TARNEIT PRECINCT STRUCTURE PLANS
88, 89, 90 & 91.

ABORIGINAL CULTURAL HERITAGE ASSESSMENT

SPONSOR: GROWTH AREAS AUTHORITY.

AUTHORS: EMMA RAE, JIM WHEELER, ADRIAN BURROW

2ND August 2012
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PLEASE NOTE - THIS REPORT CONTAINS PICTURES OF AND INFORMATION ABOUT PEOPLE WHO MAY HAVE PASSED AWAY.
EXECUTIVE SUMMARY

The Growth Areas Authority engaged Archaeological and Heritage Management solutions (AHMS) to prepare an Aboriginal Cultural Heritage Assessment for Precinct Structure Plans (PSPs) 88, 89, 90 and 91 in Tarneit, Victoria. A desktop assessment has been prepared for the entirety of the PSP areas and an archaeological survey was conducted over 39 participating properties.

We undertook a process of consultation with the Bunurong Land Council Aboriginal Corporation, the Boon Wurrung Foundation and the Wurundjeri Tribe Land and Compensation Cultural Heritage Council. All three groups participated in the fieldwork.

The overriding purpose of the Aboriginal Cultural Heritage Assessment was to document and assess the Aboriginal heritage values of the subject land, the impact of the proposed residential subdivisions on those values and to provide management procedures to minimise and mitigate impact before, during and after development.

A search for known Aboriginal places on the Victorian Aboriginal Heritage Register (VAHR) was undertaken to identify previously recorded sites within the geographic region (Werribee River Basin) relevant to the study area. The search of the VAHR was undertaken by Emma Rae on 20th July 2012 (via application for access to ACHRIS).

Thirty-five Aboriginal places were recorded on the VAHR within the study area, one of which was described as an earth feature and all others were artefact scatters.

Drawing on the desktop research and previous archaeological survey work, we make the following predictions:

- Stone artefact deposits are likely to be found at varying densities across most landforms within the PSPs;
• Higher density artefact scatters and sub-surface deposits may be found on crest landforms and in association with eruption points;

• Higher density artefact scatters and sub-surface deposits are likely to be found adjacent to creeks or wetlands. Artefact density and frequency is likely to increase with higher stream order (for creeks) and permanence (for wetlands);

• The density and complexity of artefact scatters and sub-surface deposits is likely to decrease with distance from water sources and wetlands;

• Higher density of artefact scatters and sub-surface deposits in close proximity to stone sources (either outcrops or river pebble sources);

• A particularly high density and complexity of archaeological deposits at major confluences and resource intersection zones (i.e. the meeting of two or more bodies of water);

• Stable aeolian and alluvial terrace landforms are likely to have deeper profiles and better preservation conditions. These landforms may contain greater archaeological integrity;

• Scarred trees may be present within areas containing mature remnant native trees of sufficient age and as isolated mature trees in agricultural settings;

• Rockshelters may be present in areas of outcropping rock escarpment, particularly along creek corridors. Areas of rock overhang sufficient in size to accommodate and shelter a person may have potential to contain occupation deposits;

• Isolated finds may be found anywhere across the landscape;

• Ceremonial places may be present in the landscape, but may not be archaeologically visible; and

• Stone arrangements may be found across the landscape.

Due to the large area covered by the Tarneit PSPs (approx. 4,632 ha), we used MapInfo GIS (Geographical Information System) to develop and map the predictions.
made regarding archaeological potential. The purpose of the predictive model was to:

- Provide the Growth Areas Authority, individual landowners within the PSP and the Aboriginal community with information about areas of Aboriginal archaeological sensitivity to feed into constraints and opportunities analysis,
- Help inform early PSP planning and design work,
- Provide part of the desktop assessment component of CHMPs, and
- To assist in developing a methodology for standard and complex assessments.

In developing the model, we drew on a number of environmental and disturbance variables that were used to identify areas of varying ‘archaeological sensitivity’. For the purposes of the model, the term ‘archaeological sensitivity’ is defined as a combination of likely density, integrity and research value of archaeological deposits within any given area.

The modeling and mapping is based on a probabilistic approach, where a combination of traits was used to determine the combined level of potential. The model traits are as follows:

- Areas within 200m of high-order stream = Very High Sensitivity;
- Rock Escarpment = Very High Sensitivity;
- Alluvial terrace landforms = Very High Sensitivity;
- Areas within 200m of mid-order stream = High Sensitivity;
- Crests = Moderate Sensitivity;
- Within 200m of lower-order stream or outer edge of swamp = Moderate Sensitivity;
- Crest and within 200m of former water (including all stream types and swamp) = Increased Sensitivity by One Level;
- Remnant Vegetation = Increased Sensitivity by One Level;
- Werribee River Alluvium = Increased Sensitivity by One Level;
- Cut and Fill Disturbance = Disturbed;
- Horticultural/ Market Gardening Disturbance except where within 200m of a high-order stream = Very Low Sensitivity;
- Within Wetland = Very Low Sensitivity; and
- All other areas = Low Sensitivity.

An archaeological survey was undertaken by Emma Rae with assistance from Adrian Burrow, Shannon Sutton, Paul Freestone, Thomas Lubbock and Jim Wheeler (AHMS) from 20th - 26th July 2011. Representatives of each Registered Aboriginal Party Applicant or Traditional Owner Group were present throughout the survey (the participants are listed in Table 4). The principal aim of the survey was to identify exposed cultural material (i.e. surface sites) and gauge the extent of prior disturbance. The survey results and observations were used to identify any potential archaeological deposits (i.e. areas that are ‘likely’ to contain Aboriginal sites or objects). They were also used to assess the extent to which past land-uses may have affected natural soil profiles.

A total of 50 artefact scatters were recorded during the survey and are described in Section 6 of this report. Two particular alluvial terrace landforms, one along the Werribee River and the other at the confluence of Skeleton and Davies Creeks were identified as having very high archaeological and cultural value. These areas have been recommended as priority conservation areas. More generally, the alluvial terraces adjacent to the Werribee River were identified as having a very high level of sensitivity, and the heritage assessment recommends that impact should be avoided or at least minimized on these terraces where feasible.

The predictive model and archaeological sensitivity map shown on Figure 76 is designed to inform GAA PSP design and planning work. The sensitivity map is also designed to provide landowners and development proponents with a guide to
archaeological sensitivity within various parts of the study area to assist in gauging risk and making informed decisions about development design.

In general terms, the risk of impact on significant archaeological and Aboriginal cultural heritage values is likely to increase in accordance with sensitivity level. Therefore, areas that are in the very high sensitivity zone are likely to have the highest level of archaeological significance and as a result these areas are also likely to have the highest level of risk for development proponents. Likewise, areas of very low sensitivity or which are disturbed have a very low risk level.

We recommend the following PSP design responses with reference to the sensitivity zones shown on Figure 76:

a. *Aboriginal Conservation Areas (shaded blue on Figure 76):* We recommend these areas be dedicated as Aboriginal conservation areas or be retained in their current form in open space, riparian, bio-link, set-backs and/or asset protection zones. The landscape integrity and amenity of these areas should be retained, including appropriate set-backs that ensure the visual curtilage is unaffected by housing or other forms of development. To ensure their viability as conservation areas, appropriate and robust planning provisions should be established during the PSP design process. Provisions should include specific measures that limit ground disturbance or erosion within the conservation areas into the future. The areas highlighted blue on Figure 76 are an indication of where the conservation zone should be placed in accordance with the recommendations made in this report.

b. *Priority Impact Avoidance Areas (shaded yellow on Figure 76):* We recommend these areas (alluvial terraces adjacent to the Werribee River) have priority for conservation. Where decisions about conservation or open space allocation are made by GAA or individual landowners / development proponents, the higher priority areas should be considered as ‘first priority’ options for conservation. It may not be possible to include all of the higher priority land in conservation, however, where it is feasible it should be actively considered.
Options for conservation could include dedication of areas as conservation zones or retention of areas in their current form in open space, riparian, bio-link, set-backs and/or asset protection zones. Where possible, the landscape integrity and amenity of these areas should be retained, including appropriate set-backs where this is relevant. Appropriate and robust planning provisions should be established during the PSP design process for areas proposed to be included in conservation. Provisions for dedicated conservation areas should include specific measures that limit ground disturbance or erosion within the conservation areas into the future.

c. **Very High & High Sensitivity**: Retain as much as possible in open space, riparian, bio-link, set-backs and asset protection zones. The aim of PSP design should be to minimize future development impact on these areas (particularly the Very High sensitivity zone). This approach will protect areas with high potential for significant archaeological deposits and cultural values. The approach will also save time and money in reducing the scope of mitigation and salvage of sensitivity areas.

d. **Moderate Sensitivity**: Where there is an opportunity, development impact should be minimized where practicable. For instance, where there are opportunities to establish open space, these could be placed on areas of moderate sensitivity to protect Aboriginal heritage and reduce the scope of expensive and time consuming archaeological mitigation measures and salvage.

e. **Low Sensitivity**: No design and planning recommendations. These areas are essentially archaeologically ‘neutral’.

f. **Very Low Sensitivity and Disturbed**: These areas could be the focus of development, particularly high impact features of a subdivision like a town centre, medium or high density residential, industrial or commercial

The following recommendations set out the key legal requirements that will apply to PSP planning and development within the study area and study area:
a. **Subdivision or development projects** (greater than 2 lots and/or two houses) located within or partly within areas of cultural heritage sensitivity (shown on Figure 77) will require completion of mandatory cultural heritage management plans (CHMPs) before Planning Permits can legally be approved for these projects. Currently there is no Registered Aboriginal Party for the Tarneit PSP land on the eastern side of the Werribee River, therefore the current evaluating authority would be Aboriginal Affairs Victoria (AAV). CHMPs must be prepared by a qualified Cultural Heritage Advisor and must be approved by AAV before they are in force.

