

Draft Report

Preliminary Cultural Heritage Study: Bookaar Solar Farm, Bookaar, Victoria

Prepared for:

Bookaar Renewables Pty Ltd

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Ecology and Heritage Partners Pty Ltd

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Cover Photo: North-western agricultural paddock of study area, 520 Meningoort Road, Bookaar.

(Photo by Ecology and Heritage Partners Pty Ltd)

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EXECUTIVE SUMMARY

Introduction

Ecology and Heritage Partners was commissioned by Bookaar Renewables Pty Ltd to prepare this Preliminary Cultural Heritage Study (PCHS) for the proposed Bookaar Solar Farm in Bookaar, Victoria (Corangamite Shire Council). The purpose of the assessment was to identify Aboriginal and historical cultural heritage values that may be present within the study area. Information gathered throughout the assessment was used to determine potential legislative implications (associated with cultural heritage values) for the proposed Bookaar Solar Farm.

Conclusions

Aboriginal Cultural Heritage

- The study area is **not** located within a mapped area of cultural heritage sensitivity under the *Aboriginal Heritage Regulations 2007*.
- No registered Aboriginal Places are located within the study area.
- No section of the study area triggers the need for a mandatory CHMP. One section of the study area has potential to retain archaeological deposits due to its position in the landscape in landforms that may be culturally sensitive. This area is located within the north-western section of the study area within the slope landform (Map 4). **This area of archaeological likelihood is not a mapped area of cultural heritage sensitivity, therefore does not fulfil the requirements for a mandatory CHMP.**

Historical Heritage

- There are no registered Historical Heritage Places within the study area. H300 (Meningoort) closely borders the western boundary of the study area yet the proposed activity **will not** have any impacts on this site.

Recommendations

Aboriginal Cultural Heritage

To avoid potential impacts to Aboriginal heritage, the following recommendations are made:

- Although the proposed activity is a high impact activity (land used to generate electricity (r. 43 [1][b][xxvii]), given that the study area is not located within an area of cultural heritage sensitivity under the *Aboriginal Heritage Regulations 2007*, **a mandatory CHMP under the *Aboriginal Heritage Act 2006* is not required for the works.**

Historical Heritage

To avoid potential impacts to historical heritage, the following recommendations are made:

- There are no registered Historical Heritage Places within the study area. H300 (Meningoort) closely borders the western boundary of the study area. Based on the scope of proposed activities, there will be no foreseen direct impacts made to this site.

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1 INTRODUCTION

1.1 Preamble

Ecology and Heritage Partners was commissioned by Bookaar Renewables Pty Ltd to prepare this Preliminary Cultural Heritage Study (PCHS) report for the proposed Bookaar Solar Farm which would be located on land within the landholding known as Bookaar, Victoria (Corangamite Shire Council), hereafter referred to as the 'study area'.

The purpose of the assessment was to identify Aboriginal and historical cultural heritage values that may be present within the study area. Information gathered throughout the assessment was used to determine potential legislative implications (associated with cultural heritage values) for the proposed development works.

1.2 The Study Area

The study area is located along 520 Meningoort Road, Bookaar, Victoria (Corangamite Shire Council). The study area is approximately 620 ha in size and is bounded to the north by pastoral land, to the east by pastoral land and Darlington Camperdown Road, to the west by pastoral land and Blind Creek Road, and to the south by pastoral land and Blind Creek Road. The land is currently used for agricultural purposes including grazing and crop production. The study area comprises two primary landforms; undulating plains (Plate 1) and a slope landform in the north-western corner at the foot of Mt. Meningoort (Plate 2).

1.3 The Activity

Bookaar Renewables Pty Ltd is proposing to develop the study area for an approximately 200MW solar energy facility. Associated infrastructure will include a substation, access tracks and a solar array and is further detailed below. The final placement of infrastructure has not yet been finalised.

Project Overview

The proposed Bookaar Solar Farm will generate electricity through the conversion of solar radiation to electricity using PV panels laid out across study area in a series of modules, mounted on steel racks with piled supports. Other infrastructure within the study area will include electrical invertors, underground and/or above ground electrical cabling, telecommunications equipment, a substation, a battery, amenities and storage facilities, vehicular access and parking areas, along with security fencing and gates.

Key Components of Proposed Activity

The proposed Bookaar Solar Farm involves the installation of PV panels with a combined generation capacity of approximately 200 MW. The activity includes the following elements:

- Solar arrays: which would be made up of approximately 800,000 solar panels supported by a mounting system installed on approximately 100,000 piles driven or screwed into the ground;

- The panels would be installed on either:
 - A fixed tilt system (oriented west to east); or
 - A single axis system (orientated north to south);
- Up to 60 central inverters located throughout the development (placed together in groups of two units or singularly, each unit would likely be between 2 and 3 MW);
- Above and/or below ground onsite cabling and electrical connections;
- Onsite access tracks;
- Substation area, up to a maximum area of 125 m by 132 m by up to 4 m high which would connect the Proposal to the national electricity grid;
- The substation may also contain a telecommunication tower, similar in nature to a cellular mast;
- Adjacent to the substation would be a triangular area designated for battery storage (approximately 140 m 110 m by 4 m high). This area may contain lightning protection rods which would rise above the storage facility;
- Support buildings alongside the substation including communications equipment and potentially a tower;
- Drainage system aiding water movement away from the site's eastern areas that are subject to inundation;
- Perimeter fence (security fence approximately 2.5 m high);
- Vegetation screens for visual screening (if necessary); and
- Firebreaks.

The final location of the elements listed above will be micro-sited within the designated areas post consent, through a detailed design process. The main Planning Report which details these components and locations further.

In addition to the key components outlined above, there would be a temporary construction compound required to facilitate the construction and decommissioning phases of the proposed Bookaar Solar Farm. The construction compound would include:

- Temporary construction offices;
- Car and bus parking areas;
- A staff amenity block (including portable toilets, showers and a kitchen) designed to accommodate peak staff numbers during the construction period; and
- Laydown areas.

All land required for the temporary construction compound, if not used as part of the array area, would be restored to its current condition.

1.4 Details of Authors

1.4.1 Ecology and Heritage Partners Pty Ltd Cultural Heritage Division

Ecology and Heritage Partners is a professional cultural heritage and ecological consultancy providing high quality technical services in the field of Aboriginal and historical cultural heritage assessment, Cultural Heritage Management Plans (CHMPs), ecological assessment, research and management. The business provides effective and innovative cultural and natural heritage advice to a range of state and local government authorities/agencies, corporate and private clients.

Ecology and Heritage Partners has an established heritage team of ten people led by Oona Nicolson (Director and Principal Heritage Advisor). All of the team are qualified Heritage Advisors, specialising in Australian archaeology (including Aboriginal, Historical and Maritime). Three members of the team are based in our Geelong office.

1.4.2 Authors

The authors of this PCHS are Austen Graham (Archaeologist/Heritage Consultant) and Talia Green (Archaeologist/Cultural Heritage Team Assistant). The heritage advisor of this PCHS is Joshua Flynn (Archaeologist/Heritage Advisor). The quality assurance review was undertaken by Annie Ayres (Archaeologist/Senior Heritage Advisor) and Oona Nicolson (Director/Principal Heritage Advisor). The field inspection was undertaken by Austen Graham. Mapping was provided by Monique Elsley (GIS Coordinator).

Details of the project team are provided in Appendix 1.

1.5 Heritage Legislation

Legislation relevant to the preparation of this PCHS includes the *Aboriginal Heritage Act 2006*, the *Commonwealth Native Title Act 1993*, the *Victorian Planning and Environment Act 1987* and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. This legislation is subordinate to the *Victorian Coroners Act 2008* in relation to the discovery of human remains.

2 PROJECT METHODS

2.1 Scope of Works

The following tasks were undertaken as part of the PCHS:

1. A review of available literature was undertaken using resources such as the Aboriginal Victoria (AV) and Heritage Victoria (HV), and the Ecology and Heritage Partners library of reports and knowledge of the area. A desktop study, with all relevant cultural heritage databases and mapping programs, was examined including:
 - the Victorian Aboriginal Heritage Register (VAHR);
 - the Victorian Heritage Register (VHR);
 - the Victorian Heritage Inventory (VHI);
 - the Heritage Overlay of the Corangamite Planning Scheme;
 - the National Trust (Victoria) Register;
 - National, Commonwealth and International Heritage Lists; and
 - relevant Commonwealth and State legislation and policies.
2. Provide a brief review of land use for the study area;
3. Conduct a site inspection of the subject site by a qualified heritage advisor to identify any Aboriginal and/or historical cultural heritage within the study area;
4. Provide information in relation to any implications of Commonwealth and State environmental legislation and Government policy associated with the proposed development;
5. Discuss any opportunities and constraints associated with the study area; and
6. Presentation of the results in this PCHS report.

2.2 Limitations

The cultural heritage information used to inform this PCHS is limited to that obtained through desktop assessment and a site visit.

The level of assessment undertaken for the site visit does not meet the requirements for a formal archaeological survey in accordance with Heritage Victoria and Aboriginal Victoria guidelines (HV 2008; Duncan et al. 2008; AV 2010). Consultation with the local Aboriginal community was not part of the scope of works for this project. This level of assessment is appropriate for determining the broader potential for Aboriginal and/or historical heritage values to be present in the study area and for making recommendations regarding the need for further detailed investigations.

This report is an opportunity to provide a historical context for understanding the study area and to identify potential areas that may contain Aboriginal or historical sites and to identify relevant legislative implications (Section 7). Aboriginal cultural heritage may occur anywhere in the landscape and it is important to note that the assessment of likelihood is based on the balance of probability; it is our opinion based on an assessment of landforms and the extent of previous ground disturbance, compared to the general archaeological character of the region as assessed via desktop review. It is not a categorical statement that Aboriginal cultural heritage will or will not be present.

3 ENVIRONMENTAL CONTEXT

3.1 Geographic Region

The defined geographic region for the proposed Bookaar Solar Farm at Bookaar is an arbitrary 2 km radius of the study area. This area forms part of the Victorian Volcanic Plain and falls under the jurisdiction of the Glenelg Hopkins Catchment Authority. The Victorian Volcanic Plain is dominated by Cainozoic basalt deposits, formed by continuous volcanic activity over the last 6 million years. The region is typified by extensive flats and undulating basaltic plains, stony rises and old lava flows, with volcanic cones and old eruption points dotted across the landscape. Salt and freshwater lakes are also common within the landscape. Soils within the Victorian Volcanic Plain are variable and include fertile reddish-brown to black loams and clays, red friable earths, acidic contrast soils and scoraceous material and support a wide variety of flora. Wetlands within the region include inland salt marshes, subterranean karst wetlands, freshwater and saline/brackish lakes and freshwater ponds and marshes, supported by a relatively evenly distributed annual rainfall of 450-840 mm (DELWP 2017a).

3.2 Geology, Geomorphology and Soils

The study area is located within the Western Plains (WP) geomorphological framework (DEDJTR 2017). The Victorian Western Plains are made up of low-lying undulating plains formed on both volcanic and sedimentary lithologies. The landscapes of this geomorphological unit are formed on some of the youngest rocks of Victoria.

The geological units as defined by DEDJTR (2017) within the study include; volcanic plains (6.1) and sedimentary plains (Plains on unconsolidated (sedimentary) deposits) (6.2).

