Proposed 8 Lot Residential Development: Part Lot 2 on PS648056
Venus Bay: Desktop Due Diligence

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Date: July 7th 2016
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Title Page

STUDY AREA:	Proposed 8 Lot Residential Development: Part Lot 2 on PS648056, Venus Bay
LEVEL OF ASSESSMENT:	Due Diligence Assessment
SPONSOR:	Jacob van der Meulen
AUTHOR:	Matthew Barker
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Jacob van der Meulen

Disclaimer

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Abbreviations

ACHP: Aboriginal Cultural Heritage Place

BHM: Benchmark Heritage Management

CHMP: Cultural Heritage Management Plan

VAHR: Victorian Aboriginal Heritage Register

Executive Summary

The Study Area is located at Proposed 8 Lot Residential Development: Part Lot 2 on PS648056. Venus Bay, Victoria, and covers an approximate area of 3.69ha.

No Aboriginal cultural material was identified within the Activity Area during the field investigation comprising a surface scatter. No caves, rock shelter or cave entrances were noted in the activity area. No obstacles were encountered during the archaeological survey.

Recommendations

Based on the results of the due diligence assessment, the following management recommendations are made.

Aboriginal Heritage

Based on the results of the due diligence assessment, the following management recommendations are made.

A Cultural Heritage Management Plan (CHMP) is required under Section 47 of the Victorian Aboriginal Heritage Act 2006 if any high impact activity is planned in an identified area of cultural heritage sensitivity, or within an area of cultural heritage sensitivity (as defined in the Victorian Aboriginal Heritage Regulations 2007):

A CHMP is therefore NOT required as both of the following conditions have NOT been triggered under the Aboriginal Heritage Regulations 2007 (r5, Division 1, 6);

1. all or part of the activity area for the activity is NOT within an area of cultural heritage sensitivity and;
2. all or part of the activity is a high impact activity.

Specifically, the activity area is NOT located within an area of cultural heritage sensitivity.

The high impact activity defined in relation to the current activity area is a residential subdivision. No further investigation is required.

Historic Heritage

There are no historic sites in the study area. The study area is considered to have very low potential sensitivity for historic archaeological sites. No further investigation is required.

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1.0 Introduction

Location of the Study Area

The Study Area is located at, Proposed 8 Lot Residential Development: Part Lot 2 on PS648056 Venus Bay, Victoria, and covers an approximate area of 3.6ha and is 520m north of the Bass Strait. Andersons Inlet is 1.5km north.

Specifically, the Study Area is located in Bass Coast Shire in the Township of Venus Bay. The Study Area is located in Zone 55. The Study Area is situated approximately 120km southeast of the Melbourne CBD (see Map 1).

The land comprising the Study Area is owned by Jacob van der Meulen.

Details of Cultural Heritage Advisors

The Cultural Heritage Advisors who have undertaken this CHMP are Matthew Barker and Dr Maya Barker. Matthew holds a BA Hons [Archaeology] from La Trobe University and has had eleven years' experience working in the field of Aboriginal archaeology. Dr Maya Barker (BA Hons [Arch]/BSc/PhD [Arch]) holds degrees from both Monash and La Trobe Universities and also has over eleven years' experience working in the field of Aboriginal archaeology.

Registered Aboriginal Party (RAP) with Responsibility for the Study Area

At the time of preparation of this assessment no Registered Aboriginal Party has been appointed for the Study Area.

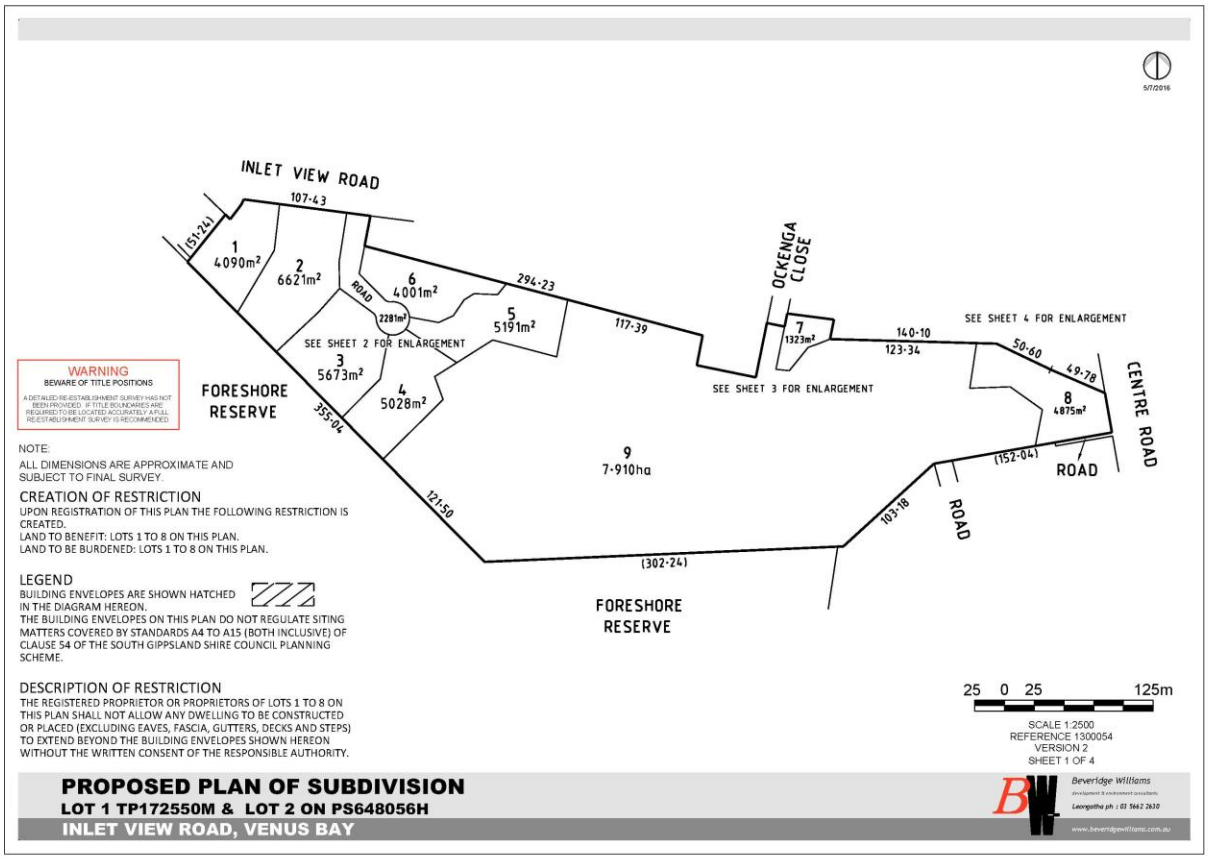
The Study Area is located in Zone 55.