If individual development proponents believe their land has been subject to significant ground disturbance (either mechanical excavation disturbance and/or deep ripping) they could consider engaging a cultural heritage advisor to undertake an assessment and make a determination.

b. **Areas where no development or ground disturbance is proposed** - No complex assessment will be required in areas where development and disturbance is not proposed. Inclusion of areas of high to very high sensitivity in conservation, open space, biolinks and/or riparian corridors will reduce the scope of Complex Assessment required and provide good outcomes in protecting significance Aboriginal heritage;

c. **Known Aboriginal Places** - Known Aboriginal places registered on the Victorian Aboriginal heritage register (VAHR) and places found during the standard assessment described in this report are protected by the Aboriginal Heritage Act 2006. It is an offence to disturb or destroy these places without first obtaining either a Permit to Harm or an approved CHMP from AAV.

d. **Blanket Protection** - Irrespective of whether or not a CHMP is required for a particular development or activity, the Aboriginal Heritage Act 2006 provides blanket protection for Aboriginal cultural heritage. If any Aboriginal objects (artefacts), sites, places or skeletal remains are identified at any time before or during development works, they cannot be harmed until either a Permit to Harm or a CHMP that specifically permits harm to that place has been approved by AAV.
A Standard Cultural Heritage Management Plan (CHMP) for the properties within PSPs 88-91 where a complex CHMP is not warranted should be prepared and submitted for evaluation. Under the Aboriginal Heritage Regulations 2007, a complex CHMP assessment is only required for land where it is likely that Aboriginal cultural heritage is present and where the extent, nature and significance of cultural heritage is not adequately known.

This report has concluded that areas assessed as having ‘disturbed’, ‘very low’ and ‘low’ sensitivity (see Figure 78) are ‘unlikely’ to contain Aboriginal cultural heritage. Furthermore, the nature, extent and significance of Aboriginal cultural heritage within these sensitivity zones is well understood - the archaeological patterning across these landforms has become well established during large test excavation programmes undertaken in the region (particularly since the introduction of the 2006 Aboriginal Heritage Act). Therefore, in our view, properties in ‘disturbed, very low and low’ sensitivity zones should not require further complex assessment.

A CHMP to standard assessment level should be prepared for properties which meet the following set of criteria:

- The property was surveyed by AHMS;
- The property does not contain recorded Aboriginal places;
- AHMS did not locate any new Aboriginal places during survey of the property; and
- The property is located entirely within areas of ‘disturbed’ and/or ‘low’ and/or ‘very-low’ sensitivity as shown on Figure 78

Where a complex CHMP will be required we recommend the use of a landform based approach to complex assessment (test excavation). The landform based approach aims to systematically test each landform within an activity area to establish the extent of cultural material present. This approach is recommended because it is a very efficient and effective means of assessing the nature, extent
and significance of Aboriginal cultural heritage across large landscapes. It also provides for a consistent approach across the PSPs and significant sampling efficiencies by using a common approach that can be utilized by all the landowners and proponents within the activity area.

The extent of testing and sample effort should be based on the level of sensitivity shown on the predictive sensitivity mapping shown on Figure 76. Areas which are disturbed or have very low sensitivity should not require further test excavation because they are considered ‘unlikely’ to contain Aboriginal cultural heritage (the Aboriginal Heritage Regulations 2007 only require complex assessment in areas that are ‘likely’ to contain Aboriginal cultural heritage. However, areas ranging from low to very high sensitivity should be included in a systematic programme of landscape-based archaeological test excavation that aims to establish the extent nature and significance of the Aboriginal cultural material within areas of proposed development impact (NB: Areas set aside as open space, conservation or other uses that do not entail development disturbance will not be included in complex assessment and can therefore be excluded from complex assessment scope of work).

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Abbreviations

AAV  Aboriginal Affairs Victoria
AHC  Australian Heritage Council
BP  Before Present
CHMP  Cultural Heritage Management Plan
EVC  Ecological Vegetation Communities
GAA  Growth Areas Authority
GSV  Ground surface visibility
LGA  Local Government Area
PSP  Precinct Structure Plan
RAP  Registered Aboriginal Party
SGD  Significant Ground Disturbance
VAHR  Victorian Aboriginal Heritage Register
VRO  Victorian Resources Online
## Definitions

**STUDY AREA**  
The entire area of PSP 88, 89, 90 & 91 shown on Figure 1. This area was subject to a desktop assessment and archaeological survey.

**GEOGRAPHIC AREA**  
Werribee River Basin
PART 1 - ASSESSMENT.
1 INTRODUCTION

1.1 Preamble

The Growth Areas Authority engaged Archaeological and Heritage Management solutions (AHMS) to prepare an Aboriginal Cultural Heritage Assessment for Precinct Structure Plans (PSPs) 88, 89, 90 and 91 in Tarneit, Victoria. A desktop assessment has been prepared for the entirety of the PSP areas and an archaeological survey was conducted over 39 participating properties.

We undertook a process of consultation with the Bunurong Land Council Aboriginal Corporation, the Boon Wurrung Foundation and the Wurundjeri Tribe Land and Compensation Cultural Heritage Council. All three groups participated in the fieldwork.

The overriding purpose of the Aboriginal Cultural Heritage Assessment was to document and assess the Aboriginal heritage values of the subject land, the impact of the proposed residential subdivisions on those values and to provide management recommendations to minimise and mitigate impact before, during and after development.
Figure 1: Location of the study area
1.2 Reason for the current study

The objective of this assessment was to identify and assess the nature, extent and significance of Aboriginal sites, objects and cultural heritage values within the subject land to inform PSP design and planning work. The assessment also provides recommendations to manage and assess Aboriginal heritage during complex assessment CHMPs for future development projects within the Tarneit PSPs.

Specific aims of the assessment were as follows:

- Identify any known Aboriginal sites, relics and any places of cultural significance to the Aboriginal community within the subject land;
- Assess the potential for Aboriginal sites and/or relics buried below ground surfaces;
- Assess the Aboriginal heritage significance of Aboriginal sites, relics, places and areas of archaeological potential in partnership with the local Aboriginal community;
- Assess the potential impact of the activity on Aboriginal sites, relics, places and significance values;
- Make recommendations to help inform PSP design and planning;
- Make appropriate recommendations for protection of cultural heritage and/or mitigation of development impact, including contingency procedures, in consultation with the local Aboriginal community.

1.3 Authorship

The report was written by Emma Rae (B.A Hons) and Adrian Burrow (B.A Hons). Jim Wheeler (B.A Hons, MAACAI) reviewed the report.
1.4 Acknowledgements

The authors acknowledge the assistance and valuable input provided the Growth Areas Authority, and in particular Dane Logan and Mark Brennan. We especially acknowledge the assistance, important input and support provided by the representatives and staff of the Wurundjeri Tribe Land Compensation and Cultural Heritage Council (Naomi Zukanovic, Ron Jones, Shane Nicholson), the Bunurong Land Council (Dan Turnbull) and the Boon wurrung Foundation (Gheran Steel, Robert Anthony).

2 Activity Description

The land is currently zoned UGZ – Urban Growth Zone. This zone attempts to streamline planning controls within the Precinct Structure Plan (PSP) area – effectively removing the rezoning process. Therefore the current zoning of the land as UGZ will remain during the preparation of the PSP master plan.

The Sponsor (the Growth Areas Authority) does not intend to develop each individual allotment, nor would they undertake subdivision works. The role of the Sponsor is to undertake masterplanning and design work to assist in facilitating streamlined and high quality development within the Tarneit growth area. Subdivision works and implementation of development projects within the Tarneit PSPs would be undertaken by individual landowners and/or developers.

This assessment comprised desktop research as well as archaeological survey designed to assist GAA in PSP design and planning and to provide an assessment that can be utilized by landowners and developers to develop complex CHMPs for specific development projects within the Tarneit PSP areas.

The study area will remain zoned ‘UGZ - Urban Growth Zone’ under the Wyndham City Planning Scheme. The schedule to this zone is included in Appendix 2. Development within this area in keeping with the PSP will not require rezoning.

The surveyed area is shown on Figure 2.
3 **Extent of Survey Area**

The survey area consists of 39 properties (Table 1 & Figure 2). These properties were those where the landholders agreed to participate in the archaeological survey and whose properties were accessible during the designated survey dates.

**Table 1: Participating properties.**

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<th>Address</th>
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Figure 2 - Properties survey during Aboriginal Cultural Heritage Assessment
4 DOCUMENTATION OF CONSULTATION

4.1 Development of Consultation

There were no Registered Aboriginal Parties (RAPs) for the PSP areas when this project commenced. On the advice of AAV we undertook a process of consultation with the RAP applicants (the Wurrundjeri Tribe Land and Compensation Cultural Heritage Council Inc) and two relevant traditional owner claimant groups: The Bunurong Land Council Aboriginal Corporation and the Boonwurrung Foundation.

Our approach to the Aboriginal community consultation was to undertake all components of the study in partnership with the Wurundjeri, Bunurong and Boonwurrung. In practice, we invited representatives of the groups to participate in the standard assessment archaeological survey. The representatives of the Aboriginal community stakeholders were consulted about key cultural and landscape values during the survey work.

The representatives that participated in the archaeological survey are outlined as follows:

Table 2 - Survey Participants

<table>
<thead>
<tr>
<th>Date</th>
<th>Wurundjeri TLCCHC</th>
<th>Bunurong Land Council</th>
<th>Boonwurrung Foundation</th>
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<td>20/07/11</td>
<td>Shane Nicholson</td>
<td>Dan Turnbull</td>
<td>Gheran Steel</td>
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<td>21/07/11</td>
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The development of consultation with the Wurundjeri Tribe Land and Compensation Cultural Heritage Council, Bunurong Land Council and Boonwurrung Foundation is set out in Table 2.

**Table 3 - Aboriginal Community Correspondence Log.**

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<th>Method</th>
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<td>15/07/2011</td>
<td>Invited Wurundjeri to participate in survey</td>
<td>Email</td>
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<tr>
<td>15/7/2011</td>
<td>Invited Boonwurrung Foundation to participate in survey</td>
<td>Email</td>
</tr>
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<td>15/7/2011</td>
<td>Invited Bunurong Land Council to participate in survey</td>
<td>Email</td>
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<td>20/10/2011</td>
<td>Comments received from Wurundjeri on draft report (via GAA)</td>
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</table>
4.2 Outcomes of Consultation

The Aboriginal representative groups were closely consulted throughout the development of the assessment and during the archaeological survey fieldwork. The issues discussed and raised by the groups were considered during preparation of and reflected in the final assessment.