The volcanic plains (6.1) were built up by sporadic volcanic eruptions over a period of about 5 million years, and are known geologically as the Newer Volcanics, the deposits which form the Newer Volcanic Province of Victoria, which includes parts of the Western Uplands, the Western Plains, and the area across the border around Mt Gambier. Much of the plains were formed from lobes of lava which flowed from the eruption points, overlapping to form a veneer of basalt lava flows. The flow varies in thickness according to both the underlying topography and the present-day surface. The flows are interleaved in places with pyroclastic deposits (scoria and tuff) and discontinuous buried palaeosoils of variable thickness.

The sedimentary plains (6.2) mainly comprise the marine sands deposited by the retreating Pliocene sea and sometimes the older underlying Gellibrand Marl and Port Campbell Limestone is also exposed. These sand plains also appear in 'windows' within the area of the volcanic plains, where they have not been covered by lava flows.

Soils on the Western Plains reflect the underlying lithology and age of the rocks. The youngest landscapes — the stony rises — have skeletal uniform or gradational soils, whereas the earlier lava flows have deeper soils varying from friable gradational to strongly textured contrasting soils. The friable, finely structured brown gradational soils developed on volcanic ash (tuff) around the Red Rock volcano are representative of favourable cropping country in Victoria. The soils developed on the Pliocene sand plains are often sandy,

sometimes ferruginised or podzolic (sands with coffee rock or sand over clay) soils. Further south on the marls and limestones, the soils vary from clay-rich (medium or heavy textured) gradational to strongly texture contrast soils and generally heavy (uniform) clays.

3.3 Landforms and Hydrology

The Victorian Volcanic Plains are characterised by extensive flats, undulating basaltic plains and stony rises, formed by periodic volcanic eruptions over the last 6 million years, also known geologically as the Newer Volcanics. Old lava flows, eruption points and volcanic plains are still present across the landscape, and have influenced the formation of fresh and saltwater lakes. Due to the young age of the Newer Volcanics, many of these features are well preserved and form prominent features on the landscape, although human activity is contributing to the degradation of geological sites, particularly in areas of urban development. Due to the poor drainage potential of the region, wetlands and swamps are not uncommon within the Victorian Volcanic Plain and shallow fresh and saltwater lakes are dotted across the area. Inland salt marshes and inland subterranean karst wetlands are also characteristic of the region. A relatively even rainfall distribution of 450-840 mm per annum supports the lakes, rivers and wetland systems of the Plains. The Bookaar region sits between 100-200 m above sea level with slight variations, and is within the boundaries of the Glenelg Hopkins Catchment. Blind Creek flows through the south-east section of the study area, as do a number of smaller drains and tributaries. Several small lakes and dams are also present within the study area. Lake Bookaar is located approximately 350 m to the east of the study area, and the larger Lake Colongulac sits approximately 4.5 km to the east of the study area.

Consequently, there are two primary landforms within the study area;

- Undulating Plains; this landform is the predominant landform of the study area. Undulating plains encompass the southern, middle and north-eastern sections of the study area. Except for the north-western section of the study area, undulating plains is the primary landform. This landform is currently being used for pastoral purposes, including grazing and crop production.
- Slope; this secondary landform is evident in the north-western section of the study area. The slope landform is defined by the foot of Mt. Meningoort, located west of the study area. This slope declines west to east from the foot of Mt. Meningoort and ceases approximately 800 m for the western boundary of the study area.

3.4 Vegetation

Historically, the soil types in the Bookaar region would have supported Swampy Scrub (EVC 53), Plains Grassy Wetland (EVC 125), Plains Grassland (EVC 132), Grassy Woodland (EVC 175), Stony Rises Woodland (EVC 203), Plains Sedge Wetland (647) and Scoria Cone Woodland (EVC 894).

Swampy Scrub (EVC 53) is characterised by closed scrub up to 8 metres and is typically present on alluvial deposits, or on poorly drained areas with high water and nutrient access at low elevations. Supporting soils vary from organic loams to fine peats and silts and is typically inundated during the wetter months. Swampy Scrub is dominated by a dense thicket of Woolly Tea-tree (*Leptospermum lanigerum*) with emergent Swamp

Gum (*Eucalyptus ovata*). If light is able to penetrate through the *Leptospermum lanigerum* layer, a herbaceous ground cover of moss, lichen or liverwort may be present.

Plains Grassy Wetland (EVC 125) is characterised by grasses, small sedges and herbs. In the wetter central areas, species are less diverse than on the outer verges. This environment is typically treeless, but can include sparse Red River Gum (*Eucalyptus camaldulensis*) or Swamp Gum (*Eucalyptus ovata*) or a sparse shrub component.

Plains Grassland (EVC 132) is a treeless ecosystem dominated by graminoid and herbaceous species up to 1 metre tall and typically occupies cracking basalt soils in areas subject to seasonal waterlogging.

Grassy Woodland (EVC 175) is typically open eucalypt woodland to 15 metres tall, and occasionally includes Sheoak/Acacia woodland up to 10 metres tall over a diverse grassy and herbaceous ground layer, although shrubbery is generally sparse. This ecosystem is present in areas of moderate fertility on undulating hills and gentle slopes on a range of soils.

Stony Rises Woodland (EVC 203) is typified by Eucalypt woodland up to 15 metres tall on stony rises, which are highly irregular terrain on recent basalt flows. Although soils are shallow or skeletal, they are generally fertile and well drained. Deep-rooted perennials are often present due to dry summers and limited soil development outside of rock-cracks.

Plains Sedge Woodland (EVC 647) is characterised by sedgy-herbaceous vegetation in areas of higher rainfall, sometimes with scattered or fringing eucalypts, or Tea-tree/paperbark shrubbery. Species diversity is low to moderate, particularly in the wetter areas. This ecosystem is typically found seasonally on fertile, silty, peaty or heavy clay paludal soils in wet depressions, and on volcanic and sedimentary plains.

Scoria Cone Woodland (EVC 894) is either a) Eucalypt woodland up to 15 metres high or b) non-eucalypt woodland up to 10 metres high over a grassy or bracken dominated understorey with a diverse herbaceous layer. Soils are fertile but often skeletal. Scoria Cone Woodland is typically present on the slopes of freely-draining scoria cones and on spatter areas of more coarse boulder-forming flow sources.

4 ABORIGINAL CONTEXT

The section reviews the Aboriginal context of the study area and includes an examination of historical and ethnohistorical sources, previously recorded Aboriginal archaeological site types and locations in the geographic region of the study area, and previous archaeological studies undertaken in the area. Together, these sources of information can be used to formulate a predictive statement concerning what types of sites are most likely to occur in the study area, and where these are most likely to occur.

4.1 Ethnohistory

At the time of European contact, the Bookaar and the surrounding region lay within the traditional lands of people from the *Djargurd wurrung* language group. The *Djargurd wurrung* shared a cultural and linguistic affinity with the *Guri wurrung* and the *Dhauwurd wurrung*, sharing 80-90 percent common vocabulary with clans to the immediate west. Mathews (1904) suggests that a single language, albeit different dialects, was spoken from Glenelg to the Gellibrand Rivers.

The *Djargurd wurrung* were organised into two moieties which were inherited matrilineally, the *Gabadj* (Black Cockatoo) and the *Guragidj* (White Cockatoo). Marriage partners were taken from the opposite moiety, and also from the *Gulidjan* clan, and likely the *Djab wurrung* and *Girai wurrung* clans. The *Djargurd wurrung* also intermarried with the patrilineal clans of the *Wada wurrung*, although the *Wada wurrung* had a different descent system. Membership in the moiety had religious, economic and social implications and obligations that transcended local allegiances and clans (Barwick 1984).

The *Djargurd wurrung* were divided into 12 smaller clans and each clan was responsible for a specific section of *Djargurd wurrung* territory. The area surrounding Bookaar was the territory of the *Taranbeere gundidj* and the *Koenghegulluc* clans. The *Taranbeere gundidj* territory covered the eastern bank of Mount Emu Creek, and the *Koenghegulluc* territory extended from Lake Colongulac and east of Mt Myrtoon.

Resources

The *Djargurd wurrung* country was rich in resources as it is located in the temperate south zone of Australia, which covers the south part of the continent. Due to a present rainfall in excess of 300 mm a year, the temperate zone has many watercourses and lakes, which provided a reliable water supply to the Aboriginal population. This allowed a relative growth of the human populations in the region, and in favoured areas, hunter-gatherers invested much labour on maintaining resources such as fish traps and weirs (Presland 2010: 48).

The *Djargurd wurrung* occupied a large region in western Victoria, approximately 165 kilometres south west of Melbourne. It consisted of wetlands which would supply food sources such as eels, mussels, fish, snakes and plants, as well as an abundance of wetland birds. Past Aboriginal occupation in the area is still evident today through the scars that were left on trees and the stone tool fragments that are still being discovered across the landscape.

However, the mainstays of the Aboriginal diet were plants and roots. One of the most important foods was called Myrnong (*Microseris lanceolata*), a tuber that resembled a dandelion, also known as Yam Daisy or Native Dandelion. In addition to this plant, there were more than 300 plants of which the roots or tubers were eaten, including the bulrush (*Typha* sp.), marsh club rush, early-nancy, milkmaid, various orchids (*i.e.* greenhood, onion and potato orchids) and many kinds of lilies (including bulbine lily, chocolate lily, flax lily, fringe lily, grass lily, gymea lily and pale vanilla lily) (Clarke 2011: 72). Roots of common reed (*Phragmites australis*) were also collected to manufacture items of personal adornment (Presland 2010: 71).

Similar to other hunter-gatherer societies, there was a division of labour based on gender. Men would engage in hunting and women gathered plants and roots; although it is not unusual that these subsistence activities overlap, especially with women and young children capturing small animals during their foraging excursions. Nets and traps were also used to capture eels and fish during the day and at night; spear fishing from a canoe was also practiced in freshwater bodies, attracting fish with a lighted brand near the water's surface. Two common freshwater fish that were captured include the Australian Grayling (*Prototroctes maraena*) and Tupong (*Pseudaphritis urvillii*) (Presland 2010: 68). Possums, especially the brush-tailed possum (*Trichosurus vulpecular*) were hunted for their meat and their skins that would later be used to make cloaks. Other animals included kangaroo, bandicoot, emu and other smaller quadrupeds; these were cooked and distributed among the participants of the hunting party, according to a set of very strict rules (Howitt 2001: 764-765).

Conflict

The connections that existed between the different *Djargurd wurrung* clans were maintained and strengthened at regular meetings. These gatherings were also opportunities to settle disputes and to conduct business, and occurred throughout the landscape.

From the mid-1830s the territories of the *Djargurd wurrung* were invaded in a wholesale manner as European pastoralists grew in numbers and spread out with their sheep and cattle (Presland 2010: 87). The contacts between the *Djargurd wurrung* and the European people were plagued with conflicts, and often these resulted in many deaths. European diseases such as influenza, to which Aboriginal groups had no immunity, played a large part in the decline of the indigenous population (Presland 2010: 90). Finally, alcohol drinking, disease and inter-tribal fighting were among other major factors in declining numbers of the *Djargurd wurrung* groups, particularly inter-tribal conflicts with the *Wada wurrung* clans.