2.0 Extent of the Study Area

The Study Area is located at 113A Jupiter Boulevard, Venus Bay, Victoria and covers an approximate area of 3.9ha and comprises Lots 1-8 only. The extent of the Study Area covered by this CHMP is shown in Map 2.

The Study Area comprises an undeveloped irregular block of land south of Inlet View Road and residential land to the north, east and west (Map 1).

The Study Area comprises mostly cleared pasture and regenerated Ti-Tree is characterised by dense grass and vegetation coverage (see Map 1). Ground disturbance is within the Study Area has occurred as a result of pastoral practices involving clearance of native vegetation, and grazing, It is likely these activities have caused disturbance to the topsoils.



Map 1: Aerial View of Study Area

3.0 Aboriginal Cultural Heritage Assessment

3.1 Desktop Assessment

This section contains the results of the desktop assessment. The aim of the desktop assessment is to produce an archaeological site prediction model, which would assist in the design of the fieldwork, the interpretation of the fieldwork results, the assessment of cultural significance and the design of the management recommendations. The desktop assessment involved a review of:

- Standard ethnographic sources to identify the likely traditional owners and a review of any written and oral local history regarding Aboriginal people in the geographic area;
- Environmental resources available to Aboriginal people within the region of the Study Area;
- The site registry at AAV and previous archaeological studies, to identify any previously registered Aboriginal archaeological sites either within or surrounding the Study Area and the results of previous -archaeological assessments;
- The land-use history of the Study Area, particularly evidence for the extent and nature of past land disturbance; and
- The landforms or geomorphology of the Study Area and identification and determination of the geographic region of which the Study Area forms a part that is relevant to the Aboriginal cultural heritage that may be present in the Study Area.

This information was used to produce an archaeological site prediction model (Section 3.1.1). The site prediction model assists in determining the type of archaeological sites which may potentially occur within the Study Area, the possible contents of these sites, the possible past use of the landscape by Aboriginal people and the likely extent of ground disturbance to archaeological sites. The information provided by the site prediction model is used constructively in designing the survey strategy, by, for example, allowing the field team to target areas which have a high probability of containing archaeological sites. No obstacles were noted during the preparation of this desktop assessment.

Search of the Victorian Aboriginal Heritage Register

The Victorian Aboriginal Heritage Register (VAHR) on-line database maintained by Office of Aboriginal Affairs Victoria was searched to identify any previously registered Aboriginal cultural heritage places (ACHPs) within the Activity area and surrounding geographic region, as well as the results of previous archaeological assessments. The Register was accessed on the 29th of May 2016. There are no ACHPs within 200m of the activity area. The nearest is 300m north.

The Geographic Region

The geographic region in which the Activity Area is located is the locality of Venus Bay.

Registered Aboriginal Places in the Geographic Region

The Activity area has been subject to previous archaeological assessments. There are 62 registered Aboriginal Places within the geographic region, and the majority of these are shell middens (see Table 3). The nearest place is 280m southwest VAHR 8020-0102.

Table 1: ACHP types in the region of the Activity area

ACHP Type	Frequency (No)
Shell Midden	58
Human Burial	3
Earth Feature	1

ACHP Types

Shell middens within the geographic region are generally associated with elevated dune landforms and their associated drainage lines usually on the middle and upper slopes. Few stone artefacts have been located in both surface and subsurface contexts (see Barker 2009).

The southern half of the current study area was subject to intensive survey as part of the Victorian Archaeological Survey (VAS) in 1988 during which all the archaeological sites in Venus Bay were recorded. No sites were recorded within the current study area during the VAS survey

Previous Works in the Geographic Region Relevant to the Activity area

Regional Investigations

There have been few regional archaeological investigations in the surrounding region and none of these has incorporated the Study Area. In general, these studies have shown that there is a high probability that Aboriginal Cultural Heritage Places will occur on and dry elevated rises bordering watercourses and floodplains that the most common Aboriginal Cultural Heritage Place types are likely to be artefact scatters and, where suitable trees remain, culturally modified trees.

A study of the lower Tarwin in the 1930s, by S. R. Mitchell describes how the Tarwin River has deviated from its original course, at least 10 miles to the west, as a sand-bar blocked the rivers original outlet to the sea. Mud and silt brought down by the Tarwin River from the South Gippsland hills filled the area known as the Tarwin Meadows, forming very rich river flats. The area around the Tarwin River originally consisted of swampy flats, sandy rises and sand dunes. Artefacts from the Tarwin River area are characterised by the abundance of rough axes or choppers, water-worn pebbles of sandstone or quartzite, together with the occasional flaked

basalt. Ground stone axes are occasionally found in the collection. The small scrapers were made from red jasper, a source of which can be found at Waratah Bay. Quartz is the second most abundant raw material used, crescents and scrapers being manufactured out of this, again a source of the material can be traced back to the Silurian rocks of Waratah Bay or Wilson's Promontory.