During the survey, the Aboriginal community representatives identified two key places in the landscape that had important cultural values, one along the Werribee River and one along Skeleton and Doherty’s Creeks. The representatives agreed that it was important for both the heritage and the character of these areas to be retained. As a result of the survey and this consultation these areas have been recommended for conservation. Further detail relating to these areas and the reasons for their proposed conservation is outlined in Section 6.2.

The Wurundjeri Tribe Land & Compensation Cultural Heritage Council also reviewed the draft report and provided detailed comments. The comments indicated important cultural values and priorities of Wurundjeri, particularly in regards to the importance of remnant native vegetation, traditional food plants and landscape values. The comments were considered in finalising the report.
5  **DESKTOP ASSESSMENT**

5.1  **Preamble**

This section comprises the ‘desktop assessment’ which has been prepared in accordance with the *Aboriginal Heritage Regulations (2007)* and includes the following:

- a search of the Victorian Aboriginal Heritage Register for information relating to the study area, including the date(s) the Victorian Aboriginal Heritage Register was accessed;

- an 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;

- a concise map or maps showing the geographic region referred to in point 2 and the location of the study area in that geographic region;

- a review of the registered Aboriginal places in the geographic region referred to in point 2;

- a review of reports and published works about Aboriginal cultural heritage in the geographic region referred to in point 2, relevant to the study area (this includes, reports, assessments and Cultural Heritage Management Plans);

- a review of historical and ethno-historical accounts of Aboriginal occupation of the geographic region referred to in point 2, relevant to the study area;

- a review of the landforms or geomorphology of the study area;

- a review of the history of the use of the study area, including discussion of prior disturbance to ground surfaces and soil deposits if available; and
• a conclusion surmising from the desktop assessment where it is possible Aboriginal cultural heritage may be located in the study area.

The information obtained during desktop assessment assists in determining the archaeological potential of the study area in a number of ways. For example: Considering the types of natural resources that may have been available within the study area, or in the local region, provides an indication of why people may have been present in the area, and of the potential physical traces of such a presence (e.g. the types of stone used for artefact making, whether trees having bark suitable for the manufacture of certain items existed/exist in the area, or whether there exists a known resource - plant animal or otherwise - that may have drawn people to the area).

Information about previously recorded archaeological sites in the region can provide an indication of the types and distribution of archaeological deposits and material that may be present, or may once have been present, in the study area. It also provides comparative information that is essential for the assessment of the archaeological significance of any previously unrecorded archaeological material or deposits.

Environmental and historical information (particularly regarding past and present land use) may indicate the potential for post-depositional processes to have altered or disturbed any archaeological deposits or materials that may have once, or may still, exist within the current study area.

In short, knowledge of the environmental, cultural and historical contexts of the study area is crucial for understanding the archaeological potential and significance of that area.

5.2 Geographic Region

The geographic region for the purpose of this heritage assessment is the Werribee River Basin (Figure 3). The Werribee River Basin is situated within the greater geological feature of the Western District Plains or Volcanic Plains. The Volcanic
Plains are comprised of basaltic lava flows, tuffs and scoriae ranging in age from the Middle Pliocene to geologically recent and are known as the Newer Volcanic Group.

The Werribee River Basin covers an area of approximately 2,700km² and includes all rivers and creeks west of the Maribyrnong River up until Little River. The landscape of the Basin varies from steep sided hills and gorges to basalt plains. Agricultural land accounts for approximately 67% of the catchment, while natural vegetation covers 25% and approximately 5% is urbanized.

Although the geographic region comprises the Werribee River Basin, the desktop assessment, summarized in the following sections of this report, will place particular focus on Toolern Creek and the surrounding basalt plains within a 3km radius of the study area. This provides a suitable region for study because it shares common and distinct topographic, drainage, geological and soil landscape characteristics.

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1 Hills 1964: 261-262
2 Melbourne Water Website
Figure 3: The geographic Region, Werribee River Basin
5.3 Review of Aboriginal Places in the Region

A search of the Victorian Aboriginal Heritage Register (VAHR) was undertaken to identify previously recorded Aboriginal site types and distribution patterns within a 10 km radius of the study area (Figure 4). The search identified a total of 675 Aboriginal places registered within the search area. The majority were stone artefact scatters (624), but also included a number of Scarred Trees (45) and miscellaneous Earth Features (6). The majority of these were situated in close proximity to the Werribee River, other drainage corridors, and adjacent to swamp or wetland.

A total of 75 Aboriginal places/sites have been previously recorded within the study area. Of these, 71 are artefact scatters, 3 are scarred trees and one was an Earth Feature (soil deposit). The majority of the previously recorded places within the study area are situated within close proximity to mid to high order drainage corridors, particularly in close proximity to the Werribee River. The current distribution pattern is clearly weighted towards areas of higher surface visibility within areas that have previously undergone archaeological assessment, particularly the Regional Rail Link CHMP 11273. Previously recorded Aboriginal Places are shown in Table 4.
Table 4: Previously Registered Aboriginal Places within the study area

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<th>Northing</th>
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<td>7822-0198</td>
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<td>7822-0199</td>
<td>SEWELLS 4</td>
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<td>7822-2976</td>
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<td>7822-2995</td>
<td>Regional Rail Link 13d</td>
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<td>7822-0259</td>
<td>HAYNES RD</td>
<td>Artefact Scatter</td>
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<td>5808284</td>
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</table>
5.4 Review of Regional Archaeological Context (including reports and published works)

For the purposes of determining settlement and site location patterns, archaeologists examine regional and local trends in the distribution of known sites in relation to environment and topography. This provides evidence about economic and social systems in the past and also assists archaeologists in predicting likely site types, site locations and the nature of the archaeological resources in any given area. The following is a summary of the studies which have been conducted throughout the wider region.

5.4.1 Du Cros 1989

du Cros conducted a study of the Western region which includes the current study areas. The survey sampled random and non-random areas. Dominant landforms identified by du Cros include the ‘Volcanic Plains’ and ‘Major Rivers/Creeks’. Both of these landforms are also dominant types in the Tarneit study area.

A total of twenty sites (scarred trees & artefact scatters) were recorded within the Volcanic Plains, with a site density of 1/30 ha. Sites were found to occur on extinct eruption points, as these are the highest points on the landscape and are associated with swamps and small springs. None of the sites identified were in-situ.

A total of forty-one sites were located within the Major River/Creeks landform, with a site density of 1/9 ha recorded during the survey. Sites predominantly comprised stone artefact scatters but also included grinding grooves, freshwater shell middens and scarred trees. du Cros determined that sites would typically occur within 50-200m of a waterway.

Drawing on the results of the survey, du Cros made the following predictions regarding site types and locations:

a) Burials, artefact scatters, isolated artefacts and scarred trees will occur within 100m of major watercourses;
b) Artefact scatters will occur on the highest points of the volcanic plains, such as eruption points;

c) Artefact scatters, isolated artefacts and scarred trees will occur close to permanent swamps, springs and lakes on the volcanic plain;

d) Shell middens and other sub-surface deposits will occur in terraces and alluvial deposits along major rivers;

e) Post-contact sites will occur in association with old homesteads in the region.

du Cros identified the following areas also represented in the Tarneit study area as high in archaeological potential:

- Werribee River and river flats in areas not under housing; and
- Land between the Werribee River and Little River.

5.4.2 Du Cros 1990

du Cros conducted a survey for a proposed urban growth area between Kororoit Creek and the Maribyrnong River near Sydenham located east of the current study area. du Cros aimed to sample the major landscape units, the ‘Volcanic Plains’ and ‘Major Rivers/Creeks’ identified in previous investigations.

Of the nineteen sites located during the survey, only three sites were identified on the Volcanic Plains landform (an artefact scatter 7822-404 and two isolated artefacts 7822-0492, 7822-0403). No hills or eruption points were located on the Volcanic Plains landform within the study area, which was used by du Cros to argue that her initial prediction that ‘Artefact scatters will occur on the highest points of the volcanic plains, such as eruption points’ was correct. The remaining 16 sites were recorded on the Major Rivers/Creek landscape unit, where the most common site type identified was stone artefact scatters.

\(^\text{du Cros 1989}\)

\(^\text{4 du Cros 1989}\)
The results of the survey are in accordance with the predictive model developed in previous studies by du Cros for the Western Region. The absence of scarred trees in proximity to waterways was considered to reflect post-contact vegetation clearance practices.

Among the findings of the study du Cros made the following additional predictions:

- Sources or outcrops of silcrete and metamorphic stone are likely to have been quarried by Aboriginal people if exposed more than 150 years ago.

- Sites with extensive sub-surface archaeological deposits containing burials, hearths faunal material and artefacts will most likely be found in areas with the best preservation.

5.4.3 Du Cros 1991

du Cros examined a corridor of land along the Werribee River. The investigation entailed a sample survey in areas where little or no previous archaeological investigations had been undertaken to further refine and test her predictive model of the Western Region. The Werribee and the Little Rivers were determined to be the main areas of archaeological sensitivity. du Cros concluded that artefact scatters located on the Volcanic Plain may be the result of east-west traffic linking the Werribee to the Little River.

5.4.4 GHD / Andrew Long & Associates 2010

GHD and Andrew Long & Associates (AL&A) were commissioned by Growth Areas Authority to conduct a large-scale regional desktop assessment of four study areas consisting of the North (Cragieburn-Beveridge), North-West (Sunbury), West (Melton-Werribee) and South-East (Pakenham-Cranbourne). The project aimed to identify high level areas of archaeological sensitivity to assist the GAA in future...
planning and to inform and guide the desktop assessment components of CHMPs prepared for individual precincts within the growth areas.

The current the Tarneit growth areas formed part of the West Study Area (Melton-Werribee).

A primary object of the GHD / AL&A assessment was to define zones of Aboriginal cultural heritage sensitivity based on a regional predictive model. The predictive model was developed through a review of the following sources of information:

- a review of registered cultural heritage places on the Victorian Aboriginal Heritage Register,
- terrain patterning based predominantly on distance to water, geology and elevation,
- high level land use history and disturbance mapping,
- a review of ethnohistorical sources to identify Aboriginal sites and places, and to assist in understanding Aboriginal settlement patterns,
- a review of previous archaeological reports to assist in identifying prevailing archaeological patterning in the area, and
- some initial consultation with key traditional owner representatives to identify cultural values and places within growth areas.