European Contact

Since the end of the eighteenth century, the *Djargurd wurrung* were aware of the presence of white men in the south of Victoria. European arrival in the region had a devastating impact on Aboriginal people, and a steep decline in population was recorded soon after European arrival in Australia. It is likely that Aboriginal communities had already suffered severe population decline prior to the official settlement in 1835 as a result of disease and conflict with whalers, sealers and squatters.

In 1839 the Aboriginal protectorate scheme was introduced in Victoria. Four Assistant Protectors were appointed under a Chief Protector, George Augustus Robinson. The role of the protectorates was to provide food, shelter and medical supplies, record cultural and population information and to indoctrinate Aboriginal peoples into the western European cultural and economic systems. Aboriginal reserves and stations were established across Victoria and Aboriginal peoples were encouraged to move to them. By the mid-1800s many

Djargurd wurrung people were living at the Wesleyan Mission station at Buntingdale, which caused further conflict with the *Wada wurrung* and many were consequently driven off the station. As a result, the displaced *Djargurd wurrung* were starving and began stealing sheep and vegetables from the European pastoralists which led to reprisals and expulsions from squatting runs. Consequently, one clan, the *Tarnbeere conedeet*, were massacred by the Europeans. The Protectorate was largely unsuccessful and was disbanded in 1849.

The Central Board for the Protection of the Aborigines was founded in 1860 to provide an administrative structure to manage Aboriginal people in Victoria. Under their direction a series of missions and government stations were set up throughout Victoria where Aboriginal people could live (Department for Victorian Communities, AAV Website). While many Aboriginal people lived on the missions and government stations, a significant number of people worked and lived on farms and pastoral stations. Some Aboriginal people farmed the land on smallholdings, or worked in industries such as fishing on the Murray, the goldfields, and in the timber industries. People outside the reserves sometimes gathered together in camp sites on the outskirts of towns. They were also involved in sports such as cricket, football and athletics.

By the turn of the century only a small population of Aboriginal people lived on the missions and government stations, with most living and working in the same general area. The last missions and stations were phased out in the 1920s, though some of the land which was once part of the missions is now under the control of Aboriginal communities (Department for Victorian Communities, AAV Website).

Since the 1920s, Aboriginal people have continued to live in most areas of Victoria, often with strong ties to their original clan and tribal areas. This century, Aboriginal history has been marked by peoples' efforts to maintain their collective identity and culture (Department for Victorian Communities, AV Website).

4.2 Archaeological Character

Archaeological evidence suggests that Aboriginal peoples had occupied all of Australia's environmental zones by 40,000 years BP. Pleistocene archaeology of the Port Phillip Bay and Hinterland area documents human occupation dating back at least 40,000 years. The oldest dated archaeological site in Victoria occurs at Keilor in Melbourne. Charcoal from a hearth excavated in 1973 has been dated to 31,000 years BP (Flood 1995: 286). More recently research at the Bend Road site in Melbourne's southeast has dates extending back to 30–35,000 BP (Hewitt and Allen 2010). However, most of the site is associated with the late Holocene backed artefact period – the site has now yielded hundreds of asymmetric points and geometric microlith forms. The site points to more common resource orientation patterns relevant to many greater Melbourne Aboriginal Places. Notably, the site is located on an undulating sand promontory jutting out into the northern end of Carrum Swamp. Such land was likely subject to irregular inundation and periodic drying, as such, "Aboriginal use of this resource was also likely to have been seasonal. Ethnographic accounts suggest that birds, eggs, fish, yabbies, shellfish, eels and edible swamp plants, together with the focus the swamp provided for foraging terrestrial marsupials, would have made the area an important resource for Aborigines, especially in spring" (Hewitt and Allen 2010: 3).

The following register searches provide a greater understanding of the archaeological character of the Camperdown region and the study area.

4.3 Register Searches

4.3.1 Victorian Aboriginal Heritage Register

A search of the Victorian Aboriginal Heritage Register (VAHR) was conducted on 18 October 2017 for Aboriginal places within a 2 km radius of the study area. Searching this area ensured that a relevant and representative sample of information was obtained.

The search identified a total of two registered Aboriginal places within the search area (Table 1). These sites consist of a total of two site components and a total of two site component types (Table 2).

No Aboriginal Historical References were identified within the search area.

None of these sites are located within the study area (see Table 1 for details).

Table 1: Summary of Previously Identified Aboriginal Places within the Search Area

VAHR Place	Component Number	Site Name	Site Type	Within Study Area?
7521-0109	1	Lake Bookaar 98/01	Artefact Scatter	N
7521-0110	1	L Bookar SAS 1	Artefact Scatter	N

Table 2: Summary of Previously Identified Aboriginal Place Component Types within the Search Area

Site/Component Type	Quantity	Percentage (%)
Artefact Scatter	2	100
Total	2	100

4.3.2 Local Council

The study area is located within the Corangamite Shire Council and is governed by the Corangamite Planning Scheme. Planning schemes set out policies and provisions for the use, development and protection of land.

The Heritage Overlay of the Corangamite Planning Scheme was examined. No Aboriginal heritage places listed on the Heritage Overlay are present within the study area (Map 3).

4.3.3 Previous Aboriginal Archaeological Investigations

McNiven (1998) completed a cultural heritage assessment of the Corangamite Basin (Report #1282). This assessment was based on textual information and data from a sample survey of different geologically-based land units within the basin, with the aim of developing a predictive site location model. McNiven's model was developed using previous information on Aboriginal life ways and archaeological sites in and around the basin. A series of protective recommendation measures for the basin's sites are included in this report.

McConnell, Buckley and Wickman (2002a) completed a study which set out a proposal for an Aboriginal Heritage Management System for the West Victoria Region State forest area based on previous projects (Report #2704). The sensitivity for archaeological sites in the area was presented in the subsidiary report (Report #2705) as the reason for the recommendation of this report; which is for the endorsement urgently of the AHMS register. The subsidiary report (McConnell et al 2002b) presented predictive sensitivity zoning

model for the West Victoria Region. McConnell, Buckley and Wickman stated that archaeological sites are virtually everywhere in the study area with the challenge of the report to identify patterns of differing density. The predictive model defined three zones of sensitivity; 1) Southern periphery, 2) Northern periphery and 3) Interior. Factors affecting site location in decreasing importance are; proximity to an ecotone, proximity to fresh water, elevation below 200 m and flatness of ground. Distance from coast, location of water and elevation were all relative factors in the number of sites. The highest density of sites was located at 0-5 km from the water, coastal basins at river mouths and damp sclerophyll forest and wet heathland appear to contain high densities.

Lane (2008) completed a research thesis to reassess the evidence of the use of stone huts through review of the present literature and through scholarly excavation. The research covered the Mt. Eccles stony rises, which extend “from the plains north of Melbourne...almost to the South Australian Border” across the western Victorian volcanic plains. Multiple stone structures were investigated in two main locations. The excavations generated data on the hut’s construction and uses. Presence of artefacts at the huts allowed some dating, and comparison between the artefact assemblages at the different sites investigated allowed models of use to be formed. The artefacts at these sites were mostly ‘flint’, but included a significant knapped glass component which varied between the two main locations studied. Hut construction was determined to include the removal of stone from the ‘living floor’, which was incorporated into the ‘walls’ along with stone brought in from elsewhere. In many locations, the stone foundations would be built over with walls of turf or wood. The huts were apparently still in use within the past 200 years, but likely fell out of common use following the ‘Eumarella war’ where the Aboriginal population declined and traditional lifestyles affected.

Kirkwood, Neuweger and Clarke (2009) completed a Complex CHMP (CHMP #10152) for a proposed 2515 hectare Mortlake Wind Farm, located 9.5 km east of Mortlake and 2 km west of Darlington, Victoria (15 km north of study area). No previously recorded Aboriginal places were identified during the Desktop Assessment, and no new Aboriginal places or cultural heritage was identified during the Standard or Complex Assessments, and it was concluded that activity area held a low potential for previously unknown Aboriginal cultural heritage. However, following design changes to the original development plan a subsidiary CHMP (CHMP #11020) was completed by **Ford and Nicolson (2009)**. Fourteen previously recorded Aboriginal places were present within a 10 km radius of the activity area, including one artefact scatter within the activity area (VAHR 7421-0201). It was determined that VAHR 7421-0201 would not be impacted by the proposed activity and no further recommendations were made for the monitoring of Aboriginal cultural heritage.

Gilchrist and Lane (2017) completed a Complex CHMP for proposed Castle Carey Road Bridge Upgrade at Mount Emu Creek, Glenormiston North, within a linear activity area (6 km west of study area). No previously recorded Aboriginal places were present within the activity area prior to this CHMP. Ground surface visibility was poor during the Standard Assessment, although one scarred tree (VAHR 7521-0139) was identified within the road reserve at the south-eastern end of the activity area. No further Aboriginal places or cultural heritage was identified during the Complex Assessment, although it was determined that the possibility that undetected stone artefacts exist within the activity area at low densities.

4.3.4 Summary of Desktop Aboriginal Cultural Heritage Assessment

The desktop Aboriginal Cultural Heritage Assessment shows two Aboriginal sites previously registered within a 2 km radius of the study area. No previously recorded Aboriginal sites are located within the study area itself

and no previously recorded Aboriginal sites are located within 50 m of the study area. Previous archaeological assessments have shown that the area within a 2 km radius of the study area is sensitive to stone artefacts scatters. It is considered likely that these site types may be present in the study area and therefore a field investigation is warranted. Other site types are considered unlikely to be present due to unsuitable geomorphology and geology, and due to previous land use.

5 HISTORICAL CONTEXT

The section reviews the historical (non-Aboriginal) context of the study area and includes an examination of historical sources, previously recorded heritage places and historical archaeological site types and locations in the geographic region of the study area, and previous archaeological studies undertaken in the area. Together, these sources of information can be used to formulate a predictive statement concerning what types of sites are most likely to occur in the study area, and where these are most likely to occur.

5.1 Land Use History of the Study Area

Europeans began to permanently settle along the Yarra in 1835, and by 1840s townships had begun to spread into the outer regions of the Melbourne area. In 1839, English brothers John, Peter and Thomas Manifold discovered the area encompassing Lake Purrumbete and Mount Leura and built a hit on a 100,000 acre parcel of land. Within two years, other pastoralists and squatters had settled in the area and the regional population had reached 1260 and most of the land in the western district of Victoria had been claimed (Corangamite Shire Council 2017).

In 1840, the town of Timboon was established approximately 3 km north of present day Camperdown and the first official post office in the region was opened. However, Timboon's location was too wet and boggy to support a sustainable township and in 1851, government surveyor Robert Dunbar identified the area where Camperdown now lies as a suitable location for a new settlement. The first house in Camperdown was built in 1853 by David Fenton on the site of the existing Commercial Hotel (Victorian Places, 2017).

On 25 April 1857, the Hampden and Heytesbury Road District was proclaimed, and this expanded in 1862 when the Parishes of Terang and Glenormiston were merged into the Road District (Corangamite Shire Council 2017).

In Camperdown, Presbyterian, Catholic and Anglican churches were established between 1857 and 1864, and the Shire of Hampden was subsequently established in 1863, and was governed from an administrative centre in Camperdown. In 1868 the Wesleyan church had also introduced services (Victorian Places, 2017).

By the 1880s several hop growing, vegetable and pastoral farms had been established along Curdies River and in 1892 a railway line began services between Camperdown to Timboon, via Cobden. By the late 1880s, despite the area being wet and boggy, Timboon had acquired a school, several stores and a mechanics.