Gaughwin's (1981) investigation of the Western Port Catchment included the first detailed account of the archaeological record of South Gippsland. She located a total of 264 Aboriginal sites, mostly in sand dunes behind rock platforms and bay head beaches. Clifftop occupation was also recorded. Most of the sites were shell middens (dominated by limpets), with associations of stone artefacts. Some 10 % of the stone artefacts were finished tools such as flakes, scrapers and blades. Marine chert and quartz was the most frequently used raw material, with beach cobbles a common source. Comparatively few sites were located in the southern foothills of the Strzelecki Ranges. Coutts' (1970) excavation of stratified dune sands at Wilsons Promontory identified two cultural phases dating from ~6,500 years ago. The first phase (Yanackie A) saw exploitation of rock platform shellfish such as turbo and variegated limpet and the production of backed blade assemblages dominated by introduced quartzite. The second phase (Yanackie B), beginning ~1,000 years ago, saw a change to pipis and the replacement of backed blades with artefacts made from local flint and quartz. The change to pipis may be the result of rock platform erosion and the subsequent growth of sandy shorelines. The abandonment of backed blades ~1,000 years ago is consistent with general trends observed elsewhere in mainland Australian sites. Stratified midden deposits in two small granite caves on Great Glennie Island southwest of Wilsons Promontory have also been excavated (Fullager, 1986). One revealed six periods of occupation dating back to ~1,500 years ago. The stone artefacts recovered comprised flint and quartz comparable to the Yanackie B material. The topmost layer contained mid-19th century British colonial material. The faunal assemblage was dominated by seal bones and limpet shell. However, the most recent layer also contained numerous bird and fish bones suggesting that the local Aboriginal economy had expanded and diversified prior to European invasion. The coastal strip along Venus Bay has a high density of recorded Aboriginal sites. The majority of these were recorded in 1985 by Victorian Archaeological Survey (VAS) officers supervised by archaeologist Katrina Geering. This exercise was part of an Aboriginal Sites Officer Training Program. In total, 60 sites were recorded around the Venus Bay township and Point Smythe. These sites were mostly pipi shell middens exposed in dune blowouts. Schell (1993, 1995) also recorded middens (n = 11) along the coastline between Venus Bay and Cape Liptrap. A total of 451 stone artefacts were recorded in these middens. Most of the artefacts were made from silcrete followed by chert, quartz, quartz crystal, sandstone and basalt.

The coastal archaeology of the region running between Inverloch and Wilson's Promontory had been discussed in several papers and studies documenting early observations (Horne 1921, Mitchell 1931, Hayden 1941, Massola 1974,) and more recent systematic surveys (Frankel et. al. 1989; Schell 1993). Horne (1921) and Mitchell (1931) describe numerous shell middens and artefact scatters throughout the region, particularly in the Tarwin area. Stone artefacts such as axes, choppers, anvils, microliths and hammerstones have all been noted and collected in the area (Horne 1921, 49; Mitchell 1931, 162-163). Other site types mentioned include diorite

quarries (Massola 1974, 49) and 'frequent' burials associated with the middens (Horne 1921, 53). Frankel et al. (1989) conducted a survey of the coastline between Kilcunda and Cape Paterson, South Gippsland. The survey recorded 99 sites of which most were situated on or immediately behind the sandy fore dunes (Frankel et al. 1989, 19). Hall (1986) undertook a detailed study of stone artefacts from 22 sites identified during the surveys described above. The sites were generally located within or above narrow layers of grey-brown to dark grey sandy soil horizons, which occur in white-yellow calcareous sands that make up the bulk of the dune system. Schell (1993) surveyed the coastal strip between Venus Bay and Cape Liptrap and recorded 11 shell middens containing shell, stone and bone (AAV 8020-109- 119) (Schell 1993, 99-131). All of the sites recorded were situated on either Holocene dune systems or sandy soil horizons associated with Quaternary calcarenite towards Cape Liptrap. Most sites were located within 100 m of the coastline (Schell 1993, Appendix 1).

Two additional pipi middens were located by Clark (2004) at the VBSOP outfall (8020- 0153 and 0154, VAHR). These were located along the access track to the outfall at the southwestern end of Lake Polteney. 8020-0153 (VAHR) contains an intact midden section. No stone artefacts were recorded at either midden. Murphy and Rymer (2010) argue that early authors Horne (1921) and Mitchell (1931) more accurately describe the archaeological record of the Lower Tarwin area because their observations were made before much of the record was obscured by collectors and development. Horne's (1921) observations of shoreline exploitation (so-called 'feeding grounds') are particularly detailed. He notes the use of soft, limestone hammerstones or roughly flaked, steep-edged sandstone pebbles to remove shellfish from rocks, numerous bone fish hooks and hearthstones of porous basalt that suggest people camped at the same place that they ate. The shellfish exploited were mussels, abalone and large oyster, although at many places only a single species was represented. Often the shells were deliberately piled in position after eating. In contrast, according to Horne (1921), the back-beach environment behind the coastal foredunes is characterized by large stone artefact scatters or 'chipping grounds'. He recorded vast amounts of quartz crystal and opaque quartz at these sites including knives with sharp points and edges and retouched scrapers. Proposed 'throwing stones' (manuports) for bird hunting were also recorded. The predominance of quartz in these assemblages suggests that these sites are less than 1,500 years old, if the excavated cultural sequences at Wilsons Promontory are any guide, which is consistent with the 'youthful' age of the Venus Bay beach barrier system.