A review of these sources of data identified terrain profile units (comprising a combination of landform and environmental traits) with varying levels of potential to contain Aboriginal cultural places.

These were defined as:

**Zone 1 - High likelihood of Cultural Places**

Zone 1 comprised major waterways, such as the Werribee River and Skeleton Creek, major wetlands, eruption points and elevated areas (such as crests, ridges).
This zone contained the highest density of registered Aboriginal cultural sites, including sites of high scientific and cultural significance. Current site types within this zone include dense stone artefact scatters and scarred trees. There is some potential for sites types such as quarries, burials and ceremonial places to occur.

The following management recommendations were made for Zone 1:

- Complex assessment, including controlled excavation, should be undertaken for all activities within this zone.

- Use of controlled methods for subsurface testing with only limited use of “coarser” evaluation techniques i.e. shovels probes and mechanical excavation.

- Protection of cultural heritage places - by establishing management reserves in areas of known or predicted cultural heritage sensitivity.

- Minimisation of impacts from development by placing constraints, controls and limitations on works in this zone.

- Salvage of cultural heritage places, wherever development may occur within this zone that will impact on cultural heritage places.

Zone 2 - Moderate likelihood of Cultural Places

Zone 2 landforms consisted of minor creeks, wetland margins, stony rises and minor elevations.

Zone 2 contained secondary densities of registered Aboriginal cultural places which were generally not characterised by places of high scientific significance. Registered cultural heritage places within Zone 2 are dominated by stone artefact scatters and scarred trees, although there is some potential for other site types (i.e. quarries burials and ceremonial places).

The following management recommendations were made for this zone:
• Complex assessment, including controlled excavation, should be undertaken for all activities within this zone.

• Use of coarse evaluation techniques and mechanical excavation may be undertaken except in localised places of higher sensitivity.

• There are unlikely to be requirements to protect specific cultural heritage places, though exceptions may exist (i.e. scarred trees).

• There will be minimal requirements to minimise development impacts, although minimization should be encouraged where possible.

• Salvage will be limited to localised areas with higher levels of significance.

Zone 3 - Low likelihood of Cultural Places

Landforms within Zone 3 comprised uniform slopes at distance from major water sources.

Zone 3 areas generally did not contain any Aboriginal cultural places, with the exception of diffuse scatters and scarred trees. This zone is considered unlikely to contain sites of high scientific significance - however the report notes that this does not consider possible cultural significance values to the Aboriginal community, which would need to be considered in more detail at the CHMP stage.

The following recommendations were made for this zone:

• Completion of CHMPs for all activities within this zone. It is expected that completion of a CHMP to standard assessment stage will be adequate; however the outcomes of the standard assessment will determine if subsurface testing (Complex assessment) is required.

• No specific requirements for the protection of cultural heritage exist for this zone, however exceptions may exist, i.e. scarred trees and unregistered sites.
• There will be minimal requirements to mitigate and/or minimise development impacts.

• Salvage will be limited to localised areas of unusually high levels of significance.

Implications of the GHD / Andrew Long & Associates Predictive Model

The predictive modeling was used to develop a preliminary sensitivity map based on terrain profile units, registered site distribution, distance from water bodies and points of elevation. GHD / Andrew Long & Associates state that there is scope for further refinement of their preliminary model. In particular, the character of the sensitivity zones could be better defined through ground truthing.

Our review of the GHD / Andrew Long & Associates report indicates that the following additional PSP-specific research would be needed to support individual CHMP desktop assessments:

• Detailed disturbance history mapping, primarily through detailed review of historical and current aerial photographs.

• More detailed landform and soil landscape mapping to better define areas of specific archaeological sensitivity and develop a fine-grained predictive model and more detailed sensitivity map.

• Detailed cultural values mapping with the local Aboriginal community to identify specific values and places of cultural significance within each PSP.

5.4.5 Review of Local Studies (Pre Aboriginal Heritage Act 2006)

Prior to the commencement of the Aboriginal Heritage Act 2006, archaeological studies were often carried out to satisfy Aboriginal cultural heritage assessment of proposed development and varied significantly in methodology and content in comparison to CHMPs, therefore a general indication of the types of studies which have been conducted within 5km of the activity area is provided in Table 5.
### Table 5: Local Studies

<table>
<thead>
<tr>
<th>Report</th>
<th>Assessment Type</th>
<th>Aboriginal Heritage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bell 2006 a</td>
<td>Survey</td>
<td>One Aboriginal place found, 7822-1990 (Artefact Scatter)</td>
</tr>
<tr>
<td>Bell 2006 b</td>
<td>Survey</td>
<td>None located</td>
</tr>
<tr>
<td>Bell 2006 c</td>
<td>Survey</td>
<td>None located</td>
</tr>
<tr>
<td>Bell 2006 d</td>
<td>Survey</td>
<td>None located</td>
</tr>
<tr>
<td>Burch 2010</td>
<td>Heritage Assessment</td>
<td>One possible artefact located</td>
</tr>
<tr>
<td>Cekalovic 2001</td>
<td>Test Excavation</td>
<td>Two isolated artefacts located, 7822-1283, 7822-1284 (Artefact Scatters)</td>
</tr>
<tr>
<td>Chamberlain 2004</td>
<td>Test Excavation</td>
<td>None Located</td>
</tr>
<tr>
<td>Chamberlain, Nicholls 2004 a</td>
<td>Survey</td>
<td>One Aboriginal place found, 7822-1645 (Artefact Scatters)</td>
</tr>
<tr>
<td>Chamberlain, Nicholls 2004 b</td>
<td>Survey</td>
<td>None located</td>
</tr>
<tr>
<td>Chamberlain 2003</td>
<td>Survey</td>
<td>Eleven stone artefacts located (additional to 7822/0210)</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Method</td>
<td>Outcomes</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>Chandler, Feldman 2009</td>
<td>Test Excavation - Permit</td>
<td>None located</td>
</tr>
<tr>
<td>Feldman 2006</td>
<td>Survey</td>
<td>None located</td>
</tr>
<tr>
<td>Feldman 2005 a</td>
<td>Survey</td>
<td>No new Aboriginal places located</td>
</tr>
<tr>
<td>Feldman 2005 b</td>
<td>Test Excavation</td>
<td>No new Aboriginal places located</td>
</tr>
<tr>
<td>Feldman 2004</td>
<td>Survey</td>
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<tr>
<td>Feldman 2007 a</td>
<td>Test Excavation</td>
<td>No new Aboriginal places identified</td>
</tr>
<tr>
<td>Feldman 2007 b</td>
<td>Test Excavation</td>
<td>Three new Aboriginal Places identified</td>
</tr>
<tr>
<td>Fiddian, Thomson, Dore 2007</td>
<td>Monitoring</td>
<td>Several additional artefacts identified during monitoring of works</td>
</tr>
<tr>
<td>Howell-Meurs 2006</td>
<td>Survey</td>
<td>No new Aboriginal places identified</td>
</tr>
<tr>
<td>Hyett 2006</td>
<td>Test excavation</td>
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<tr>
<td>Light 2004</td>
<td>Survey</td>
<td>One stone artefact identified</td>
</tr>
<tr>
<td>Name</td>
<td>Method</td>
<td>Findings</td>
</tr>
<tr>
<td>------------------</td>
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<tr>
<td>Matic 2006</td>
<td>Test Excavation</td>
<td>No new Aboriginal Places identified</td>
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<tr>
<td>Nicholls 2005 a</td>
<td>Survey</td>
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<td>Nicholls 2005 b</td>
<td>Survey</td>
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<tr>
<td>Thomson 2004</td>
<td>Survey</td>
<td>Five new Aboriginal places (stone artefact scatters) identified, 7822-1707, 7822-1708, 7822-1709, 7822-1712, 7822-1713</td>
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<tr>
<td>Tulloch 2003 &amp; 2004</td>
<td>Survey and Test Excavation</td>
<td>One new Aboriginal place (stone artefact scatter) identified 7822-1564 during survey, and two additional artefacts found on surface during test excavation</td>
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<tr>
<td>Tulloch 2001</td>
<td>Test excavation</td>
<td>Fifty six stone artefacts identified during subsurface testing</td>
</tr>
<tr>
<td>Vines 1992</td>
<td>Survey</td>
<td>Two Aboriginal places (stone artefact scatters) identified 7822-704, 7822-705</td>
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<td>Weaver 1994</td>
<td>Survey</td>
<td>One Aboriginal place (stone artefact scatter) identified 7822-1135</td>
</tr>
<tr>
<td>Weaver 1991</td>
<td>Survey</td>
<td>Fifty Six Aboriginal places recorded during survey</td>
</tr>
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</table>
5.5  Review of Cultural Heritage Management Plans in the Surrounding Area

5.5.1  Webb & Kaskadanis (CHMP 10342)

City West Water commissioned Terraculture to prepare a CHMP for the Cowies Hill Potable Water Supply Main at Tarneit, located to the south of the study area. A total of eight 1m x 1m test pits were excavated. Three stone artefacts were found during the test excavations and were attributed to the already registered Aboriginal Places 7822-0530 and 7822-0564. Both of these places were assessed as having low scientific significance\(^8\).

5.5.2  Berelov, Czastka, Ricardi, Thiele (CHMP 11522)

ACHM were commissioned by Wyndham City Council to prepare a CHMP for the reconstruction of Wootten Road Tarneit, located within 300m of the eastern boundary of PSP 91. ACHM undertook a concurrent program of field survey and geoarchaeological auguring across their activity area. No Aboriginal cultural material was identified during the investigations and it was concluded that it would be highly unlikely for in situ Aboriginal cultural material to be found on the property\(^9\).

