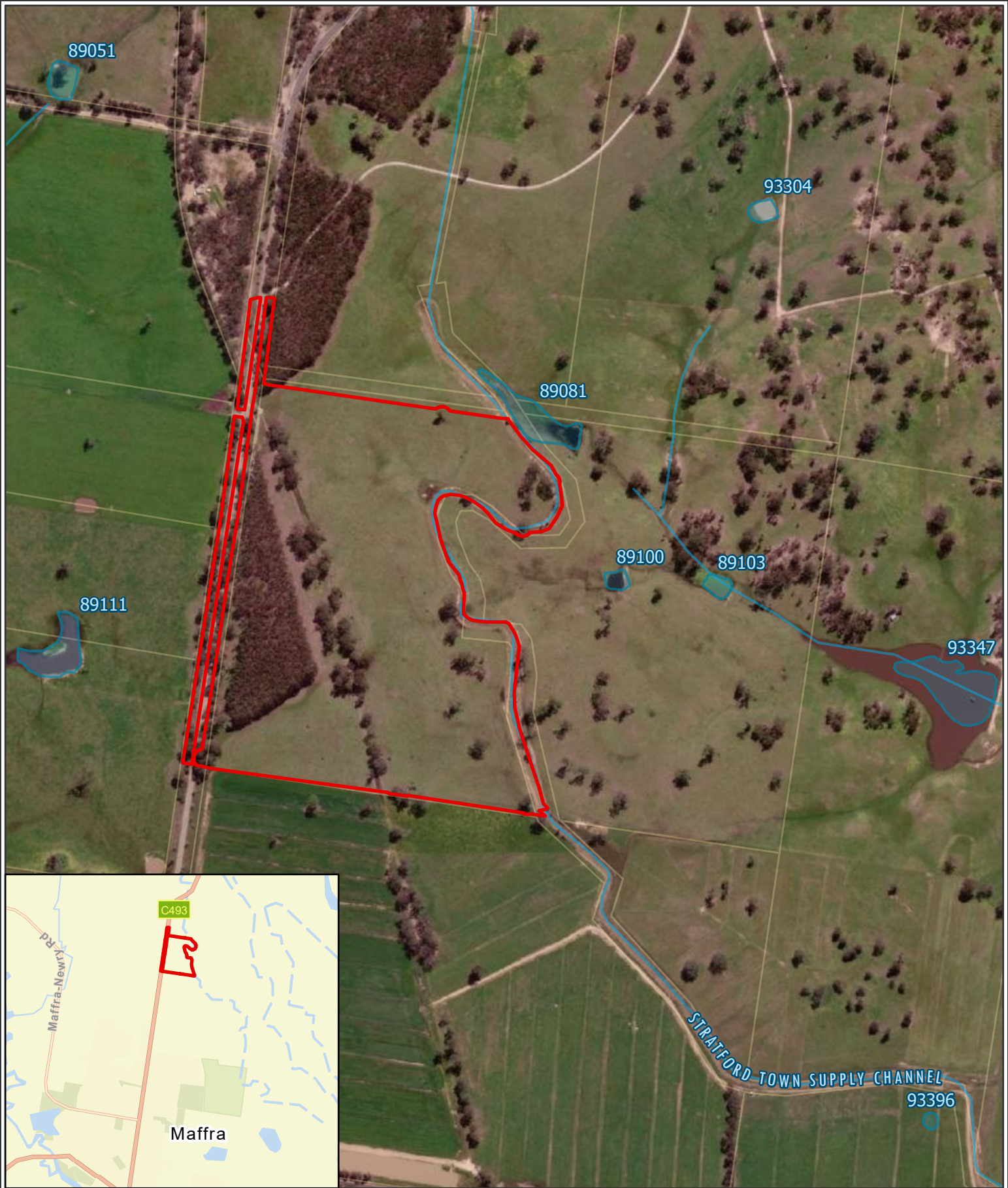
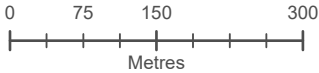


Figure 1. Study area

- ▭ Study area
- ▭ Waterbodies
- Watercourses
- ▭ Parcels

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Datum/Projection:
GDA 1994 MGA Zone 55
Project: 4419-EK Date: 4/3/2023



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vegetation was consistent with introduced pastures, supporting a range of exotic grass and herb species.