Mitchell (1932) made similar observations of the coastal lowlands around Lower Tarwin and proposed that Aboriginal people lived around the coastal swamps of the district on an almost permanent basis. He noted the preponderance of 'crudely' flaked axes or choppers (that he believed had not been hafted), water-worn sandstone or quartzite pebbles and occasionally basalt. Interestingly, he also recorded abundant small tools (geometric microliths) made from red jasper and regarded 'transparent quartz' as the second most common raw material used in the Lower Tarwin area. Coastal flint was also widely distributed. Unfortunately for today's Aboriginal community and archaeologists, Mitchell (1932) collected much of this material. The concentration of Aboriginal people on the Venus Bay shoreline and back-beach environment is probably understated by the number of burials that have been recorded in the area. Only three skeletons were recorded by Horne (1921), all associated with his 'feeding grounds' on the open

coast. More recently, Bennett and Simmons (1986) recovered the skeletal remains of two Aboriginal people exposed in a dune blowout at 'Tarwin Meadows', at the base of a midden ~500 m from the shoreline. This site is

Conclusions and Synthesis of Previous Archaeological Work

The number of ACHPs previously recorded in the region demonstrates that the margins of watercourses and their tributaries were utilised by Aboriginal people in the past. The results of the regional and localised studies appear to indicate that the location of ACHPs is compromised due to previous modification and disturbance. ACHPs identified correlate to landforms such as mid to upper slopes within close proximity to watercourses; that is topographically higher ground.

Prior CHMPs conducted in similar environmental contexts indicate subsurface deposits varying considerably, due to disturbance. Several CHMPs and archaeological investigations conducted in the immediate area have not located ACHPs, but instead have identified modified landforms containing significant levels of disturbance, associated with residential construction and other forms of development.

The Environmental Determinants of the Study Area

The desktop assessment included a review of the physical context and natural resources present within the Study Area. These environmental variables can determine how people used the landscape in the past. This information is used to gain an understanding of past human behaviours and provides an indication of where archaeological sites and heritage places may be located within the landscape. These environmental factors are summarised below.

Geology

The A horizons consists mostly of brownish-grey to grey-brown fine sandy loams to fine sandy clay loams becoming lighter in colour below 20cm. It overlays the B horizon, which comprises yellowish-brown and grey-brown mottled medium clays which occur abruptly from about 30 to 50 cm. Clay can be encountered down to 120cm and below. However, bedrock generally occurs between 1 and 2 m (Imhof, Sargeant and Thompson <http://www.dpi.vic.gov.au/dpi/vro/wgregn.nsf/pages/wg_soil_detailed_sg7> Website accessed 26/05/2016).

Climate

Temperature averages at Venus Bay indicate a cold to hot maximum average of 6.8°C in July to 22.9°C in February. Minimum average temperatures throughout the year range from 6.8°C in July to 13.9°C in February. The annual average rainfall for the area is 687mm. These climate conditions would have placed no restrictions on Indigenous or European occupation of the area (BOM accessed 9/6/16).

Water Sources

Sources of fresh water would have existed in close proximity to the present Study Area. The Tarwin River is 2.5km northeast.

Description of Existing and Pre-Contact Vegetation

The study area falls within the Gippsland Plain bioregion and according to the Department of the Environment, Land, Water and Planning' (DELWP) pre-1750 Ecological Vegetation Class (EVC) mapping (DELWP 2016a) it comprises a mosaic of Coastal Dune Scrub (EVC 160) and Coastal Dune Grassland (EVC 879). Evidence on-site however confirmed that neither of those EVC's were present; instead all native vegetation in the study area was found to be a modified form of Coast Banksia Woodland (EVC 2), where the Coast Banksia canopy had been much reduced and the community was instead dominated by Coast Tea-tree (Leptospermum laevigatum). The benchmark for Coast Banksia Woodland describes it as "restricted to near coastal localities on secondary or tertiary dunes behind Coastal Dune Scrub. Usually dominated by a woodland overstorey of Coast Banksia (Banksia integrifolia) to 15 metres tall over a medium shrub layer. The understorey consists of a number of herbs and sedges, including scramblers" (DELWP 2016b).

The existing vegetation of the Study Area bears some resemblance to the description of the above vegetation communities but is dominated by Ti-tree.

Information on Fauna of the Study Area

The Study Area would have contained a large number and great variety of fauna, many of which would have congregated within the dense vegetation along the drainage lines. Prior to post-settlement activities of clearing and drainage works, the streams within the Study Area are unlikely to have had a clearly defined course other that in times of peak flows. The drainage lines were most likely part of an extensive wetland that expanded and contracted with runoff/water level conditions. The abundance of fauna along creeks and around wetlands in the region would have been seasonal, with the greatest concentrations occurring during the summer periods.

Fauna native to the region would have provided Indigenous inhabitants with a potential source for food and clothing, among other things. Walsh (1987, Murphy 2007: 25) considered that the Tarwin River and the extensive former swamp would be the focus of Aboriginal exploitation within the region. Within this ecological zone, there would have been variation in staple species diversity and abundance, and this would have in turn influenced site location. Seasonal congregations would have provided the highest food potential, such as eels, nesting birds and their eggs within wetland areas with larger mammals such as kangaroos would have frequented the drier lands.

A number of animals would have been present within the Study Area and are likely to have been hunted by traditional owners. These include the Eastern Grey Kangaroo (Macropus giganteus), Common Brushtail Possum (Trichosurus vulpecula), Common Ringtail Possum (Pseudocherinus peregrinus), Short Beaked Echidna (Tachyglossus aculeatus) and the Wombat (Vomatus Ursinus). Birds, bird eggs and reptiles may have also been utilised.