5.5.3  Lawler (CHMP 10876 & 10877)

Wyndham City Council commissioned Biosis research to undertake a CHMP for proposed gross pollutant traps at Skeleton Creek, Hoppers Crossing, Tarneit and Truganina. This study was undertaken in two parts with Group A pollutant traps investigated as part of CHMP 10876\(^10\) and Group B pollutant traps investigated under CHMP 10877\(^11\). Both of these investigations consisted of a standard and complex

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\(^8\) Webb & Kaskadanis, 2008: 18
\(^9\) Berelov, Czastka, Ricardi, Thiele, 2010: 27
\(^10\) Lawler 2010 a
\(^11\) Lawler, 2010 b
assessment. There were no new Aboriginal Places identified during either of these investigations and previously recorded Aboriginal places could not be relocated.

5.5.4 Murphy & Dugay-Grist (CHMP11084)

Tardis Enterprises were commissioned by Walter Elliot Holdings Pty Ltd to complete a CHMP for a residential subdivision at Lot 10 Westmeadows Lane Truganina, located approximately 650m to the south of PSP 90. Seven previously registered Aboriginal places (7822-2140, 7822-2141, 7822-1707, 7822-1708, 7822-1709, 7822-1712, 7822-1713) were investigated as part of this study in order to establish their extent, nature and significance, however, no further cultural material was identified during the complex assessment. No further investigation was recommended.

5.5.5 Murphy & Dugay-Grist (CHMP10975)

Tardis Enterprises were commissioned by Intrapac Pty Ltd to complete a CHMP for a residential subdivision at 115 Westmeadows Lane Truganina, located approximately 650m to the south of PSP 90. The complex assessment was designed to investigate the extent, nature and significance of previously registered place 7822-2192 and to determine whether any other cultural material was present within the activity area. As a result of the complex assessment no further cultural material was found associated with the previously registered place and no new Aboriginal places were identified. No further investigation was recommended.

5.5.6 Feldman (CHMP10520)

Villawood Land development No. 4 Ltd commissioned Andrew Long and Associates to undertake a CHMP for the construction of a proposed residential housing estate at 660 Tarneit Rd, Tarneit. Two previously registered places were not re-

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12 Murphy & Dugay-Grist, 2010a: 38
13 Murphy & Dugay-Grist, 2010b: 31
14 Feldman, 2008
identified during this investigation and no further archaeological deposits were located.

5.5.7 Stone (CHMP10504)
Parson Brinckenhoff Australia Pty Ltd engaged Tim Stone to prepare a cultural heritage management plan for the proposed Tarneit Central School, Tarneit. The investigation included a desktop assessment, followed by an archaeological survey (standard assessment). There were no new Aboriginal Places located as a result of this study.

5.5.8 Veres (CHMP 10548)
Mohamed Fouz engaged Heritage Insight to prepare a cultural heritage management plan for a proposed residential subdivision at Lots 3 and 4 Tarneit Rd, Tarneit West. The investigation involved a desktop, standard and complex assessment. During the standard assessment six new Aboriginal places were located (7822-2283 - 7822-2288) and one was located (7822-2293) during the complex assessment. The artefacts associated with these places were collected during the assessment.

5.5.9 Dugay-Grist & Adams (CHMP 11060)
Wyndham City Council commissioned Urban Colours Arts and Cultural Heritage Consultants to prepare a CHMP for a proposed road through Lots 7 & 8 Westmeadows Lane, Truganina. One new Aboriginal place (7822-2469) was located during the investigations.

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15 Feldman, 2008: 31
16 Stone, 2008
17 Veres, 2009:iv
18 Dugay-Grist & Adams, 2010: 5
5.6 Review of Cultural Heritage Management Plans within the Study Area

5.6.1 Berelov, Ricardi, Thiele (CHMP 11413)

SMEC Urban commissioned ACHM to complete a cultural heritage management plan for Heartland retarding basin outflow drainage, Davis Rd Tarneit. The study consisted of a desktop assessment and standard assessment. There were no new Aboriginal Places located during this investigation. A potentially sensitive drainage channel was identified, however, works were only impacting an already heavily disturbed portion of this channel and as a result there was no complex assessment conducted.¹⁹

5.6.2 Berelov, Ricardi, Birkett-Rees, Thiele (CHMP 11583)

SMEC Urban re-commissioned ACHM to conduct a complex assessment for the before mentioned project because the area of works was altered and complex assessment was therefore required. One isolated artefact (7822-2734) was located during the complex assessment.

5.6.3 Feldman, Matthews, de Lange (CHMP 10888)

Barwon Water Region Corporation commissioned Andrew Long and Associates to prepare a CHMP for the Melbourne Geelong Interconnection Project. Only part of this pipeline corridor passes through the current study area. One new Aboriginal Place (7822-2537) was located within the activity area during this study.²¹

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¹⁹ Berelov, Ricardi, Thiele, 2010
²⁰ Berelov, Ricardi, Birkett-Rees, Thiele, 2010
²¹ Feldman, Matthews, de Lange, 2010
5.6.4 Mathews, de Lange, Feldman, Albrecht, Whincop, Thomas (CHMP 11273)

The regional Rail Link Authority commissioned Andrew Long and Associates to complete a CHMP for the regional rail link project spanning for 17.5km from the Werribee River to Robinson’s Road, Deer Park. This corridor runs through the current study area. The archaeological investigations conducted along this corridor by Andrew Long and Associates located 33 new Aboriginal Places within the study area. These places are included in Table 4.

5.7 General Ethno-historical Background

This section presents a history of Aboriginal occupation and possible uses of the study area based on documentary evidence and early ethnographic records. This information is important in providing a context to archaeological investigations as it can assist in interpreting the results of archaeological test excavations, and facilitate assessment of any cultural heritage values specific to the study area.

5.7.1 The Woi wurrung Language Group

A.W. Howitt, an early European observer, conducted interviews with local Aboriginal people to record information about their traditions, language and customs. Based on this information he described the Melbourne region as comprising a cultural block collectively referred to as the Kulin Nation. Howitt ascertained that the Kulin Nation was comprised of the Woi wurrung, Taungurong, Jajowrong, Bunurong and Wathaurung language groups. The study area is situated within the boundaries of the Woi wurrung language group.

According to Clark, the boundaries of the Woi wurrung clans are believed to have included the Yarra and Maribyrnong River basins, extending west as far as the

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23 Clark 1990: 356
Werribee River and north to the Dividing Range, from Mt Baw Baw to Mt William. Howitt, also, described the boundaries:

From the junction of the Saltwater [Maribyrnong] and Yarra Rivers, along the course of the former to Mount Macedon, thence to Mount Baw-Baw, along the Dividing Range, round the sources of the Plenty and Yarra to the Dandenong Mountains, thence to Gardiner’s Creek and the Yarra to the starting point.

The Woi wurrung language group was made up of four primary clans, the Gunung-willam balug, Kurung-jang-balug, Marin balug and Wurundjeri balug. The Gunung-willam balug contained a sub-group (most likely a patriline) known as Talling willam, and the Wurundjeri balug held two such sup-groups, the Wurundjeri willam, and Bulug willam. Wurundjeri willam was further divided into three smaller groups or ‘tracts’, each of which were identified as occupying specific areas of land.

Barwick’s and Clark’s mapping indicates that the study area for this heritage assessment is located in the traditional lands of the Kurung-jang-balug clan. This clan was said to be based at the Werribee River and Mount Cottrell, the clan boundaries also abutted that of the Marin balug who were based between Kororoit Creek and the Maribyrnong. The Kurung-jang-balug followed a patrilineal descent system and were of the Waa or crow moiety.

At the time of contact the leader (or Ngurungaeta) of the Kurung-jang-balug was Bet banger. Bet banger and kinsman ‘Derrimut, King of the Werribee District’ became members of the Native Police Corps at Narre Narre Worran after being taken to Tasmania.

\(^{24}\) Clark 1990: 379  
\(^{25}\) Howitt 1996: 71  
\(^{26}\) Barwick 1984: 120-4; Clark 1990: 379-86  
\(^{27}\) Clark 1990: 383  
\(^{28}\) Clark 1990: 383
The Woi wurrung clans formed part of “the larger East Kulin speakers whose identity was premised on a shared language and connection to country.” These groups also shared practices relating to initiation, burial, kinship, marriage and religion, but they also maintained significant social differences. The languages of the Bun wurrung and Daung wurrung speaking people were the most linguistically similar to the Woi wurrung, with whom they held a significant (approximately 75 percent) shared vocabulary.

5.7.2 Lifestyle of the Traditional Owners

A review of ethnohistorical records relating to Aboriginal use and occupation of the region aims to identify ways in which Aboriginal people interacted with, and potentially left archaeological traces on, their environment. Although these early observations have the potential to provide useful information about Aboriginal society at contact, the information they do provide is of necessity incomplete, and subject to varying degrees of bias.

Ethnohistorical references of the Woi wurrung are fragmentary at best, and no source comparable to the notes made by Assistant Protector William Thomas about the adjacent Bun wurrung exists for Woi wurrung clans. The following ethnohistory is thus largely based on accounts of wider clan gatherings, or more generalized information about the Aboriginal people of Port Phillip.

5.7.3 Food Resources

Although traditional food gathering practices and access to resources were necessarily restricted by European occupation of the region at the time, ethnohistorical sources record Aboriginal exploitation of a range of plant and animal foods during the contact period. Food resources in the region would have been comparatively plentiful across the region in the pre-contact period. Plant foods comprised an important part of the diet of the local Woi wurrung peoples, having

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29 Goulding & Manis 2006: 27
30 Howitt 1996 (1904): 336-338
31 Broome 2002: 3
32 Presland 1983: 20
the advantage over animal resources in that they provided a resource that was ‘more regular and reliable than that derived from hunting or fishing’.

Of the wide variety of plant foods commonly exploited by local Indigenous peoples, the tuber of the Yam Daisy, or Murnong, was commented upon by European observers as providing a staple food resource. Thomas records the Murnong being eaten both raw (from younger plants), and after being cooked in the ashes of a fire when more mature and fibrous. Tubers such as that of the Yam Daisy provided a valuable source of carbohydrate for Indigenous populations of the region in spring and early summer, supported by other common plant foods such as the fern tree (bracken) pulp and ‘some parts of a thistle’.