In 1883, Camperdown acquired a rail service connecting it to Melbourne and Colac, and several families owned large pastoral properties in the area. Prominent pastoralists include Scottish immigrant Peter McArthur, who established "Meningoort," in the early 1840s, and James Manifold, who established "Talindert homestead" (Victorian Heritage Council).

In 1895 Thomas Manifold died in a hunting accident and left 1000 pounds in his will to construct a clock-tower in Camperdown. A gothic-style clock-tower was erected in 1897, which is now listed with the National Trust.

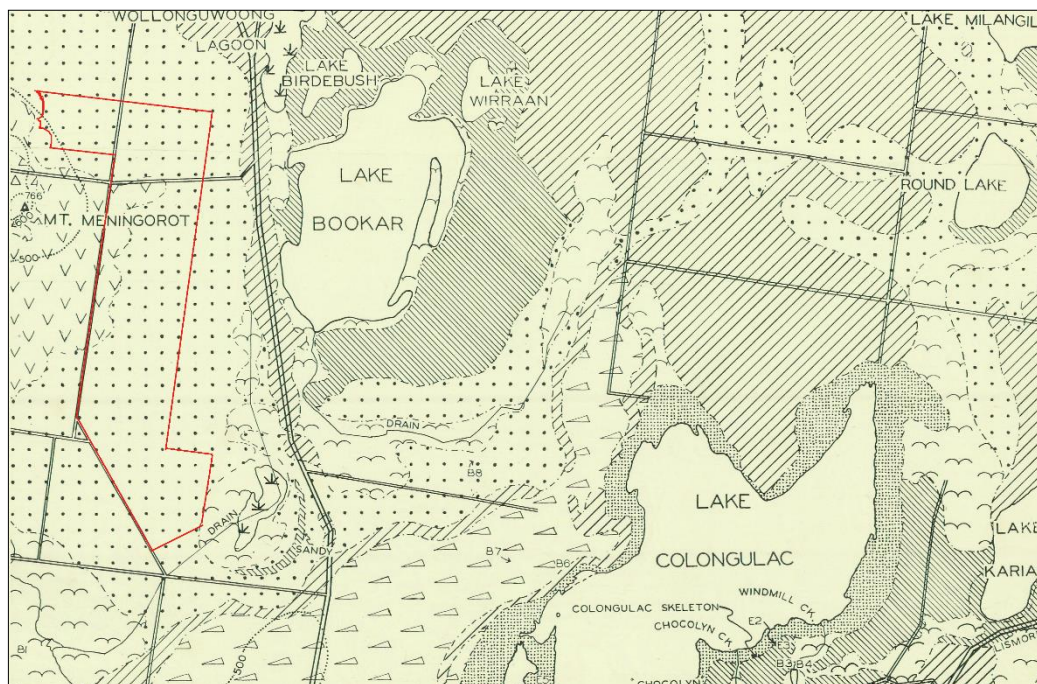


Figure 1: Map of Bookaar/ Camperdown region showing study area in red, dated 1940s (Source: SLV.)

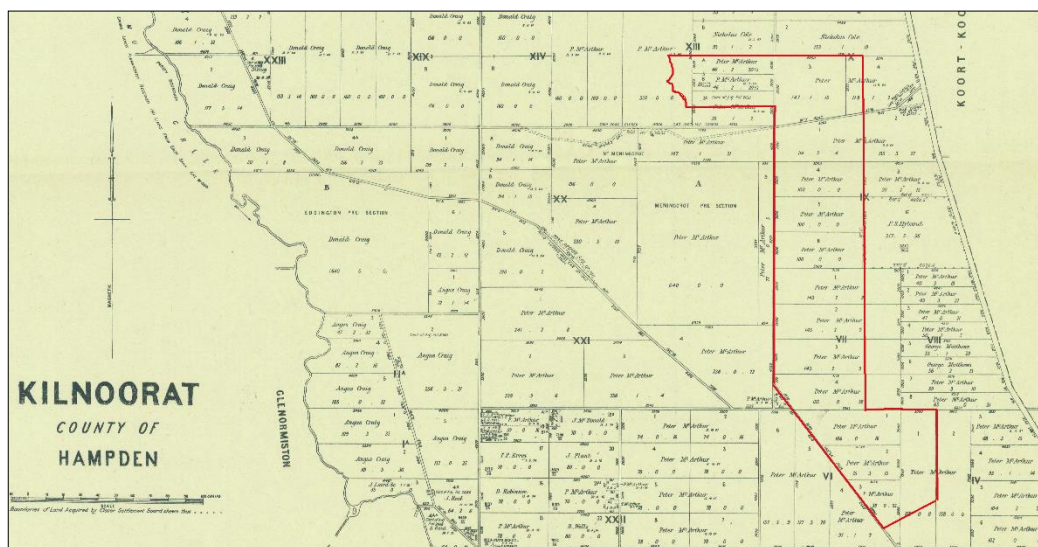


Figure 2: Map of Kilnoorat Parish, County of Hampden showing study area in red, dated 1926 (Source: PROV.)

5.2 Register Searches

A search of the relevant historical heritage registers was conducted on 20 October 2017 for historical heritage places within a 2 km radius of the study area.

5.2.1 Victorian Heritage Register

The Victorian Heritage Register (VHR), established by the Victorian *Heritage Act 1995* (superseded on 1 November 2017 by the *Heritage Act 2017*), provides the highest level of statutory protection for historical sites in Victoria. Only the State's most significant historical sites are listed on the VHR. A search of the VHR for

information relating to the study area was undertaken. The study area and the surrounding 2 km of land were investigated (Victorian Heritage Database 2017; HV 2017).

No registered heritage places listed in the VHR were located within the search area, yet H300 (Meningoort) closely borders the western boundary of the study area. Details of this site can be found in Table 3.

5.2.2 Victorian Heritage Inventory

The Victorian Heritage Inventory (VHI), established by the Victorian *Heritage Act 1995* (superseded on 1 November 2017 by the *Heritage Act 2017*), provides the statutory protection for all historical archaeological sites, areas or artefacts, and private collections of artefacts, in Victoria. Sites listed on the VHI are not of State significance but are usually of regional or local significance. A search of the VHI for information relating to the study area was undertaken. The study area and the surrounding 2 km of land were investigated.

No historical places were listed on the VHI within the search area.

5.2.3 Local Council Heritage Overlay

The study area is located within the Corangamite Shire Council and is governed by the Corangamite Planning Scheme. Planning schemes set out policies and provisions for the use, development and protection of land. The Heritage Overlay of the Corangamite Planning Scheme was examined.

Three heritage places were identified in the Corangamite Planning Scheme within the search area (DELWP 2017b). Details of these sites can be found in Table 3. No registered heritage places listed in the VHR were located within the search area, yet H080 (Meningoort) closely borders the western boundary of the study area.

5.2.4 National Trust of Australia (Victoria) Register

The National Trust of Australia (Victoria) is an independent, not-for-profit organisation that classifies a number of heritage places. Listing by the National Trust does not impose any statutory protection, however often National Trust Register listings are supported by the local council Planning Scheme.

No heritage places were listed in the National Trust Register within the search area.

5.2.5 Victorian War Heritage Inventory

The Victorian War Heritage Inventory (VWHI) was established in 2011 to catalogue Victoria's war history such as war memorials, avenues of honour, memorial buildings, former defence sites and places of commemoration. Places listed on the VWHI do not currently have discrete statutory protection, however many are concurrently listed on the VHR, VHI, or local planning schemes.

No heritage places were listed in the VWHI within the search area.

5.2.6 National, Commonwealth and International Heritage Lists

The Australian Government Department of the Environment and Energy (DoEE) maintains the National Heritage List (NHL), a register of exceptional natural, Aboriginal and historical heritage places which contribute to Australia's national identity. The DoEE also maintains the Commonwealth Heritage List (CHL), a Register of

natural, Aboriginal or historical heritage places located on Commonwealth land which have Commonwealth heritage values.

A place can be listed on one or both lists, and placement on either list gives the place statutory protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999).

The World Heritage List (WHL) lists cultural and natural heritage places which are considered by the World Heritage Council to have outstanding universal value. In addition, the DoEE also maintains the Register of the National Estate (RNE) which is a list of natural, Indigenous and historic heritage places throughout Australia. Following amendments to the *Australian Heritage Council Act 2003*, the RNE was frozen on 19 February 2007 and no new places were added or removed. In February 2012 the RNE ceased statutory operation and sites listed on the RNE no longer have statutory protection, however items listed on the RNE may continue to be considered during approvals processes.

Listings on the NHL, CHL, WHL and RNE are accessed via the Australian Heritage Database (AHD), managed by DoEE.

No registered heritage places were listed in the AHD within the search area, yet RNE3755 (Meningoort) closely borders the western boundary of the study area (Map 3). Details of this site can be found in Table 3.

5.2.7 Summary of Desktop Historical Heritage Assessment

Heritage places identified within the search area are summarised in Table 3 below.

Table 3: Historic Heritage Places within the Search Area.

Register & Place Number	Place Name	Place Type	Within Study Area?
H300	Meningoort	Residential buildings (private) Farming and grazing	No – But closely borders western boundary.
HO80			
RNE3755			
HO215	Warwarick Homestead Complex	Residential buildings (private)	No
HO236	Puunyard Homestead Complex	Residential buildings (private)	No

6 FIELD INSPECTION

6.1 Introduction

A field inspection was carried out on 26-27 October 2017 and 18 January 2018 by Austen Graham (Archaeologist/Heritage Consultant).

6.1.1 Methodology

The inspection involved an archaeologist walking across the study area, targeting sections close to areas of cultural heritage sensitivity and areas of Aboriginal cultural heritage likelihood. The north-western section of the study area was targeted and thoroughly inspected due to its proximity to an area of Aboriginal cultural heritage sensitivity (Mt. Meningoort). Most of the study area is pastoral land covered in long grasses and crops. With poor Ground Surface Visibility (GSV) due to the pastoral nature of the study area, exposed areas with low or no grass were targeted and inspected thoroughly (Map 4). Notes were taken of ground surface visibility, landforms, surface lithology, evidence of previous ground disturbance, and any surface indications of Aboriginal or historical heritage. The area surveyed was approximately 210 ha, yet the area surveyed contained poor GSV, resulting in a lower effective survey coverage.

6.1.2 Limitations

A large portion of the study area was covered in long thick pasture and crops, resulting in very poor ground surface visibility. Areas of greater ground surface visibility were targeted to identify potential sites. This included exposed ground surfaces at the base of bushes and trees along the borders of the study area (Map 4).

6.2 Results

6.2.1 Landforms

The survey of the study area confirmed that there are two primary landforms; undulating plains and a slope landform.

Undulating Plains

Undulating plains is the predominant primary landform within the study area, encompassing the southern, middle and north-eastern sections (Plate 1). The undulating plains landform is a large flat or gently undulating area of land, usually with a relief of less than 9m (DSE 2007). The undulating plains are found at low elevations. The depositional processes of the undulating plains within the study area is undeterminable, yet are often formed by the deposition of alluvium.

Slope

The slope located at the foot of Mt. Meningoort is the secondary landform, located in the north-western section of the study area (Plate 2). The slope landform is an area of land with an inclination greater than one degree that is neither a crest nor a depression (DES 2007).



Plate 1: View of undulating plains landform – Private service road heading toward Meningoort Estate facing south-west.