Stone Resources

No stone resources and outcrops suitable for the manufacture of stone tools are found within the Study Area. The geology within the region of the Study Area is relevant when considering the availability of stone material suitable for manufacture of tools and may influence aspects of Aboriginal occupation. The nearest geological formation to the Study Area is the Haunted Hills Formation to the south which would have provided potential raw materials (e.g. silcrete) for pre-contact Aboriginal stone tool manufacture. The hills to the north and east would also have provided potential sources of basalt, quartz, granite and quartzite (Murphy 2007).

The Study Area however, does not contain any naturally occurring outcrops of stone material and would therefore be an unlikely location where raw stone materials were once extracted, quarried or collected for the manufacture of stone implements by pre-contact Aboriginal people. This indicates that any Indigenous archaeological stone artefacts located within the Study Area will be comprised entirely of imported stone.

Historical and Ethno-historical Accounts of the Geographic Region

Ethnohistorical accounts of the Aboriginal people who lived in South Gippsland are usefully summarized in studies by Howitt (1904), Barwick (1984), Clark (1990) and Presland (1994). These sources provide descriptions of Aboriginal life during the early contact period including insights into Aboriginal social organization. The journals of Assistant Aboriginal Protector William Thomas are the most important primary source of information, although these mostly describe the Aboriginal people who lived closer to Melbourne (Thomas Journals 1838-1867). According to Clark (1990), the Tarwin River was traditionally a boundary between the Bunurong or Bun wurrung people of the Port Phillip Bay Region and Gunai/Kurnai people who occupied most of the Gippsland region. Thomas estimated that in 1839 the population of Bunurong was around 500 people but no estimate was made for the Gunai/Kurnai because Thomas did not reach South Gippsland until the 1850s, by which time the region appeared to have been abandoned.

The Bunurong were a part of the wider Kulin Nation, with the Yowenjerre clan most closely associated with the land on the west side of the Tarwin River (Clark, 1990). The Bunurong intermarried with other Kulin tribes (e.g. Wurundjeri) but apparently not the Gunai/Kurnai with whom they did not share cultural beliefs and were apparently hostile (Howitt, 1904). The only known ‘direct’ account of the Yowenjerre clan is that of Maud (a diarist) and Murray Black whose father George established the Tarwin Meadows Cattle Run in 1851. Murray (in Massola, 1974) wrote: The Tarwin Aboriginals were very numerous at some time judging by the extensive camping sites between Cape Liptrap to Anderson Inlet. The north Gippsland blacks made a raid

shortly before the white men arrived. They killed several near the Meadows Homestead, but could not have practically exterminated the tribe, who were forced to live in small family groups in order to hunt game. There were only six Aboriginals at Tarwin in 1851 when George Black arrived and they said that their enemies killed some of them. And: The Tarwin aborigines were the tomahawk makers for the surrounding tribes and were all friendly through periodic barter. They secured a red flinty stone from Mornington Peninsula for instance and would exchange axe heads and flint implements which were made at Tarwin. The principle diorite quarries were about a mile north west of Inverloch, Ruttle's Quarry and near Pound Creek and McCaughan's Hill. The flint was secured along the ocean beach, washed up attached to the roots of kelp and seaweed. The true numbers of Bunurong and Gunai/Kurnai prior to the European invasion is unknown. Population decline in South Gippsland probably began in the late 1790s when the tribes first clashed with European sealers and whalers. This population decline accelerated rapidly from 1836 when Melbourne was founded. The population decrease was caused by dispossession of land and the consequent destruction of habitat and social networks. Introduced diseases also took their toll. By 1856, most of the Bunurong were gone but for a small population at Moody Yallock (Mordialloc). The Aboriginal Protectorate system was replaced in 1860 by the Central Board for the Protection of Aborigines. It established Coranderrk Station at Healesville for the Aboriginal survivors. However, many Bunurong and presumably some Gunai/Kurnai continued to live by “fringe dwelling” in and around Melbourne. Many Bunurong also remained at the Mordialloc Station reserve and did not move to Coranderrk until 1878 when it closed. In 1924, most of the Coranderrk residents were moved to the Lake Tyers Aboriginal Reserve, which ran until 1950. The present day Bunurong and Gunai/Kurnai people are the descendents of these original inhabitants.

Land Use History Relevant to the Study Area

During the 1840s, the land was invaded by European squatters and their livestock (Spreadborough and Anderson, 1983). Freehold title was introduced in 1850, which led to the establishment of some large pastoral properties in South Gippsland. One of these was the 256,000 acre Wild Cattle Run, later Tarwin Meadows, which included the proposed activity area. The Land Act of 1869 brought land selectors to South Gippsland, although access to Lower Tarwin was difficult until Lardner surveyed a road from Grantville to Andersons Inlet in 1877 (Coverdale in Shire of Korumburra, 1966). This opened the Venus Bay hinterland to land clearing for agriculture and logging. By this time, a coal mining industry had developed around the burgeoning townships of Wonthaggi, Kilcunda and Korumburra (Malone, 1932). As the smaller coal mines in the region became uneconomical in the late 19th century, land clearing and the drainage of swamps accelerated to create pasture for dairying and land for crops. The Tarwin River floodplain containing the proposed activity area was probably cleared and drained in the 1890s. The late 19th century was a time when major drainage works were commonplace. Clear felling and burning of the swamp paperbarks that grew on the floodplain and repeated incision of artificial drainage lines to create pasture would have adversely impacted Aboriginal sites had they been present.

The Study Area has been settled by Europeans since the 1840s. From this time various landscape changes have been made, such as clearing of scrub and timber and ploughing. These initial impacts would have resulted in the possible destruction of culturally scarred trees and a variety of surface archaeological sites such as stone arrangements and the spatial and temporal integrity of stone artefact scatters. Aboriginal stone artefacts may have survived however little information will now remain regarding how these artefacts were originally deposited. The potential for an archaeological site of high scientific significance (as significance is linked to condition) is therefore low.