The Indigenous peoples of Port Phillip also readily exploited the fresh and salt-water animal resources of the region. Thomas noted the plentiful supply of eels in the district during the summer, describing ‘sufficient numbers to support the Yarra Tribe for one month each year’, which were easily caught with the aid of a spear. Fish were obtained through the use of nets and weirs, and an early (1803) account, prior to European settlement of the area, records the presence of a weir along the Maribrynong River in the vicinity of Keilor. Middens present both along the coastline and lining inland rivers and streams attest to the exploitation of shellfish as an additional food resource.

Local birdlife, reptiles and mammals also provided potential food resources for the Woi wurrung, with kangaroo and possum a popular staple. Gaughwin details an instance where at a gathering of Bun wurrung, Woi wurrung and Daung wurrung

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33 Presland 1983: 35
34 After Goulding 1988: 21
35 Presland 1983: 35
36 1841 after Presland 1983: 32
37 Presland 1983: 33
38 Presland 1983: 34
tribes, part of the group travelled to the Dandenongs in order to hunt, procuring kangaroo, porcupine, native bear or sloth, wombats, oppossum and fish.\textsuperscript{39}

### 5.7.4 Movements and Camps

The Woi wurrung would have moved around the region in a variety of ways and likely on a seasonal basis. Scant ethnohistorical information exists about such movements, however, with the exception of ‘comings and goings from Melbourne’.\textsuperscript{40} Most information about the movements of Woi wurrung comes from reports of gatherings between themselves and other clans such as the Bun wurrung. The following account provides a generalized picture of movements and camps across the wider Port Phillip district.

Woi wurrung clans moved around the landscape and interacted with the larger language group and more broadly within the groups that are commonly referred to as the Kulin. Intermarriage was an important part of the social structure and the rules governing marriage led to a highly complex and overarching network of kin relationships between groups. The groups of the Kulin identified with one of two moieties, waa (crow) or bunjil (eaglehawk). Moiety affiliation was inherited, and marriage partners were obtained from the opposite moiety, as Thomas noted:

‘...marriages are not contracted in their own tribe:- for instance, a Yarra black must get a wife not out of his own tribe, but either of the other tribes.’\textsuperscript{41}

According to Thomas, part of the affiliation with other groups was through corroborees held at new and full moon, and intertribal meetings, which were held every few months.\textsuperscript{42} Clans would have gathered during specific times of the year for resource gathering to enact social rituals, such as coming-of-age. These meetings were important congregations that fulfilled a myriad of social functions, including

\textsuperscript{39} Gaughwin after Goulding 1988: 19. See also Presland 1983: 34  
\textsuperscript{40} Presland 1983: 31  
\textsuperscript{41} Thomas 1858-9: 54  
\textsuperscript{42} Thomas ML 21: 97
arranging marriages, discussing politics and resolving disputes. These meetings also served as a forum for the exchanging of goods between the different groups.

The following comments by Thomas illustrate facets of the traditional life of the Port Phillip Aboriginal people, and provide insight into some of the purposes of the regular inter-tribal gatherings:

‘...what I can learn, long ere the settlement was formed the spot where Melbourne now stands...was the regular rendezvous for the tribes known as the Waworongs, Boonurongs, Barrabools, Niluguons, Goulbourns twice a year of as often as circumstances and emergencies required to settle their grievances, revenge, deaths etc.’

‘...all are employed; the children in getting gum, knocking down birds etc; the women in digging roots, killing bandicoots, getting grubs etc; the men in hunting kangaroos, etc, scaling trees for opossums etc. They mostly are at the encampment about an hour before sundown - the women first, who get fire and water, etc. by the time their spouses arrive... in warm weather, while on tramp, they seldom make a miam - they use merely a few boughs to keep off the wind, in wet weather a few sheets of bark make a comfortable house. In one half hour I have seen a neat village begun and finished.'

Camps were generally established for a few days at a time. Hovell noted that campsites were by-and-large located on areas of higher ground, and often in close proximity to water:

‘Passed a number of native huts, they are always to be found on the banks of rivers and creeks.’

Huts, or miams, were described by Thomas as variously ‘substantially built’ in the area of Arthurs Seat and ‘frail but answers well their purpose’. Thomas also

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Broome 2002: 4
Thomas ML 8, 8 April 1840
Thomas in Gaughwin & Sullivan 1984: 93-94
Hovell 1827: 46
commented that a ‘village of good waterproof huts could be constructed in less than an hour.’ The composition of native huts and encampments were described by Thomas as follows:

‘...a few slats of bark cut in a few minutes...these slats of bark are about 6’ long oblique raised to the angle of about 20 degrees windward, every alternate sheet is reversed so no rain can enter the sides are filled up with short pieces of bark and brush and a sheet of bark at the top...A good Miam will hold 2 adults and 3 children-they are not permanent [they] are knocked down or burnt on breaking up the encampment.’

‘...[they are] in a large encampment...divided into hamlets- some influential black taking charge of six or eight Miams, and so on say five hamlets. These hamlets are 50 yards or more from each other, while miams in a single hamlet are not more than 3 or 4 yards apart.’

5.7.5 Material Culture

The Aboriginal people of the region manufactured and employed a wide range of material culture, sourced from animal, plant and earth resources available locally, in addition to resources and implements acquired through trade with neighbouring clans.

Plant resources were used in a wide variety of ways, with wood employed in the manufacture of tools such as boomerangs, spears and digging sticks, bark and reeds in the manufacture of string for bags and nets, and species of rushes in the manufacture of baskets. The bark of larger trees such as the Red Gum was used to make canoes and shields.

47 Thomas ML 1: 1
48 Thomas ML 21: 88
49 Thomas ML 2: 93
50 Thomas ML 21: 88
51 ibid
52 Presland 1983: 35-7
Stone resources, were employed in the manufacture of stone tools, and are the most likely form of Aboriginal material culture to survive in the archaeological record today. Presland notes that the *Woi wurrung* used a range of what he calls "maintenance tools", usually of stone, which included hatchets, knives and scrapers.\(^5^3\) These tools were often employed in the production of other elements of material culture, including clothing and ornaments made from animal skin and bone.\(^5^4\)

### 5.7.6 Early Settlement & Frontier Relations

In 1835, permanent European settlement began in the Port Philip region. On the 6th June 1835, John Batman arranged the signing of a ‘treaty’ with spokespersons from *Woi wurrung* and adjacent clans, in order to purchase the land now occupied by Melbourne. The ‘treaty’, such as it was, was not considered a legal transaction by the British authorities at the time, and doubts exist over the extent to which the Aboriginal people who signed the document understood the nature of the contract.\(^5^5\) From this point forward, the rapidly advancing European settlement brought about devastating changes to the already disrupted Aboriginal clans of the Melbourne region.

Dispossession of traditional land occurred as the settlers and their livestock arrived and the pastoral expansion began in earnest. Severe depletion of food resources led to malnutrition within the local Aboriginal communities by the late 1830s.\(^5^6\) European expansion caused structural changes within Aboriginal societies, affecting traditional lifestyles, living arrangements and social practices as Aboriginal people were forced from their traditional lands and deprived of access to resources.

Throughout the nineteenth century and later, the lives of Aboriginal people in the study area region and all across Victoria were greatly influenced by various government policies of Aboriginal “protection” and “management”. The first of

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\(^{5^3}\) Presland 1983: 37

\(^{5^4}\) Presland 1983: 37

\(^{5^5}\) Goulding 1988: 27

\(^{5^6}\) Presland 1983: 13
these was put in place in an attempt to lessen the impact of European settlement on the Aboriginal people of the then Port Phillip District of New South Wales (now Victoria). As a result of recommendations made by the Select Committee Inquiry into the condition of Aboriginal Peoples, the Port Phillip Aboriginal Protectorate was created. The Protectorate consisted of Chief Protector George Robinson and four Assistant Protectors whose task it was to not only physically protect the Aboriginal people of the district, but also to “civilize them, to teach them agriculture, house-building and other white employments, to educate them to a settled European life style and to convert them to Christianity”. The protectorate lasted for only 10 years (1839-1849) and was generally deemed to be a failure.

By the early 1850s the Aboriginal population of the region had severely declined and following the abolition of the protectorate came a decade of what Christie has described as “almost complete government neglect” of the Aboriginal people of Victoria.58

In 1863 the Coranderrk Aboriginal Station was established in the area of present-day Healesville on the land of the Wurundjeri-willam. The original occupants of the station were Woi wurrung and Daung wurrung speaking people although in later years people from other areas settled at the station.59

The commencement of the reserve and mission system saw the beginnings of greater government control and regulation of the lives of Aboriginal people. The passing of the 1869 Act for the Protection and Management of the Aboriginal Natives of Victoria provided the Central Board, then changed to the Board for the Protection of the Aborigines (BPA), with greater power over the lives of individuals, making the reserves or mission “prescribed places for Aboriginal people to live [and] set out the form of work contracts and certificates for which they were eligible”60. The BPA could stipulate where people could live and decide whether and
where they could work. Aboriginal people living within the Port Phillip district were gradually relocated to Coranderrk, which operated until the 1920s.

5.8 Environmental Context (Landforms & Geomorphology)

Archaeological assessment reports include information about the environmental context of study areas because of the important role environmental characteristics played in influencing the types of archaeological sites in any given area. Physical environments influence both the type and availability of natural resources and the types of cultural activities that were carried out in the past. Correspondingly, this also influences the types of archaeological sites that may be found.

A determination of the former environmental context is essential to develop accurate models of cultural activity, site distribution patterns and the archaeological potential of any given area. The environmental setting of the study area is discussed below.

5.8.1 Landscape and Published Geological Mapping

The Tarneit growth areas are located on a gently undulating volcanic landscape characterized by low slope gradients, moderately spaced drainage lines and wetlands (or former wetlands) that fill shallow depressions in the newer volcanic plains (Figure 4).

Published data on the ‘GeoVic’ website shows that the geology of the study area comprises:

- Qno1 Unnamed Sheetflow Basalt (Pleistocene - Miocene), Basalt, minor scoria and ash: tholeiitic to alkaline;
- Qa1 Unnamed alluvium (Holocene); and
- Qd2 Unnamed dune deposits.