Plate 2: View of slope landform – foot of Mt. Meningoort facing west.

6.2.2 Previous Ground Disturbance

Previous ground disturbance was identified during the site inspection. Most of the study area is pastoral land used for grazing and crop production, resulting in agricultural disturbance of topsoil (Plate 3). This ground disturbance does not constitute Significant Ground Disturbance (SGD), as defined by the *Aboriginal Heritage Regulations 2007* (r.4). Agricultural ground disturbance caused by cattle grazing was observed in various sections of the study area (Plate 4 and Plate 5). This ground disturbance was found predominantly along paddock boundaries where cattle intensively graze. Multiple irrigation channels have been created through waterway diversions of Blind Creek (Map 1). These channels have caused ground disturbance (Plate 6 and Plate 7). In the northern section of the study area there is a private graded driveway which has caused ground disturbance (Plate 8). No areas of SGD were identified during the site inspection.



Plate 3: Agricultural ground disturbance (crop production) – southern section of study area facing south-east.



Plate 4: Agricultural ground disturbance (cattle grazing) – northern section of study area facing north-east.



Plate 5: Agricultural ground disturbance (cattle grazing) – northern section of study area facing north.



Plate 6: Agricultural ground disturbance (irrigation channel) – north-eastern border of study area facing south-east.



Plate 7: Agricultural ground disturbance (irrigation channel) – south-western border of study area facing east.



Plate 8: Ground disturbance (raised driveway) – northern section of study area facing west.

6.2.3 Aboriginal Cultural Heritage

All mature native trees were examined and no cultural scarring was located. There are no caves, cave entrances or rock shelters present within the study area.

No mapped areas of Aboriginal cultural heritage sensitivity are located within the study area (Map 2). There were no previously recorded sites located through the ACHRIS search within the study area (Map 2). There are no sites within 50 m of the study area (Map 2).

No Aboriginal artefacts were identified during the site inspection.

One area of Aboriginal likelihood was identified during the site inspection (Map 4). This area is located in the north-western section of the study area at the foot of Mt. Meningoort (Plate 9 and Plate 10). This area of likelihood is defined by the slope landform and the proximity to Mt. Meningoort.



Plate 9: Area of likelihood – slope landform in north-western section of study area – facing north-west.



Plate 10: Area of likelihood – slope landform in north-western section of study area – facing south.

6.2.4 Historical Heritage

No previously listed historical heritage places are located within the study area, yet one previously listed historical heritage place closely borders the western boundary of the study area (H300 (Meningoort)) (Map 3). During the site inspection, no material evidence of Meningoort was located within the study area (Plate 11 and Plate 12). The area of Meningoort that closely borders the study area is believed to be defined by the landscape and does not include historical material remains. Although this is believed to be the case, long grass lengths made GSV poor and material remains of Meningoort may in fact be present close to the study area.

No new historical heritage places were identified during the site inspection.

No areas of historical archaeological likelihood were identified during the site inspection.



Plate 11: Location of previously listed historical heritage place (H300 (Meningoort)) – facing south-west.



Plate 12: Location of previously listed historical heritage place (H300 (Meningoort)) – facing west.

6.3 Opportunities

An opportunity to highlight the historical occupation at historical heritage place Meningoort (H300 (Meningoort)) exists. This historical place has considerable historical significance and consideration should be given to developing recognition of the historical heritage place during construction of the solar farm. Recognition can be in the form of signage, and such signage can help to preserve historical heritage and enhance cultural and natural heritage values within the study area and surrounds. This recognition could include signage describing historical heritage of Meningoort and past land use practices in the area. The content and manner of this opportunity should be subject to review from the current landowner of Meningoort (H300 (Meningoort)).

7 LEGISLATIVE AND POLICY IMPLICATIONS

7.1 Aboriginal Heritage Act 2006 (State)

7.1.1 Requirements

The *Aboriginal Heritage Act 2006* protects Aboriginal heritage in Victoria. If certain high impact activities are undertaken as stated in the *Aboriginal Heritage Regulations 2007* (the Regulations) then preparation of an Aboriginal Cultural Heritage Management Plan (CHMP) may be required to be approved by AV or the Registered Aboriginal Party (RAP) prior to lodging a planning permit.

Triggers for mandatory preparation of a CHMP include whether certain criteria are met under the Regulations, required by the Minister, or if the activity requires an Environmental Effects Statement (EES) under Sections 46 to 49 of the *Environmental Effects Act 1978*.

The Regulations require a mandatory CHMP if:

1. All or part of the proposed activity is a high impact activity; and
2. All or part of the activity area (study area) is an area of cultural heritage sensitivity (subject to whether the entire area of cultural heritage sensitivity has been subject to *significant ground disturbance*).

‘Significant Ground Disturbance (SGD)’ is defined in r.4 of the Regulations as meaning disturbance of – (a) the topsoil or surface rock layer of the ground; or (b) a waterway – by machinery in the course of grading, excavating, digging, dredging or deep ripping, but does not include ploughing other than deep ripping... The Victorian Civil and Administrative Tribunal (VCAT) has determined that the words “topsoil or surface rock layer” include the former topsoil or former surface rock layer if that topsoil or surface rock layer is a naturally occurring surface level that is readily ascertainable and does not include the current topsoil or current surface rock layer if established by the mere filling of the land (AV 2010: 2).

7.1.2 Implications for the Project

The following considerations are made regarding the requirement for a mandatory CHMP under the *Aboriginal Heritage Act 2006*.

Is the Study Area within an Area of Cultural Heritage Sensitivity?

The study area is **not** located within an area of cultural heritage sensitivity under the *Aboriginal Heritage Regulations 2007* (Map 2).

Is the Proposed Activity a High Impact Activity?

Under the *Aboriginal Heritage Regulations 2007* the proposed activity is considered a high impact activity. The specific high impact activity is:

- the construction of a building or the construction or carrying out of works for a specified use; land used to generate electricity (r. 43 [1][b][xxvi]);

Is a Mandatory CHMP Required?

Although the proposed activity is a high impact activity (land used to generate electricity (r. 43 [1][b][xxvii]), given that the study area is not located within an area of cultural heritage sensitivity under the *Aboriginal Heritage Regulations 2007*, a mandatory CHMP under the *Aboriginal Heritage Act 2006* **is not** required for the works.

7.1.3 Harm to Aboriginal Cultural Heritage

The *Aboriginal Heritage Act 2006* makes no distinction between disturbed or undisturbed archaeological sites when defining Aboriginal places. Thus, even highly disturbed sites are still Aboriginal places and are subject to protection under the Act. Similarly, it makes no distinction whether or not those sites have been previously identified and registered or not – all sites are protected.

This assessment considers that there is some potential for subsurface/disturbed archaeological deposits to be present at in the north-western section of the study area in the slope landform, as shown in the ‘areas of likelihood’ marked in Map 4, however the client has elected to completely avoid this area.

7.2 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

7.2.1 Requirements

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a national framework for the protection of heritage and the environment and the conservation of biodiversity. The EPBC Act is administered by the DoEE. The EPBC Act established the NHL, the CHL and the WHL for statutory protection of heritage places of national or international significance. Where Matters of National Environmental Significance (NES), including National Heritage Places, will or may be impacted by a development, then a referral to the Minister will be required to determine whether an approval under the EPBC Act is required.

The RNE is no longer a statutory register and listed sites are no longer protected (unless registered on another statutory register).

7.2.2 Implications for the Project

There are no known Matters of NES within the study area (Map 3). It is important to note that Meningoort is located adjacent to the study area (Map 3) (Meningoort Road, Bookaar, Victoria). This place is listed on Register of the National Estate (RNE) (RNE3755 (Meningoort)). The RNE is a non-statutory archive and Meningoort is not considered as a Matter of NES. It is considered unlikely that any cultural heritage sites of National Significance will be located in the study area. Therefore, no referral or further works would be required under the EPBC Act 1999.

There is unlikely to be significant impact to these places as a result of the activity. Therefore, a referral under the EPBC Act will **not** be required.

7.3 Planning and Environment Act 1987 (State)

7.3.1 Requirements

All municipalities in Victoria are covered by land use planning controls which are prepared and administered by State and local government authorities. The legislation governing such controls is the *Planning and Environment Act 1987*. Places of significance to a locality can be listed on a local planning scheme and protected by a Heritage Overlay (or other overlays where appropriate). Places of Aboriginal cultural heritage significance are not often included on local government planning schemes. The study area is governed by the Corangamite Planning Scheme. In addition to the Heritage Overlay, Clause 52.37 of the Particular Provisions provides protection to post boxes constructed before 1930 and dry stone walls constructed prior to 1940 (if listed in the schedule).

7.3.2 Implications for the Project

There are no sites of local significance listed on the Heritage Overlay under the Corangamite Planning Scheme within the study area. HO80 (Meningoort) closely borders the western boundary of the study area (Map 3):

- HO80 (Meningoort). Meningoort is a homestead located at 520 Meningoort Road, Bookaar, Victoria. Meningoort comprises private residential buildings and includes the immediate surrounding areas used historically for farming and grazing.

HO80 (Meningoort) closely borders the western boundary of the study area yet the proposed activity will **not** have any impacts on this site.

Note: this site is also listed on the VHR. Places on the Heritage Overlay that are also on the VHR will not require a Council permit, as permitting conditions under the *Heritage Act 2017* (see below) take precedence and only the HV permit is required.

7.4 Heritage Act 2017 (State)

7.4.1 Requirements

This Act protects all heritage places on the VHR and all non-Aboriginal archaeological sites older than 75 years. If a site is of State Significance it is listed on the VHR and a Permit from Heritage Victoria (HV) is required to disturb it. If an archaeological site is not of State significance it is usually listed on the VHI and Consent from Heritage Victoria would be required to disturb it.

7.4.2 Implications for the Project

There are no registered Historical Heritage Places within the study area. H300 (Meningoort) closely borders the western boundary of the study area yet the proposed activity **will not** have any impacts on this site. There are no implications for the project regarding the Heritage Act 2017.

8 CONCLUSION AND RECOMMENDATIONS

8.1 Conclusions

The following conclusions are made regarding the likely presence of Aboriginal and/or historical heritage within the study area:

Aboriginal Cultural Heritage

- The study area is **not** located within a mapped area of cultural heritage sensitivity under the *Aboriginal Heritage Regulations 2007*.
- No registered Aboriginal Places are located within the study area.
- No section of the study area triggers the need for a mandatory CHMP. One section of the study area has potential to retain archaeological deposits due to its position in the landscape in landforms that may be culturally sensitive. This area is located within the north-western section of the study area within the slope landform (Map 4). **This area of archaeological likelihood is not a mapped area of cultural heritage sensitivity, therefore does not fulfil the requirements for a mandatory CHMP.**

Historical Heritage

- There are no registered Historical Heritage Places within the study area. H300 (Meningoort) closely borders the western boundary of the study area yet the proposed activity **will not** have any impacts on this site.