In summary, the recent activities within the Study Area that would have actively degraded archaeological resources are:

- Initial clearing;
- Pastoral activity;
- Construction of a former shed and associated infrastructure.

Conclusions from the Desktop Assessment

The local distribution of Aboriginal archaeological sites clearly indicates that Indigenous people established campsites over a wide area of the coastal dunes. The archaeological sites which have been recorded in previous studies are indicative of past campsites, established by Indigenous people exploiting resources of the coastal and riverine environments, as well as resources which would have been available on the grassy plains.

There is, therefore, some potential for remains of past Indigenous campsites to occur within the Study Area. Archaeological site types are most likely to comprise of surface scatters of stone artefacts and scarred trees. Any surface or near surface archaeological sites within the Study Area, are likely to be highly disturbed by land clearance, erosion and grazing

Very little is known about the Bunwurrung and land use practises within the region of the Study Area. A number of archaeological assessments have been undertaken within the region and some of these studies have resulted in site prediction models for the occurrence of Indigenous archaeological sites on the alluvial plain and within creek and river valleys.

In summarising our current knowledge of the geographic region in which the Study Area is located, the following predictive statements should be taken into account:

- There are no registered Aboriginal Cultural Heritage Places located in the Study Area and 8 ACHPs are located within 500m of the study area;
- Previous archaeological assessments in the region have indicated that Aboriginal archaeological sites within the region are likely to be located on high ground adjacent to riverine environments. Sites are more likely to be situated on the crests and upper slopes, adjacent to creeklines and swamps, than the lower slopes;
- There would have been a range of plant, animal and mineral resources available for Indigenous people living in, or in the region of, the Study Area;

- Artefact scatters are the most likely predominant site types.
- The Study Area was most likely subject to burning-off following land-clearing. Thus any surface sites and shallow sub-surface sites existing at the time are likely to have been highly disturbed and distributed.
- Aboriginal cultural heritage sites will be no more than 4000 years old;
- There still exists a potential for intact sub-surface archaeological deposits in areas that have experienced minimal disturbance.

3.1.1 Site Prediction Model

As there have been so few studies undertaken within the surrounding area, it is difficult to draw on surrounding patterns when forming the site prediction model. However, the sites which have been recorded within the region do suggest a pattern in which artefact scatters will be located on rises overlooking ephemeral and permanent watercourses.

The probability of locating Indigenous sites within the Activity Area is low to moderate. This likelihood is based on the current land use history, previous studies undertaken within 200m of the same watercourse, and the proportion of sites located within proximity to the area. It is possible that the existence of cultural heritage may have been adversely affected. This is because:

1. Based on the regional history it is likely that past land use activities occurred within the study area including clearance of native vegetation and grazing. If these activities have taken place, they would have adversely impacted on any Indigenous archaeological sites.

2. The property comprises hind dunes situated 500m north of the Bass Strait;

3. There are no registered Aboriginal archaeological sites located in the Study Area;

4. There has been no previous archaeological assessment of the Study Area;

5. Previous archaeological assessments in the region have indicated that Aboriginal archaeological sites within the region are likely to be located along rivers and creeks or on elevated rises associated with swamps and watercourses. Sites are more likely to be situated on the crests and upper slopes adjacent to swamps and watercourses, than the lower slopes; and

6. There is a very low likelihood of culturally scarred trees remaining within the Study Area due to previous land clearance.

We must also take into account the impact of recent land use on any deposits of Aboriginal cultural material. Most if not all of any Aboriginal archaeological sites within the property are likely to have been impacted on by past land use activities, such as the clearance of native vegetation. As much of the Study Area has been farmed since the early 1850s, it is likely that any surface or near-surface remains of past Indigenous campsites will be highly disturbed.

4.0 Archaeological survey

The aims of the archaeological survey (archaeological survey) were to:

- Attempt to identify Aboriginal cultural heritage;
- Identify any areas of potential archaeological sensitivity deposit (that may require sub-surface testing) and;
- Document the extent of significant ground disturbance in the Study Area.

An archaeological survey of the Study Area was undertaken by cultural heritage advisor Matthew Barker on the 14th of June 2016, (see Plates 1-10).

Archaeological survey Methodology

Linear transects were walked with personnel spaced approximately 10m apart across the Study Area from the southwest of the Study Area to the northeast corner extent of the property. Focus was concentrated on areas of high ground surface visibility. All mature Aboriginal trees were inspected to determine if they were culturally scarred. Areas of potential archaeological sensitivity/deposits and significant ground disturbance were recorded. Ground surface visibility and surface exposure was recorded in order to determine the effective ground survey coverage. There were no significant constraints to carrying out the survey.

Results of Ground Survey

The vegetation community in the study area represents re-generation of indigenous species following past suppression through active clearing and livestock grazing, which is considered remnant native vegetation (Plates 1-10). I did not observe any introduced trees in the study area, only indigenous ones – most notably Coast Banksia and Coast Tea-tree. While current Coast Tea-tree density is likely much higher than in past, it is still a natural co-dominant tree of the site and surrounds, not a 'weed' as it is rightfully considered further inland.

No new Aboriginal archaeological places were identified within the Study Area during the ground survey (this includes artefact scatters, shell deposits scarred trees or rock shelters).

No caves, rock shelters, or cave entrances were noted within the Study Area.

The centre of the Study Area is traversed by a drainage line with a series of low undulating hills and ridgelines running to the north and south of the drainage line.

Ground disturbance is within the Study Area has occurred as a result of pastoral practices involving the partial clearance of native vegetation, and grazing, It is likely these activities have caused disturbance to the topsoils, especially as the entire property would have covered in dense woodland.