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61 Department of Primary Industries, Vic
Geological and soil landscape mapping provides a useful insight into the expected conditions within the study area, but due to the scale of the mapping (1:100,000) it is not a reliable predictor of conditions on the ground at any place. Ground truthing is usually required to confirm geological and soil types.

5.8.2 Soil landscapes

The majority of the study area lies on sheetflow basalt of the Newer Volcanics Group. Soil characteristics on the volcanic plain typically comprise thin clay loam topsoils overlying basalt-derived clays. There is also one known former eruption point, Volcanic Hill (also known as Greek Hill), which is located in the north-west portion of PSP 88.

Distinct alluvial terraces of the Werribee River are located on the western margin of PSPs 88 and 91. There are also portions of alluvial terrace / alluvial flats located adjacent to portions of Skeleton Creek and Dry Creek in PSPs 89 and 90. These alluvial terraces are likely to be highly sensitive for Aboriginal cultural heritage. There are portions of rock outcrop and escarpment (including potential for rock overhangs) along sections of Dry Creek and Skeleton Creek in PSPs 89 and 90.

The southern portion of PSP 91 is located on the northern edge of the Werribee Delta Alluvium, which comprises sand and gravel sediments discharged by the Werribee River. The Werribee Delta Alluvium fills a palaeo-valley that was cut into the volcanic plain during times of low sea level. The soils comprise up to a few meters of sand and gravel alluvial deposits overlying older basalt parent material.

The study area has been almost entirely cleared of original vegetation and variously used for grazing, cultivation and horticulture (market gardening has been particularly extensive in the southern portion of PSP 91, which is situated on the Werribee Delta Alluvium). There are very small patches of possible remnant vegetation, particularly in pockets along creek corridors.

Although the GeoVic mapping shows this area as Unnamed Dune, it is actually the Werribee Delta Alluvium.
5.8.3 Drainage and Water Resources

The Werribee River, a large 5-order drainage line, is located on the western margin of the study area. There are also a number of mid and low order drainage lines crossing through the study area generally in a north-west to south-easterly direction, including Dry Creek, Davis Creek and Skeleton Creek.

There are numerous wetlands and former wetlands within the study area, most of which are located in natural depressions in the volcanic plain.
Figure 4 – Plan showing geological formations within the Study Area. Source: “GeoVic”, Department of Primary Industries.
5.8.4 Vegetation

Published information on vegetation and biodiversity is included on the Victorian Resources Online website (VRO). It provides a good indication of the prevailing vegetation patterns prior to European settlement and clearance of the land. For the purposes of showing the general patterns of vegetation across the study area, the VRO 1750 Vegetation Communities (EVC) Map relevant to the study area is shown on Figure 5 and 6.

The current EVCs within the study area are:

- 125 Plains Grassy Wetland;
- 132 Plains Grassland
- 55 Plains Grassy Woodland
- 56 Floodplain Riparian Woodland

Comparison of the 1750 (modelled) and 2005 (current) EVC (Figure 8) extent indicates that the majority of the Plains Grassland/Plains Grassy Woodland has been removed and only small pockets of these vegetation types are likely to remain. Analysis of current aerial photographs of the study area confirms that, with the exception of pockets of native vegetation along the Werribee River and areas of intact native grasses, the original vegetation has been largely cleared off the land.
Figure 5 – Department of Environment & Sustainability, Victorian Resources Online. 1750 Ecological Vegetation Communities (EVC's) identified within the study area.
Figure 6 – Department of Environment & Sustainability, Victorian Resources Online. 2005 Ecological Vegetation Communities (EVC’s) identified within the study area
5.8.5 Landforms within the study area

The vast majority of the study area is dominated by a broad volcanic plain (Figure 7). The Werribee River, a permanent higher order drainage line, is located on the western margin of the study area and has distinct alluvial terracing associated with it. Skeleton creek, a mid-order drainage line runs on an approximate north-south alignment between Derrimut Rd and Woods Rd. Dry Creek, also a mid-order drainage line runs on a north-west to south-east alignment through PSP 89 & 90. Dry Creek meets Skeleton Creek to form a confluence. The third mid-order creek running through the study area is Davis Creek which runs on an approximate north south alignment through PSP 88 & 91. In general, slope gradients are very gentle across the study area.
Figure 7: Landforms within the study area
5.9 Landuse History

5.9.1 Land Use History in the West Region

Andrew Long and Associates completed a generalised land use history for the West Growth Areas. The following is a brief summary of the findings for the region:

Early settlement in the general Werribee area between 1850 to 1890 was largely by pastoralists, namely the Chirnside family who held a large sheep run in the area. By 1900 agriculturalism was beginning to spread throughout the Western region and by the 1940’s dairy farming, market gardening, fruit growing and poultry farming had also been introduced across the region. Due to the dry climate of the western region crops were limited initially to cereals, however, once efficient irrigation systems were introduced other more luxury crops were introduced across the area.

5.9.2 Landuse disturbance history in the study area

The primary landuse of the study area is pastoral and agricultural with some market gardening, particularly in the southern part of PSP 91. Throughout the PSPs several land disturbance activities have occurred. These disturbances have been confirmed by analysis of historical aerial photography (Figure 8 & 9).

Prior land-use disturbances identified during our analysis of current and historical aerial photographs are listed below and are shown on Figures 10-13.

- Repeated ploughing in areas of crop production;
- Clearing of native vegetation across the majority of the study area;
- Construction of fences and cattle yards;
- Construction of houses and out buildings;
- Construction of driveways and tracks providing access throughout the farm;
- Excavation of Dams within the study area;
- Minor channeling for drainage control; and
- Installation of market gardening.
Figure 8: Historic aerial photographs of PSP 88 and 89
Figure 9: Historic aerial photographs of PSP 90 and 91
Figure 10: Disturbance in PSP 88
Figure 11: Disturbance in PSP 89
Figure 12: Disturbance in PSP 90
Figure 13: Disturbance in PSP 91
5.11 Desktop Assessment Conclusions

The desktop research described in the preceding chapters of this assessment has been used to identify prevailing Aboriginal site settlement patterns within the region and in the local area surrounding PSPs 88-91.

Analysis of historical aerial photographs, 19th century maps and plans and early accounts of Aboriginal settlement allowed us to identify original environmental characteristics of the area. This was useful in identifying areas of past ground disturbance that may have affected the integrity and significance of archaeological deposits. It also assisted in identifying portions of the study area that would have been attractive places for Aboriginal occupation and use (ie. due to close proximity of water and diverse resources).

The VAHR site distribution patterns and regional studies summarised above indicate the dominant site types within the Tarneit study areas are likely to comprise artefact scatters, sub-surface stone artefact deposits, scarred trees and isolated artefact occurrences. There is also potential for quarry sites (at rock outcrops/escarpments, eruption points and on river gravel sources) and a low potential for burials (on aeolian and alluvial landforms with relatively deep soft soils).

The distribution, density and size of known Aboriginal archaeological sites is largely dependent on environmental context, post-contact land use and erosion / site formation processes. There is likely to be a correlation between fresh water sources and Aboriginal archaeological deposits. Numerous studies have indicated a higher density and frequency of deposits exist in close proximity to water sources and the level of density and frequency increases with higher stream orders. There is likely to be a higher density and frequency of archaeological deposits in close proximity to former wetlands.
Stone sources are also likely to be associated with a higher density and frequency of archaeological deposits reflecting on-source primary reduction. Resource intersection zones, stream confluences and transitional vegetation may also be associated with a higher density and frequency of archaeological deposits. Other factors (as yet untested in the region) in archaeological potential may include slope gradient, aspect, landform and soil landscape type.

Past disturbance is also likely to have affected the potential for and integrity of archaeological deposits in any given area. Areas that have been permanently or regularly inundated (such as large swamps) may also have a lower level of potential because they were unsuitable for occupation and use.

### 5.12 Predictive Model

Drawing on the desktop research and previous archaeological survey work, we make the following predictions:

- Stone artefact deposits are likely to be found at varying densities across most landforms within the PSPs;

- Higher density artefact scatters and sub-surface deposits may be found on crest landforms and in association with eruption points;

- Higher density artefact scatters and sub-surface deposits are likely to be found adjacent to creeks or wetlands. Artefact density and frequency is likely to increase with higher stream order (for creeks) and permanence (for wetlands);

- The density and complexity of artefact scatters and sub-surface deposits is likely to decrease with distance from water sources and wetlands;

- Higher density of artefact scatters and sub-surface deposits in close proximity to stone sources (either outcrops or river pebble sources);
- A particularly high density and complexity of archaeological deposits at major confluences and resource intersection zones;
- Stable aeolian and alluvial terrace landforms are likely to have deeper profiles and better preservation conditions. These landforms may contain greater archaeological integrity;
- Scarred trees may be present within areas containing mature remnant native trees of sufficient age and as isolated mature trees in agricultural settings;
- Rockshelters may be present in areas of outcropping rock escarpment, particularly along creek corridors. Areas of rock overhang sufficient in size to accommodate and shelter a person may have potential to contain occupation deposits;
- Isolated finds may be found anywhere across the landscape;
- Ceremonial places may be present in the landscape, but may not be archaeologically visible; and
- Stone arrangements may be found across the landscape.

Due to the large area covered by the Tarneit PSPs (approx. 4,632 ha), we used MapInfo GIS (Geographical Information System) to develop and map the predictions made regarding archaeological potential. The purpose of the predictive model was to:

- Provide the Growth Areas Authority, individual landowners within the PSP and the Aboriginal community with information about areas of Aboriginal archaeological sensitivity to feed into constraints and opportunities analysis,
- Help inform early PSP planning and design work,
- Provide part of the desktop assessment component of CHMPs, and
- To assist in developing a methodology for complex assessments.

In developing the model, we drew on a number of environmental and disturbance variables that were used to identify areas of varying ‘archaeological sensitivity’.
For the purposes of the model, the term ‘archaeological sensitivity’ is defined as a combination of likely density, integrity and research value of archaeological deposits within any given area.

5.12.1 Factors Included in the Model

The following is a list of variables that contribute to archaeological potential within the Tarneit PSP areas. The variables are ranked in order of importance.

Proximity to water sources.