8.2 Recommendations

Aboriginal Cultural Heritage

To avoid potential impacts to Aboriginal heritage, the following recommendations are made:

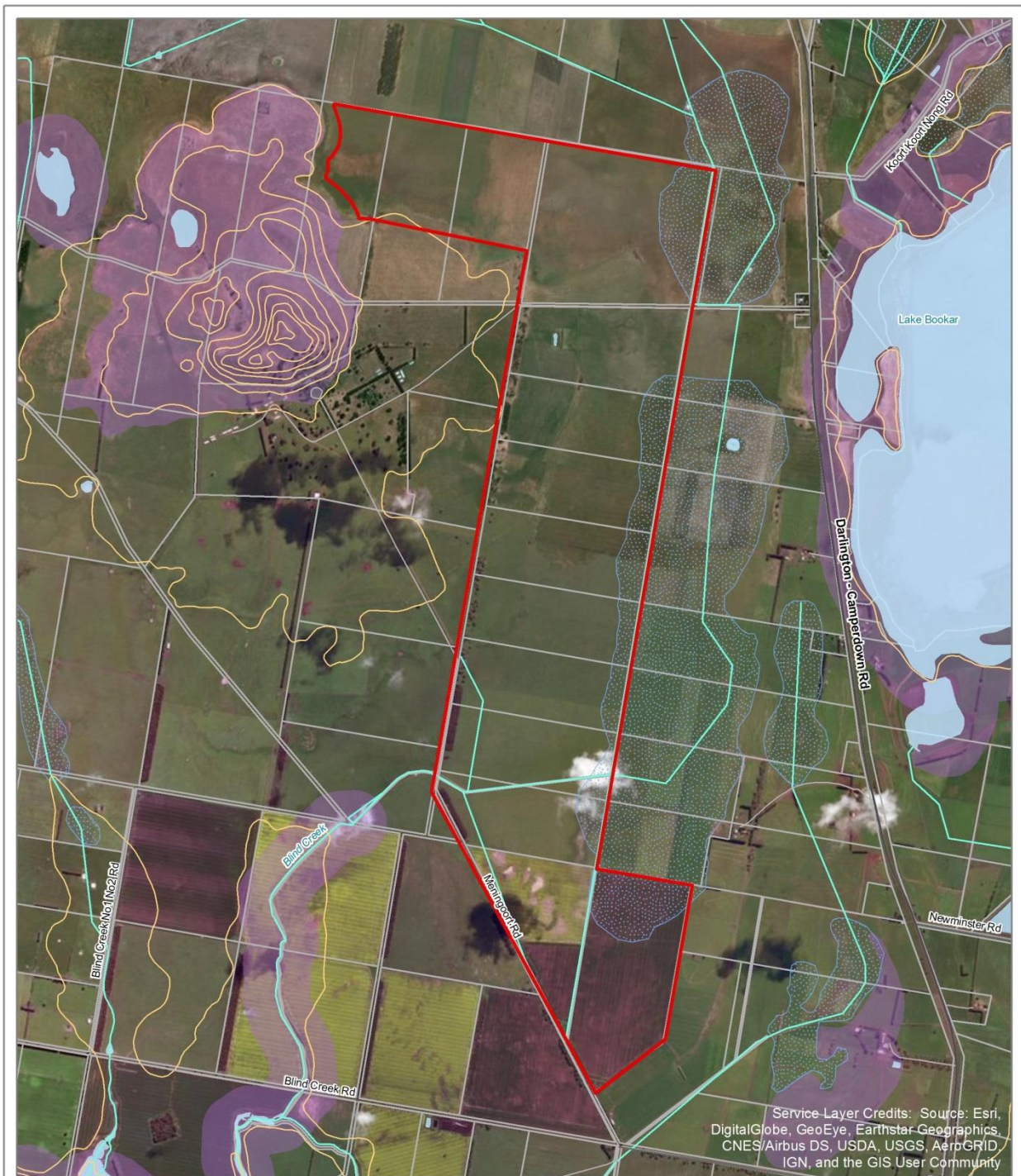
- Although the proposed activity is a high impact activity (land used to generate electricity (r. 43 [1][b][xxvi]), given that the study area is not located within an area of cultural heritage sensitivity under the *Aboriginal Heritage Regulations 2007*, **a mandatory CHMP under the *Aboriginal Heritage Act 2006* is not required for the works.**

Historical Heritage

To avoid potential impacts to historical heritage, the following recommendations are made:

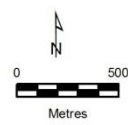
- There are no registered Historical Heritage Places within the study area. H300 (Meningoort) closely borders the western boundary of the study area. Based on the scope of proposed activities, there will be no foreseen direct impacts made to this site.

MAPS



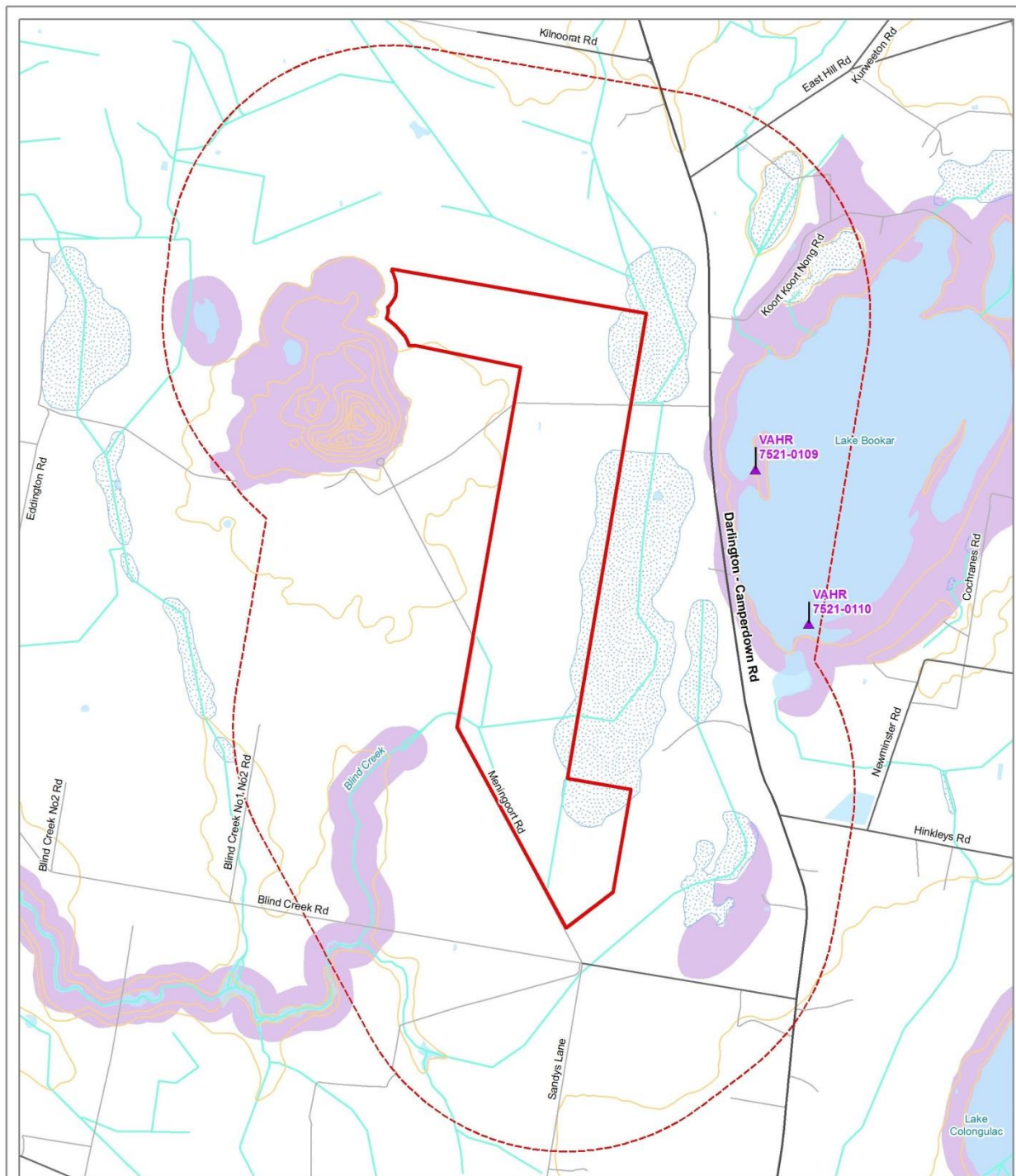
Map 1
Location and Extent of Study Area
Preliminary Cultural Heritage Study:
Bookaar Solar Farm

- Legend**
- Study Area
 - Major Road
 - Collector Road
 - Minor Road
 - Minor Watercourse
 - Permanent Waterbody
 - Land Subject to Inundation
 - Contour (10m)
 - Property Boundaries
 - Areas of Aboriginal Cultural Heritage Sensitivity



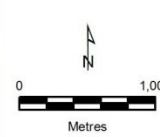
Local Government: Corangamite Shire
25k Mapsheet: Lake Gnotuk 7521-4-3 and Mount Koang 7521-4-4
Coordinate System: MGA Zone 54 (GDA94)
Map Scale: 1:30,000

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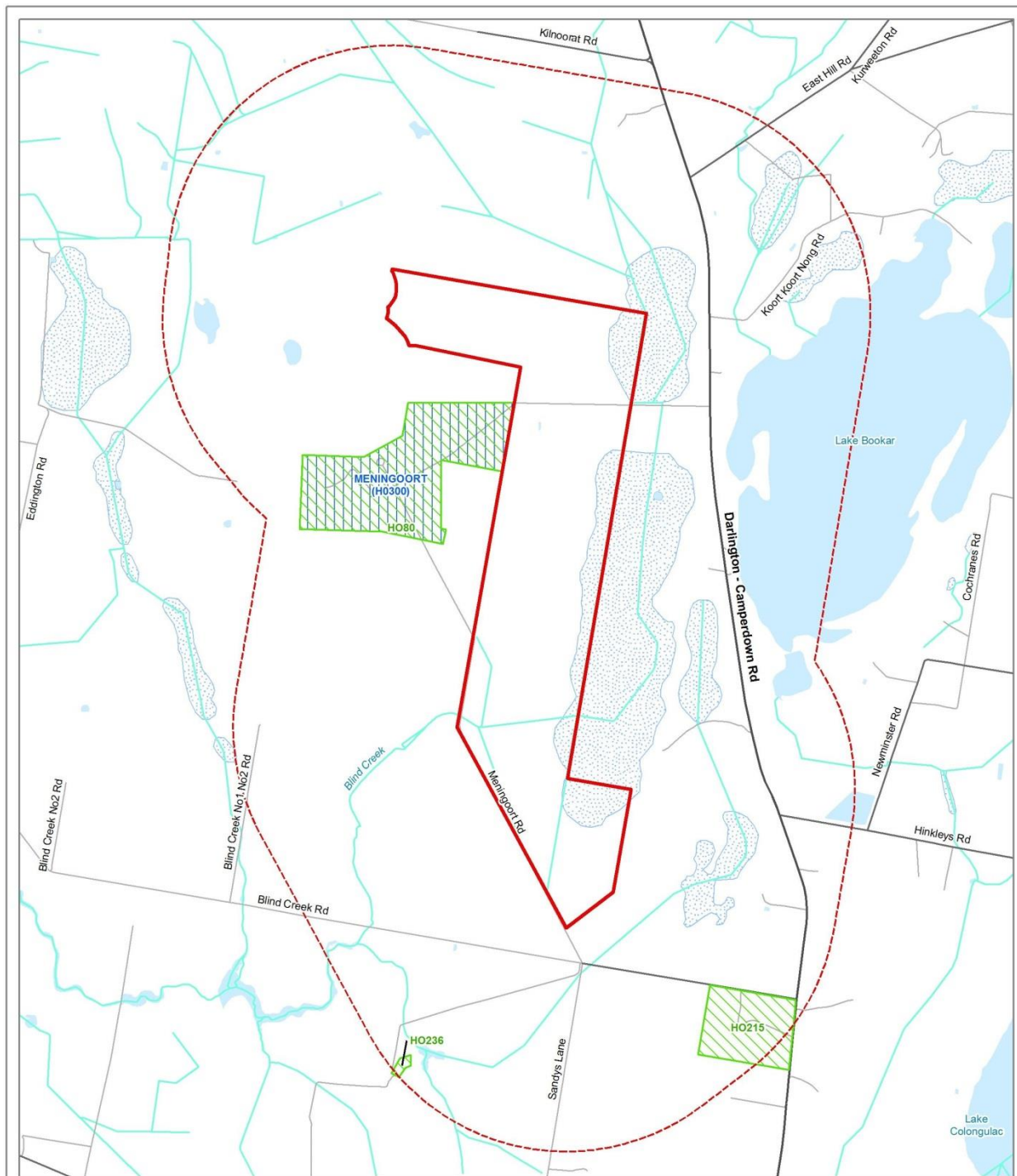
Map 2
Previously Recorded Aboriginal Archaeological Places In and Around the Study Area
Preliminary Cultural Heritage Study:
Bookaar Solar Farm