- Small pockets of modified native grasslands occurred in association with treed areas in the east of the study area (Figure 3).

The extent of the *Gippsland Red Gum Grassy Woodland and Associated Grassland* TEC roughly aligned with that mapped by NGH, with small variations attributed to changes in seasonal conditions and grazing pressure.

Based on both the surveys undertaken by NGH and ELA it is reasonable to assume there is a low likelihood of the *Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Grassland* TEC occurring within the current impact footprint of the proposed solar farm. Whilst these surveys were not undertaken in Spring, BNRG could continue with design and pre-construction works with a relatively high-confidence that the project will not impact on this MNES. Further surveys could then be completed in Spring to confirm the absence of the TEC within the impact footprint.

Heat island impacts

Within the RFI, DELWP raised concerns about indirect impacts to native vegetation and habitat associated with shading and heat island effects. The PV heat island effect on sensitive vegetation suggests that there is the possibility of transferring heat from the built form to its surroundings, where the ambient temperature around the built form is higher than that of surrounding vegetated areas (DELWP 2022). The *Solar Energy Facilities Design and Development Guidelines* (DELWP 2022) state that where a solar energy facility is proposed adjacent to existing horticultural or cropping activities, a minimum 30 m separation distance is required. A similar approach with native vegetation has been recommended within the RFI to address potential indirect impacts to native vegetation, and all native vegetation within 30 m of the photovoltaic array should be considered as assumed loss.

Upon further investigations ELA could not find any published evidence to suggest that a solar farm of this size and nature could generate a 'heat island' effect of sufficient scale to adversely impact adjacent vegetation. Furthermore, there does not appear to be any risk-based justification for the proposed 30 m buffer.

Given the highly modified nature of the site (i.e. historic removal of trees and intensive grazing reducing groundcover), exposed ground/soil will already be experiencing higher than normal levels of solar radiation and likely result in an increase in the average ambient temperature at ground-level. There is no imperial evidence to suggest that the installation of a PV solar farm would result in higher ambient ground-temperatures than those already experienced at the site as a result of vegetation removal, and have an indirect impact on retained vegetation and habitat.

ELA would suggest further evidence supporting the potential for 'heat island' impacts be requested from DELWP before it be considered in the impact assessment.