The Study Area has been cleared of native vegetation and has since been overgrown with Ti-tree. This would have contributed to soil erosion and the movement of any Aboriginal cultural material that may have existed on the ground surface; thus the removal of topsoils and the destruction of any surface or near surface Aboriginal cultural materials. Vegetation clearance is not considered to be significant ground disturbance.

Plate 1: Undulating dunes in the far west of the study area (M. Barker 14/6/16), facing west.	
Plate 2: View from southern fire break to the low dune in the centre of the study area facing north (M. Barker 14/6/16).	

Plate 3: View of firebreak in centre south of the study area (M. Barker 14/6/16) facing east	
Plate 4: View of open pasture in the centre of the study area facing north (M. Barker 14/6/16)	

Plate 5: Open pasture on eastern boundary of study area facing west (M. Barker 14/6/16).	
Plate 6: Exposed beach sands on eastern boundary of the study area facing south (M. Barker 14/6/16).	

Plate 7: View from northern boundary of the study area facing south (M. Barker 14/6/16).	
Plate 8: Exposed beach sands in centre of the study area facing east (M. Barker 14/6/16).	

Plate 9: Exposed beach sands in centre of the study area facing west (M. Barker 14/6/16).	
Plate 10: Proposed Lot 7 showing existing shedding facing north (M. Barker 14/6/16).	

Table 2: Archaeological survey Photographs

Ground Surface Visibility and Effective Survey Coverage

Effective coverage is quantified to account for ground surface visibility and exposure limitations to survey coverage, and gives a good estimate of the actual proportion of the Study Area investigated.

Ground surface visibility is a major factor in obscuring archaeological materials, and can be defined as how much of the surface is visible and what other factors (such as vegetation, gravels or leaf litter) may limit the detection of archaeological materials (Burke and Smith 2004). The higher the level of ground surface visibility, the more it is that Aboriginal cultural material can be identified; therefore a good level of ground surface visibility enables a better representation of places than areas where the ground surface is obscured (Ellender and Weaver 1994).

Ellender and Weaver (1994) attempted to quantify ground surface visibility for a 1m² area:

- 0-5%: Unable to see soil;
- 5-10%: Occasional glimpse of soil;
- 10-20%: Occasional patch of bare ground;
- 20-50%: Frequent patches of bare ground;
- 50-70%: About half the ground bare;
- 75-100%: More than half the bare ground; ploughed fields.

Ground surface visibility in the entire Study Area (Plates 1-10 in Table 2) was average (20-30%), and therefore there was a possibility of identifying archaeological deposits on the surface. It is estimated that the effective survey coverage on the grassed area was 25% and is considered adequate for effective field assessment.

Ground Disturbance

A number of factors observed during the survey indicated that the Study Area has been subject to ground disturbance. These factors are:

- **Clearance of native vegetation**
  The Study Area has been cleared of native vegetation (Plates 1-6), and consequently may have caused the movement of any Aboriginal cultural material that existed on the ground surface.

- **Pasture Improvement**
  The Study Area is pasture has been subject to pasture improvement over the last 50 years which would have had a significant impact on the shallow soils.

These ground disturbance activities would likely have resulted in the removal of topsoils and the destruction of any surface or near surface Aboriginal cultural materials. Vegetation clearance is not considered to be deep excavation. Pastoral practices have been a major cause of land

disturbance and have been caused by the clearance of native vegetation, including the removal of mature native trees which is likely to have exacerbated soil erosion, ploughing and animal grazing.

Conclusions of the Ground Survey

The results of the archaeological survey indicate that the Study Area comprises land that has been disturbed as a result of vegetation clearance of the entire property and pastoral activity. No Aboriginal cultural heritage was located within the Study Area.

5.0 Specific Cultural Heritage Management Requirements

Based on the results of the due diligence assessment, the following management recommendations are made.

Aboriginal Heritage

Based on the results of the due diligence assessment, the following management recommendations are made.

A Cultural Heritage Management Plan (CHMP) is required under Section 47 of the Victorian Aboriginal Heritage Act 2006 if any high impact activity is planned in an identified area of cultural heritage sensitivity, or within an area of cultural heritage sensitivity (as defined in the Victorian Aboriginal Heritage Regulations 2007):

A CHMP is therefore NOT required as both of the following conditions have NOT been triggered under the Aboriginal Heritage Regulations 2007 (r5, Division 1, 6);

1. all or part of the activity area for the activity is NOT within an area of cultural heritage sensitivity and;
2. all or part of the activity is a high impact activity.

Specifically, the activity area is NOT located within an area of cultural heritage sensitivity.

The high impact activity defined in relation to the current activity area is a residential subdivision. No further investigation is required.

Historic Heritage

There are no historic sites in the study area. The study area is considered to have very low potential sensitivity for historic archaeological sites. No further investigation is required.

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Appendices

Appendix 1: Glossary

A

Angular fragment: A piece of stone that is blocky or angular, not flake-like.

Archaeology: The study of the remains of past human activity.

Area of Archaeological Sensitivity: A part of the landscape that contains demonstrated occurrences of cultural material. The precise level of sensitivity will depend on the density and significance of the material.

Artefact scatter: A surface scatter of cultural material. Aboriginal artefact scatters are defined as being the occurrence of five or more items of cultural material within an area of about 100m2 (Aboriginal Affairs Victoria 1993). Artefact scatters are often the only physical remains of places where people have lived camped, prepared and eaten meals and worked.

B

BP: Before Present. The present is defined as 1950.

Backed blade (geometric microlith): Backing is the process by which one or more margins contain consistent retouch opposite to the sharp working edge. A backed blade is a blade flake that has been abruptly retouched along one or more margins opposite the sharp working edge. Backed pieces include backed blades and geometric microliths. Backed blades are a feature of the Australian Small Tool Tradition dating from between 5,000 and 1,000 years ago in southern Australia (Mulvaney 1975).