- Legend**
- Study Area
 - Search Buffer (2km)
 - Contour (10m)
 - Aboriginal Places**
 - ▲ Artefact Scatter
 - Areas of Aboriginal Cultural Heritage Sensitivity



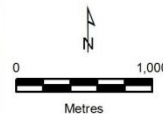
Local Government: Corangamite Shire
25k Mapsheet: Lake Gnotuk 7521-4-3 and Mount Koang 7521-4-4
Coordinate System: MGA Zone 54 (GDA94)
Map Scale: 1:45,000

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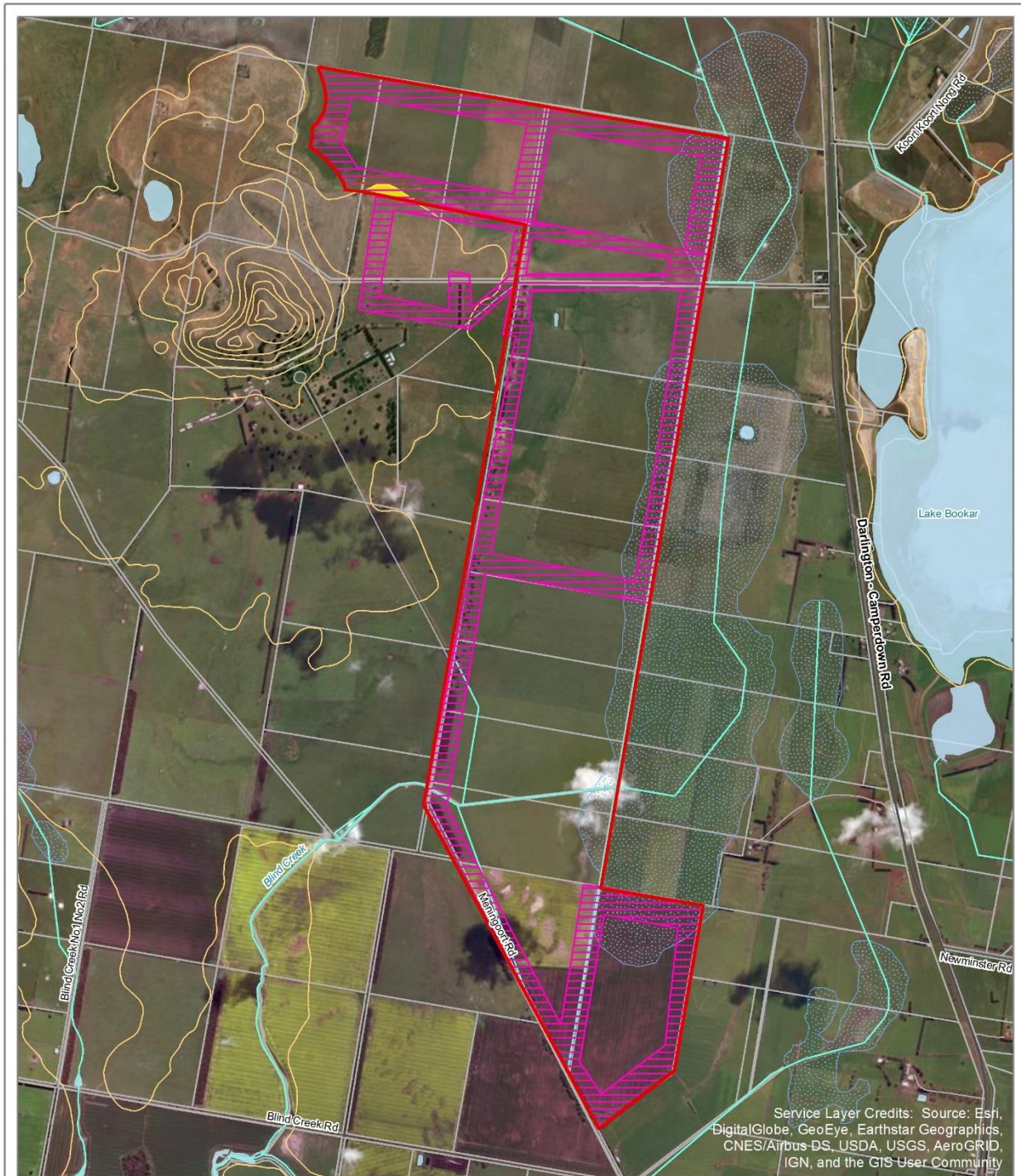
Map 3
Previously Recorded
Historical Archaeological
Places In and Around the
Study Area
Preliminary Cultural
Heritage Study:
Bookaar Solar Farm

- Legend**
- Study Area
 - Search Buffer (2km)
 - Heritage Sites**
 - Heritage Overlay
 - Heritage Register



Local Government: Corangamite Shire
25k Mapsheet: Lake Gnotuk 7521-4-3 and Mount Koang 7521-4-4
Coordinate System: MGA Zone 54 (GDA94)
Map Scale: 1:45,000

VicMap Data: The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus-DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Map 4
Results of the Survey
Preliminary Cultural
Heritage Study:
Bookaar Solar Farm

- Legend**
- Study Area
 - Surveyed Area
 - Area of Likelihood
 - Minor Watercourse
 - Permanent Waterbody
 - Land Subject to Inundation
 - Contour (10m)



Local Government: Corangamite Shire
25k Mapsheet: Lake Gnotuk 7521-4-3 and Mount Koang 7521-4-4
Coordinate System: MGA Zone 54 (GDA94)
Map Scale: 1:28,000

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APPENDICES

Appendix 1: Author Details

Austen Graham

Austen is a technical officer at Ecology and Heritage Partners Pty Ltd with over two years' experience in Australian archaeology. Austen completed her archaeology degree at La Trobe University in 2015, and is currently completing her Master of Professional Archaeology. Her thesis focuses on Aboriginal archaeology, in particular heritage management procedures for canoe scarred trees in north-western Victoria. Austen was trained in artefact analysis and pottery analysis during her undergraduate and post-graduate studies at La Trobe University.

Austen has been involved in historical and Aboriginal excavations since 2010. Austen as a field archaeologist has participated in the investigation of large and complex archaeological sites, also contributing to the research of Ancestral Puebloan sites with the University of Nevada Las Vegas. She has also been involved in large scale Aboriginal salvage operations, and has assisted with numerous tasks including the identification of Aboriginal cultural heritage material. As a consultant, Austen has helped work on Cultural Heritage Management Plans. Her formal qualifications include:

- Bachelor of Archaeology, La Trobe University (2015), completing Master of Professional Archaeology in 2018.
- Associate Member: Australian Anthropological Society (AAS).

Talia Green

Talia is a Technical Officer at Ecology and Heritage Partners and is currently completing a Bachelor of Science, majoring in Archaeology and Palaeoanthropology. Talia has experience in bioarchaeology, human remains and faunal analysis, and assists with fieldwork, report writing and report production.

- Bachelor of Science, University of New England (expected completion 2017)

Joshua Flynn

Joshua is a technical officer at Ecology and Heritage Partners Pty Ltd with over three years' experience in Australian archaeology, working primarily in the Pilbara region of Western Australia. Joshua completed his archaeology degree at La Trobe University in 2010. His Honours thesis focused on Stamper Battery sites in the Castlemaine region of Victoria.

Joshua has been involved in historical and Aboriginal excavations since 2008. Joshua as a field archaeologist has participated in the investigation of large and complex archaeological sites. He has worked to assist on long term indigenous survey projects involving extensive salvage operations and excavations. He has assisted with numerous tasks including the identification of Aboriginal cultural heritage material. As a consultant Joshua has helped work on the production of reports for a variety of clients. His formal qualifications include:

- Bachelor of Archaeology (Hons), La Trobe University (2010).

Monique Elsley

Monique has extensive experience with ArcGIS desktop software for the production of mapping products and data analysis. Her first stint in the spatial industry was as a Cartographer at Lonely Planet Publications, in 2006

- 2007. Responsibilities included creating maps for and assisting with the finalisation of regional and city maps for soon to be released guidebooks, and updating the existing database with information obtained from aerial imagery and provided by authors. Following this, Monique gained employment as a Geomatics Research Scientist at the Department of Primary Industries from 2007 – 2009, and again in 2010 - both in a full-time and part-time capacity. Her work involved producing GIS data layers and maps for various projects, analysing results, undertaking a literature review, and contributing to technical reports and journals. Projects she was involved in focussed on climate change adaptation, Victorian land use and developing agricultural ecological zones. Most recently, whilst completing her PhD, Monique undertook casual lecturing and tutoring roles at RMIT. This included developing materials for a new practical exercise with the aim of teaching students how to produce quality maps using ESRI's ArcGIS software. Her formal qualifications include:

- Doctor of Philosophy, RMIT (2013);
- Bachelor of Applied Science (Geospatial Science) (Honours), RMIT (2008); and
- Bachelor of Applied Science (Multimedia Cartography), RMIT (2007).

Oona Nicolson

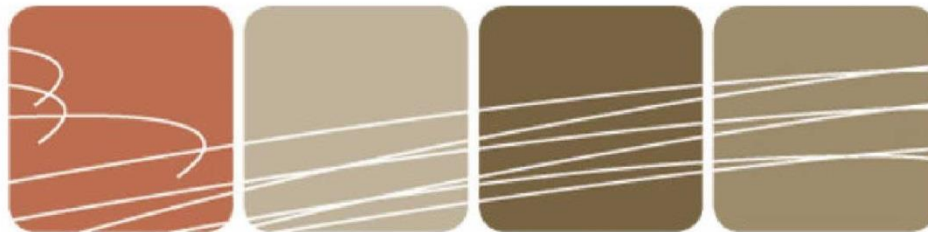
Oona Nicolson is a Director and the Principal Heritage Advisor at Ecology and Heritage Partners Pty Ltd. She is a heritage specialist with over 20 years of experience in the archaeological consulting sector, working in Victoria, South Australia, New South Wales and Tasmania. Oona regularly appears before VCAT and independent panels as an Expert Witness in the areas of Aboriginal and historical heritage. Oona has extensive experience in over 800 projects with a wide variety of Agents.