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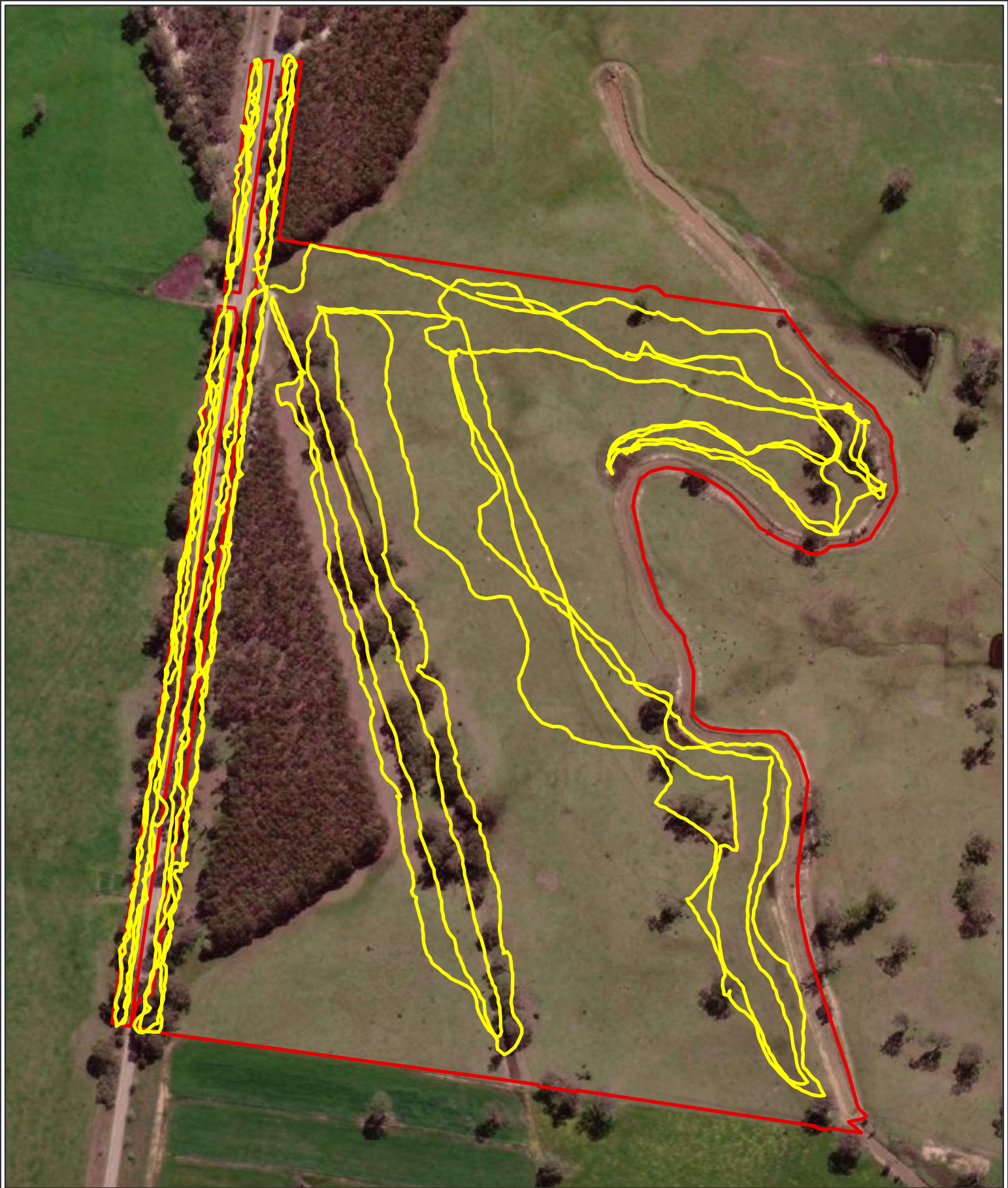