Blade: A stone flake that is at least twice as long as it is wide.

Burial: Usually a sub-surface pit containing human remains and sometimes associated artefacts.

C

Core: A stone piece from which a flake has been removed by percussion (striking it) or by pressure. It is identified by the presence of flake scars showing the negative attributes of flakes, from where flakes have been removed.

E

Ethnography: The scientific description of living cultures.

Exposure: Refers to the degree to which the sub-surface of the land can be observed. This may be influenced by natural processes such as wind erosion or the character of the native vegetation, and by land use practices, such as ploughing or grading. It is generally expressed in terms of the percentage of the sub-surface visible for an observer on foot.

F

Flake: A stone piece removed from a core by percussion (striking it) or by pressure. It is identified by the presence of a striking platform and bulb of percussion, not usually found on a naturally shattered stone.

Formal tool: An artefact that has been shaped by flaking, including retouch, or grinding to a predetermined form for use as a tool. Formal tools include scrapers, backed pieces and axes.

G

GDA94 or Geocentric Datum of Australia 1994: A system of latitudes and longitudes, or east and north coordinates, centred at the centre of the earth's mass. GDA94 is compatible with modern positioning techniques such as the Global Positioning System (GPS). It supersedes older coordinate systems (AGD66, AGD84). GDA94 is based on a global framework, the IERS Terrestrial Reference Frame (ITRF), but is fixed to a number of reference points in Australia. GDA94 is the Victorian Government Standard and spatial coordinates for excavations, transects and places in CHMP documents.

H

Hearth: an organic sub-surface feature; it indicates a place where Aboriginal people cooked food. The remains of a hearth are usually identifiable by the presence of charcoal and sometimes clay balls (like brick fragments) and hearth stones. Remains of burnt bone or shell are sometimes preserved within a hearth.

Holocene, recent or postglacial period: The time from the end of the Pleistocene Ice Age (c. 10,300 BP) to the present day.

I

In situ: A description of any cultural material that lies undisturbed in its original point of deposition.

L

Land System: Description for an area of land based on an assessment of a series of environmental characteristics including geology, geomorphology, climate, soils and vegetation

M

Midden: Shell middens vary widely in size composition and complexity. Deposits vary in complexity, they range from being homogenous to finely stratified deposits. Material which may be found in middens includes different shell species, stone artefacts, hearths and animal bones.

Q

Quarry (stone/ochre source): A place where stone or ochre is exposed and has been extracted by Aboriginal people. The rock types most commonly quarried for artefact manufacture in Victoria include silcrete, quartz, quartzite, chert and fine-grained volcanics such
as greenstone.

Quartz: A mineral composed of silica with an irregular fracture pattern. Quartz used in artefact manufacture is generally semi-translucent, although it varies from milky white to glassy. Glassy quartz can be used for conchoidal flaking, but poorer quality material is more commonly used for block fracturing techniques. Quartz can be derived from waterworn pebble, crystalline or vein.

P

Pleistocene: The dates for the beginning and end of the Pleistocene generally correspond with the last Ice Age. That is from 3.5 to 1.3 million years ago. The period ends with the gradual retreat of the ice sheets, which reached their present conditions around 10,300 BP.

Pre-contact: Before contact with non-Aboriginal people.

Post-contact: After contact with non-Aboriginal people.

R

Raw material: Organic or inorganic matter that has not been processed by people.

Registered Aboriginal Cultural Heritage Places: These are Aboriginal sites registered on the Victorian Aboriginal Heritage Register (VAHR).

Regolith: The mantle of unconsolidated soil/sediments/weathered rock materials forming the surface of the land that rests upon the bedrock.

S

Scarred trees: Aboriginal derived scars are distinct from naturally occurring scars by their oval or symmetrical shape and occasional presence of steel, or more rarely, stone axe marks on the scar's surface. Other types of scarring include toeholds cut in the trunks or branches of trees for climbing purposes and removal of bark to indicate the presence of burials in the area. Generally, scars occur on River red gums (Eucalyptus camaldulensis) or grey box (E. microcarpa) trees. River red gums are usually found along the margins of rivers, creeks and swamps with grey box on near and far floodplains. Size and shape of the scar depended on the use for which the bark was intended. For example, bark was used for a variety of dishes and containers, shields, canoes
and construction of huts.

Significance: The importance of a heritage place or place for aesthetic, historic, scientific or social values for past, present or future generations.

Silcrete: Soil, clay or sand sediments that have silicified under basalt through groundwater percolation. It ranges in texture from very fine grained to coarse grained. At one extreme it is cryptocrystalline with very few clasts. It generally has characteristic yellow streaks of titanium oxide that occur within a grey and less commonly reddish background. Used for flaked stone artefacts.

Spit: Refers to an arbitrarily defined strata of soil removed during excavation.

Stratification: The way in which soil forms in layers.

Stratified deposit: Material that has been laid down, over time, in distinguishable layers.

Stratigraphy: The study of soil stratification (layers) and deposition.

Stone Artefact: A piece of stone that has been formed by Aboriginal people to be used as a tool or is a by-product of Aboriginal stone tool manufacturing activities. Stone artefacts can be flaked such as points and scrapers or ground such as axes and grinding stones.

T

Tool: A stone flake that has undergone secondary flaking or retouch.

Transect: A fixed path along which one excavates or records archaeological remains.

V

Victorian Aboriginal Heritage Register: A list of all registered Aboriginal cultural heritage places (Aboriginal Places) in Victoria.

Visibility: Refers to the degree to which the surface of the ground can be observed. This may be influenced by natural processes such as wind erosion or the character of the native vegetation, and by land use practices, such as ploughing or grading. It is generally expressed in terms of the percentage of the ground surface visible for an observer on foot.

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