Oona's skills include project management, peer reviews, background research and due diligence assessments, archaeological survey, subsurface testing and salvage excavation, Aboriginal and non-Aboriginal site identification, recording and photography, site significance assessment, development of recommendations to mitigate the impact of development upon Aboriginal and non-Aboriginal historical heritage, flaked stone artefact and historical artefact recording and interpretation, communication and consultation with regulatory bodies (AV and HV), Agents, landowners, RAPs and community representatives, preparation of conservation management plans, expert witness statements, Permits and Consents to Disturb for Heritage Victoria, Historical Heritage Assessments and, desktop, standard and complex Aboriginal CHMPs. Her formal qualifications and memberships include:

- Bachelor of Arts (Honours in Archaeology; First Class), Flinders University (1996);
- Bachelor of Arts (Australian Archaeology and Australian Studies), Flinders University (1995);
- Past Archaeology (Alternate) Member of the Victorian Heritage Council;
- Maritime Archaeology Certificate: Part 1 (Part 2 pending), AIMA and NAS (U.K.);
- Australian Association of Consulting Archaeologists Inc. AACAI (Full Member and past National President);
- Member, Australian Archaeological Association (AAA);
- Fellow and Board Member of the Victorian Planning and Environmental Law Association;
- Accredited UDIA EnviroDevelopment Professional (Accredited August 2012)

- UDIA Urbanisation and Infrastructure Committee; and
- Heritage member of the South Australian Chamber of Mines and Energy (SACOME) Sustainability and Development Committee.

Appendix 2: AV Practice Note: Significant Ground Disturbance



Aboriginal Heritage Act 2006 Practice Note: Significant Ground Disturbance

This Practice Note provides guidance about the meaning of **significant ground disturbance** as it relates to requirements to prepare Cultural Heritage Management Plans under the *Aboriginal Heritage Act 2006**.

The Practice Note covers:

- when a Cultural Heritage Management Plan is required
- why significant ground disturbance should be assessed
- what significant ground disturbance means
- who needs to provide proof
- how to determine significant ground disturbance
- who can determine this
- what is the role of the responsible authority
- how Aboriginal cultural heritage is protected in areas of significant ground disturbance.

Background

The *Aboriginal Heritage Act 2006* (Act) and *Aboriginal Heritage Regulations 2007* (Regulations) provide protection in Victoria for all Aboriginal places, objects and human remains regardless of their inclusion on the Victorian Aboriginal Heritage Register or whether they are located on public or private land.

When is a Cultural Heritage Management Plan required?

A Cultural Heritage Management Plan is required for an activity (i.e. the use or development of land) if the activity:

- is a high impact activity
- falls in whole or in part within an area of cultural heritage sensitivity.

The terms 'high impact activity' and 'cultural heritage sensitivity' are defined in the Regulations.

A Plan must also be prepared when an activity requires an Environmental Effects Statement, or when the Minister for Aboriginal Affairs requires.

High impact activities are categories of activity that are generally regarded as more likely to harm Aboriginal cultural heritage. Most high impact activities provided for in the Regulations are subject to a requirement that the activity results in significant ground disturbance. The term 'significant ground disturbance' is defined in the Regulations.

Areas of cultural heritage sensitivity are landforms and land categories that are generally regarded as more likely to contain Aboriginal cultural heritage. A registered Aboriginal cultural heritage place is also an area of cultural heritage sensitivity.

If part of an area of cultural heritage sensitivity (other than a cave) has been subject to significant ground disturbance that part is not an area of cultural heritage sensitivity.

If a Cultural Heritage Management Plan is required for an activity it must be approved before the sponsor can obtain any necessary statutory authorisation for the activity and/or before the activity can start. For more information about Cultural Heritage Management Plans see Aboriginal Affairs Victoria's (AAV) website (www.aboriginalaffairs.vic.gov.au).

Why should significant ground disturbance be assessed?

It is important to assess significant ground disturbance when considering whether a cultural heritage management plan is required because:

- A Cultural Heritage Management Plan does not need to be prepared for a high impact activity if all the area of cultural heritage sensitivity within the activity area has been subject to significant ground disturbance.
- Some types of activity will not be a high impact activity, meaning a Cultural Heritage Management Plan would not need to be prepared, if the activity does not cause significant ground disturbance.

The Regulations specify the landforms and land categories that are areas of cultural heritage sensitivity. Areas of cultural heritage sensitivity are displayed in a series of maps available on AAV's website. The areas delineated on these maps however do not take account of the past history of land use and development that may have caused significant ground disturbance in localised areas.

How is significant ground disturbance defined?

'Significant ground disturbance' is defined in r.4 of the Regulations as meaning disturbance of –

- (a) the topsoil or surface rock layer of the ground; or
- (b) a waterway –
by machinery in the course of grading, excavating, digging, dredging or deep ripping, but does not include ploughing other than deep ripping.

The words 'disturbance', 'topsoil', 'surface rock layer', 'machinery', 'grading', 'excavating', 'digging', 'dredging', 'ploughing' (other than deep ripping) are not defined in the regulations and therefore have their ordinary meanings.

The Victorian Civil and Administrative Tribunal (VCAT) has determined that the words "topsoil or surface rock layer" include the former topsoil or former surface rock layer if that topsoil or surface rock layer is a naturally occurring surface level that is readily ascertainable and does not include the current topsoil or current surface rock layer if established by the mere filling of the land.

Ploughing (other than deep ripping) to any depth is not significant ground disturbance. Deep ripping is defined in the regulations to mean 'ploughing of soil using a ripper or subsoil cultivation tool to a depth of 60 centimetres or more'. None of the words used in this definition are defined, and therefore have their ordinary meanings. VCAT has determined that a ripper or subsoil cultivation tool must be distinguished from conventional ploughs or topsoil cultivation tools such as disc ploughs or rotary hoes which are not sufficient to show significant ground disturbance.

Deep ripping will result in significant ground disturbance regardless of the degree of disturbance caused to the topsoil or surface rock layer of the ground.

Who needs to provide proof that land has been subject to significant ground disturbance?

The burden of proving that an area has been subject to significant ground disturbance rests with the applicant for a statutory authorisation for the activity (or the sponsor of the activity). The responsible authority may assist by providing the applicant access to any relevant records it has about past land use and development.

How can a sponsor determine whether significant ground disturbance has occurred?

The responsible authority should require evidence of support for claims that there has been significant ground disturbance of an area. The levels of inquiry outlined below provide some guidance about what information should be required to satisfy a responsible authority (depending on the circumstances of each case) that significant ground disturbance has occurred. The levels of inquiry are listed in order of the level of detail that may be required. An assessment of whether significant ground disturbance has occurred should be dealt with at the lowest possible level in order to avoid unnecessary delay or cost to applicants.

Little weight should be given to mere assertions by applicants or land owners that an activity area has been subject to significant ground disturbance.

Level 1 – Common knowledge

The fact that land has been subject to significant ground disturbance may be common knowledge. Very little or no additional information should be required from the responsible authority.

For example, common knowledge about the redevelopment of a petrol station with extensive underground storage tanks.

Level 2 – Publicly available records

If the existence of significant ground disturbance is not common knowledge, a responsible authority may be able to provide assistance from its own records about prior development and use of land, or advise the applicant about other publicly available records, including aerial photographs.

These documents may allow a reasonable inference to be made that the land has been subject to significant ground disturbance. In such event, no further inquiries or information would be needed by the responsible authority. The particular records and facts relied upon should be noted by the responsible authority as a matter of record.

For example, a former quarry site subsequently filled, but where the public records show the area of past excavation.

Level 3 – Further information

If 'common knowledge' or 'publicly available records' do not provide sufficient information about the occurrence of significant ground disturbance, the applicant may need to present further evidence either voluntarily or following a formal request from the responsible authority. Further evidence could consist of land use history documents, old maps or photographs of the land or statements by former landowners or occupiers. Statements should be provided by statutory declaration or similar means.

For example, the construction of a former dam on a farm.

Level 4 – Expert advice or opinion

If these levels of inquiry do not provide sufficient evidence of significant ground disturbance (or as an alternative to level 3), the applicant may submit or be asked to submit a professional report with expert advice or opinion from a person with appropriate skills and experience. Depending on the circumstances, this may involve a site inspection and/or a review of primary documents. If there is sufficient uncertainty some preliminary sub-surface excavation or geotechnical investigation may be warranted.

An expert report should comply with VCAT's practice note on expert evidence.

The responsible authority must be reasonably satisfied that the standard of proof presented by the applicant shows that all of the land in question has been subject to significant ground disturbance.

A level 1 or 2 inquiry will commonly provide sufficient information as to whether or not the activity area has been subject to significant ground disturbance, and a level 3 or 4 inquiry should not be required as a matter of course.

There will be cases when the responsible authority is simply not persuaded or where there remains genuine doubt about significance ground disturbance regardless of the level of inquiry. In these circumstances the default position is that a Cultural Heritage Management Plan is required. This is in line with the purpose of the Act and Regulations to provide for the protection of Aboriginal cultural heritage in Victoria.

Who can provide expert advice about significant ground disturbance?

A person needs to have expertise to decide, based upon an inspection of the land or interpreting primary documents, whether the land has been subject to significant ground disturbance.

A cultural heritage advisor may not necessarily have this expertise. Under section 189 of the Act, an advisor must have a qualification directly relevant to the management of Aboriginal cultural heritage such as 'anthropology, archaeology or history' or have extensive experience or knowledge in relation to the management of heritage. An advisor appropriately qualified in archaeology may be able to assist where excavation is required to determine significant ground disturbance.

Other experts such as a land surveyor, geomorphologist or civil engineer could also have the necessary expertise (depending on the circumstances). For example, a civil engineer should have the qualifications and experience to determine the extent of previous engineering works along a watercourse or road, and therefore the extent of significant ground disturbance.

What is the role of the responsible authority?

The responsible authority determines whether a Cultural Heritage Management Plan is required for an activity. It may require the applicant to provide information to satisfy it that an area has been subject to significant ground disturbance.

Evaluating information relating to the occurrence of significant ground disturbance may be critical in deciding whether a Cultural Heritage Management Plan is required and therefore whether a statutory authorisation can be granted. This question should be resolved at an early stage in planning a proposed development. Applicants for statutory authorisations and the responsible authority should therefore seek to agree at an early stage about whether a Cultural Heritage Management Plan is required. In the event of a dispute this can be brought without delay to VCAT for resolution. The responsible authority should take care to document the steps taken in each case.

What if Aboriginal cultural heritage is discovered in an area determined to have been subject to significant ground disturbance?

It is possible that there are Aboriginal cultural heritage places, objects or human remains within areas determined to no longer be areas of cultural heritage sensitivity due to significant ground disturbance. It is also possible that Aboriginal cultural heritage could be harmed by activities which do not amount to high impact activities.

These Aboriginal places are still protected under the Act. In particular, it is an offence under sections 27 and 28 of the Act to harm Aboriginal cultural heritage unless acting in accordance with a Cultural Heritage Permit or approved Cultural Heritage Management Plan (regardless of whether a Plan was required).

** This Practice Note is based on VCAT's determination about significant ground disturbance. For further details see VCAT, Reference No. P1020/2008 – Mainstay Australia vs Mornington Peninsula SC and Reference No. P1204/2010 – Colquhouns & Ors vs Yarra SC.*

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