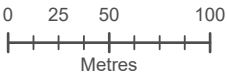


Figure 2. Targeted flora survey

-  Study area
-  Targeted flora survey tracks



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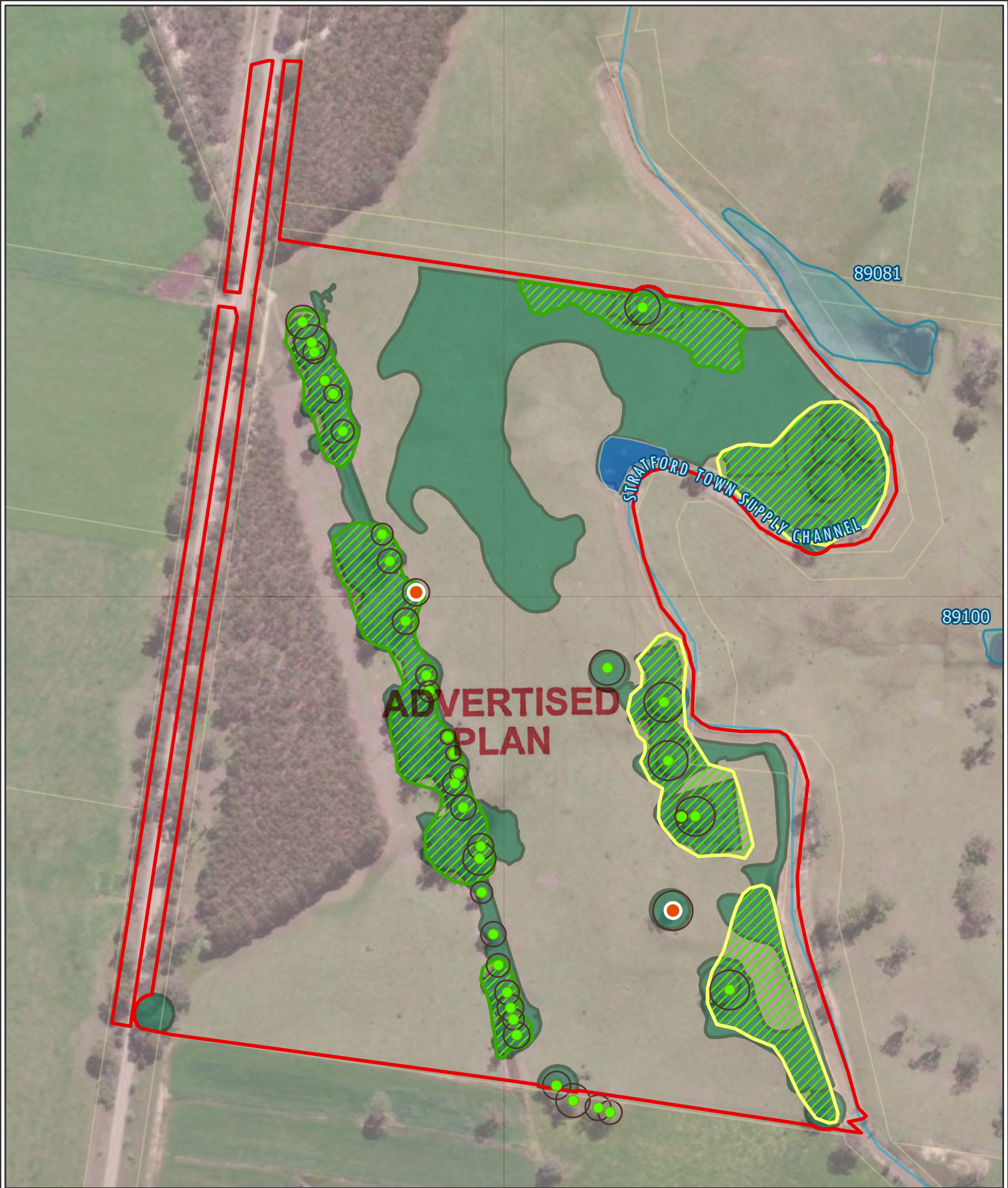
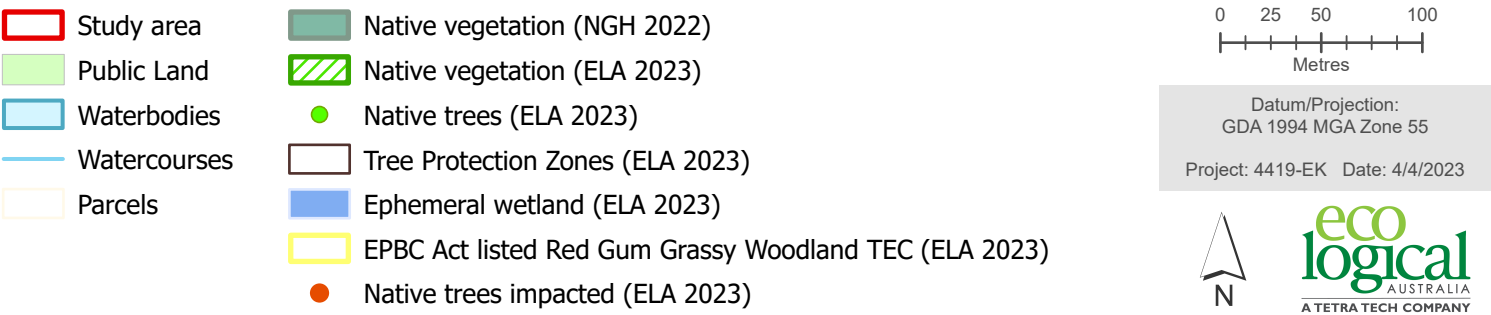


Figure 3. Native vegetation extent



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Appendix A Site photos



Plate 1. Groundcover within the road reserve



Plate 2. Groundcover within the private property



Plate 3. Stratford Town Supply Channel in foreground, and wetland 89081 behind



Plate 4. Ephemeral wetland



Plate 4: EVC 55 in north of study area (taken 28/03/2023)



Plate 5: EVC 55 in north of study area (taken 28/03/2023)



Plate 6: EVC 55 in north of study area (taken 28/03/2023)



Plate 7: EVC 55 in centre of study area (taken 28/03/2023)

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Plate 8: EVC 55 in south of study area (taken 28/03/2023)



Plate 9: EVC 55 in west of study area, outside of development footprint (taken 28/03/2023)



Plate 10: *Eucalyptus tereticornis* subsp. *mediana* to be removed (taken 28/03/23)



Plate 11: *Eucalyptus tereticornis* subsp. *mediana* in patch to with tree protection zone potentially impacted (taken 28/03/23)

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Appendix B EPBC Act Significant Impact Criteria

The EPBC Act establishes a process for assessing the environmental impact of activities and developments where Matters of National Environmental Significance (MNES) may be affected. Under the Act, a referral is required for actions by Commonwealth agencies and on Commonwealth land that are likely to have a significant impact on the environment. A referral is also required for any action which 'has, will have, or is likely to have a significant impact on a Matter of National Environmental Significance'.

To determine whether an action is likely to have a significant impact on a Matter of National Environmental Significance, an Assessment of Significance (AoS) can be completed for MNES that will be affected by the proposed action. Significant impact guidelines (1.1) that outline several criteria have been developed by the Commonwealth of Australia (2013), to provide assistance in conducting the AoS and help decide whether or not a referral under the EPBC Act is required.

One MNES, Latham's Snipe (*Gallinago hardwickii*) was assessed as part of this assessment.

The 'locality' is defined as the habitat present in surrounding farmland and remnant woodland and within 10km of the study area.

| Criteria | Question | Response |
|--|---|--|
| An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will: | | |
| 1) | Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species | An area of 'important habitat' for a migratory species includes habitat utilised by a migratory species occasionally or periodically within a region that supports an ecological significant proportion of the population of the species. The study area supports low quality habitat for this species, in the form of scattered <i>Juncus</i> sp. throughout grazed groundcover. There are records for this species within the locality, mainly utilising Maffra Wetlands Reserve, as well as within small wetlands and dams north of Stratford-Maffra Road. The proposed development will avoid wetlands and watercourses, with the majority of the development footprint within exotic vegetation or native grassland. Due to the low quality of habitat within the development footprint, and the availability of higher quality habitat within the locality (including Maffra Wetland Reserve, It is unlikely that the proposed development will substantially modify, destroy or isolate an area of important habitat for this species. |
| 2) | Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or | The proposed development is unlikely to result in an invasive species that is harmful to Latham's Snipe becoming established in an area of important habitat for this species. The habitat within the development footprint is low quality habitat for this species, and is currently impacted by grazing cows. No invasive species are expected to be introduced as a result of the proposed development. |
| 3) | Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species. | Latham's Snipe is a non-breeding visitor to south-eastern Australia. The proposed development will not impact on wetlands or watercourses, with the footprint in low quality habitat for this species. This habitat includes scattered <i>Juncus</i> sp. and grazed ground cover. Due to the low availability of dense vegetation which can provide cover for this species, the proposed |

| Criteria | Question | Response |
|----------|---|---|
| | | development is unlikely to seriously disrupt the lifecycle of an ecologically significant proportion of the population of this species. |
| | Is a significant impact likely to result? | After considering the above statements, the proposed activity is unlikely to have a significant impact on the Latham's Snipe. |

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