Proximity to water is one of the key determinants of archaeological potential. In general, sites are larger, more complex and more frequently found in close proximity to water sources. Levels of sensitivity are predicted to increase with higher order drainage lines and more permanent wetlands. Drainage and hydrology patterns have been significantly altered since European settlement in order to retain water in storage dams for agricultural purposes and drain waterlogged areas to open them up for grazing and cultivation. GIS-modelling combined with analysis of topographic maps and historic aerial photos have been used to determine the likely extent of former wetlands and areas prone to flooding.

The level of sensitivity is predicted to increase with higher order drainage lines and more permanent wetlands.

Confluences and resource intersection zones.

Resource intersection zones (i.e. where two watercourses intersect) are considered likely to contain Aboriginal Archaeological evidence, having been consistently identified in archaeological studies and ethnographic investigations as particular foci of occupation and use due to the broader range of resources that could support larger groups and more diverse activities.

The confluences / resource intersection zones are all located adjacent to Werribee River and/or on the Werribee River alluvial terraces and are included in the areas of very high sensitivity.

**Alluvial Terraces.**

These areas are considered highly sensitive because their proximity to higher-order water sources (ie. the Werribee River) increases the potential for higher density artefact scatters and sub-surface deposits (see above). More intact archaeological deposits are likely to survive within these alluvial soils due to their deeper profiles and better preservation. In particular, ethnographic and archaeological studies have indicated that Aboriginal burials are more likely to occur on these landforms.

**Rock Escarpments.**

Rock escarpments are considered highly sensitive as they may contain rock overhangs utilized by Aboriginal people as shelters and as quarries for raw materials used in stone tool manufacture. Basalt rock outcrops along creek and river corridors may also have cultural and mythological values to the Aboriginal community.

Several small areas that have potential to contain rock escarpments (primarily along stream lines of the Dry and Skeleton Creeks).

**Crest Landforms.**

Previous investigations in the area have shown that crest landforms are often associated with a higher density and frequency of archaeological deposits - particularly when they are also located in close proximity to water sources. Crest landforms were delineated using aerial photography, topographic mapping and mapping carried out during the survey. The extent of the crest landforms (including eruption points) was mapped using Map Info GIS software.
Werribee Delta Alluvium.

The Werribee Delta Alluvium is predicted to have an elevated level of archaeological sensitivity because this soil landscape is likely to contain deeper cultural sequences and good preservation conditions in areas that have not been disturbed by market gardening. The delta alluvium also has a slightly higher potential to contain Aboriginal burials, although the potential for burials is still generally low.

Areas of remnant vegetation.

Areas of remnant vegetation are considered archaeologically sensitive because cultural deposits within these areas often have a high level of integrity as they have not been disturbed by past land-uses. These areas also have some potential to contain scarred trees. Areas of potential remnant vegetation were identified by analysing a series of historical aerial photographs of the study area dating back to 1949. For the purposes of our model, areas that have retained vegetation since that time are considered to be areas of possible remnant vegetation. There are only a few isolated small pockets of possible remnant vegetation across the study area.

Areas of cut and fill disturbance.

These areas are considered unlikely to contain Aboriginal archaeological deposits because topsoil units (ie. artefact bearing soil units) have been removed. These areas include roads, dams and the construction of building platforms for houses and sheds. They are considered to have been disturbed.

Areas of market gardening and horticulture.

These areas are considered to have a very low level of archaeological sensitivity because topsoil units have been heavily disturbed by deep ploughing, establishment of garden beds, re-grading and establishment of sub-ground watering systems. These areas may contain Aboriginal cultural deposits but they are likely to have a very low level of integrity and a very low level of scientific significance. If areas of
market gardening are present within close proximity to higher order drainage lines (very high sensitivity), these areas may retain a high level of sensitivity because these areas are also likely to be associated with alluvial terracing and deposits are therefore likely to have significant depth.

Swamps and Wetlands.

Are considered to have a lower level of archaeological potential because they were unfavourable areas for sustained occupation and use (because they were inundated) and are less likely to contain evidence of Aboriginal occupation and use. There is some potential for these areas to contain low densities of cultural material associated with foraging into the wetlands and exploitation of resources.

5.12.2 Factors Not Included in the Predictive Model.

The following variables were not included in the model, because the desktop assessment research and analysis of the local landscape indicated they are unlikely to be factors that affect local archaeological patterning within the subject land.

Previously recorded Aboriginal archaeological sites.

The Aboriginal Heritage Act 2006 & Regulations 2007. It is offence to disturb or destroy Aboriginal sites or objects except where a Permit to Harm has been approved by AAV and/or an approved CHMP allows for the disturbance.

These places/sites have been shown on the sensitivity maps but have not been included as an influence on archaeological sensitivity in the model. This is because most of the sites are surface artefact scatters identified on erosional landforms, in areas of ground exposed by soil disturbance and within areas specifically investigated during previous archaeological studies. Therefore, the current local distribution of known sites is unlikely to accurately reflect the real distribution and nature of sub-surface archaeological deposits.
Areas of ploughing.

Are considered to have a lower level of archaeological sensitivity because the top 20 - 30cm of topsoil has been disturbed by ploughing. These areas may contain Aboriginal cultural deposits but they are likely to have a lower level of integrity and a lower level of scientific significance. It is noted, however, that in deeper soils there is potential for more intact archaeological deposits to survive beneath the plough zone.

Areas of ploughing have not been included in the model because the PSP study areas have been cleared of original vegetation and virtually the entirety of the subject lands have been subject to some level of ploughing in the past. Therefore, because the ploughing has occurred right across the study areas, it does not have an influence on the model.

Stable aeolian landforms.

No stable Aeolian dune landforms were identified within the study areas during the desktop research.

Proximity to stone sources.

Aboriginal stone sources and geological mapping may provide an indication about where raw materials were gathered for making stone tools. Stone sources may occur across the local landscape in the form of boulders and weathered pieces outcropping on valley slopes and on volcanic plains, and gravels and pebbles washed downstream and deposited in alluvial terraces and on gravel bars.

Dominant raw material types in the region include silcrete, quartz, quartzite and chert, with other materials such as basalt, also present.

No specific stone sources or potential stone sources were identified during the desktop research.
Slope Gradient.

The local landscape within the study areas is flat to very gently undulating. There is no steep terrain within these parts of the PSPs. Therefore, slope gradient is unlikely to be a factor influencing archaeological potential.

5.12.3 Predictive Sensitivity Mapping

MapInfo GIS software was used to model and map the predictions surrounding archaeological potential. This allowed us to produce maps that show areas of varying archaeological sensitivity graded from high to disturbed. The modeling and mapping is based on a probabilistic approach, where a combination of traits was used to determine the combined level of potential. The model traits are as follows:

- Areas within 200m of high-order stream = Very High Sensitivity;
- Rock Escarpment = Very High Sensitivity;
- Alluvial terrace landforms = Very High Sensitivity;
- Areas within 200m of mid-order stream = High Sensitivity;
- Crests = Moderate Sensitivity;
- Within 200m of lower-order stream or outer edge of swamp = Moderate Sensitivity;
- Crest and within 200m of former water (including all stream types and swamp) = Increased Sensitivity by One Level;
- Remnant Vegetation = Increased Sensitivity by One Level;
- Werribee Delta Alluvium = Moderate Sensitivity;
- Cut and Fill Disturbance = Disturbed;
- Horticultural/ Market Gardening Disturbance (except where within 200m of a high order watercourse) = Very Low Sensitivity;
• Within Wetland = Very Low Sensitivity; and

• All other areas = Low Sensitivity.

Figure 16 shows the results of the GIS predictive model. The figure shows areas of high potential (dark pink) grading to very low potential and disturbed areas (grey).

It is important to note that the predictive sensitivity mapping is based on the results of desktop research. The accuracy of the modeling and mapping presented in this report should be quite robust, given the amount of archaeological investigation carried out over the last few years in the western growth areas that underpin the predictions made. Therefore, the sensitivity mapping could be used to inform high level PSP design work, particularly in regards to proposed configuration of open space networks, activity centres and key infrastructure such as main roads that need to be established early in the PSP planning and design process.

The predictive modeling and predictive sensitivity mapping will be refined after the standard assessment survey work, particularly to tighten-up identification of sensitive landforms and areas of prior disturbance.

The predictive modeling and predictive sensitivity mapping should be tested during future complex assessments, preferably using systematic landform based test excavation specifically designed to test conclusions made in the predictive modeling and shown on the sensitivity mapping. The model and sensitivity mapping should then be refined (if necessary) and used as the basis for making design decisions at an individual CHMP / development project level in consultation with Aboriginal Affairs Victoria and Aboriginal traditional owner representative groups.

It also important to note that the predictive model and sensitivity mapping does not include predictions about cultural values to the Aboriginal community. Identification of cultural values and places cannot be predicted by a scientific model, they can only be identified during consultation with traditional owner knowledge holders - in this case, the Bunurong, Boonwurrung and Wurundjeri communities.
Figure 14 – Predictive archaeological sensitivity model.
6 STANDARD ASSESSMENT

6.1 Archaeological Survey

6.1.1 Survey Details

The following sections describe the results of the archaeological survey carried out by AHMS between 20th and 27th of July 2011.

The principal aim of the survey was to identify exposed cultural material (i.e. surface sites) and to assess disturbance levels. The survey aimed to identify areas of archaeological potential, landforms, vegetation patterns, geomorphic units and areas of disturbance.

The investigation was also used to assess the extent to which past land-uses may have affected natural soil profiles. This information was used to assess the depth and potential integrity (intactness) of natural soil profiles across the study area and the likely impact of future construction.

The results of the survey were used to help inform PSP planning and design, assist in development of a complex excavation methodology and to inform development of management recommendations for the study area.

6.1.2 Survey Methodology

The archaeological survey was designed to balance a comprehensive and representative sample of landforms across the study area and landowner requirements. The survey team included Emma Rae, Jim Wheeler, Adrian Burrow, Shannon Sutton, Paul Freestone and Thomas Lubbock from AHMS. Representatives of each Registered Aboriginal Party Applicant or Traditional Owner Group were present throughout the survey (the participants are listed in the Table 6 below):
Table 6: Survey Participants.

<table>
<thead>
<tr>
<th>Date</th>
<th>Wurundjeri TLCCHC</th>
<th>Bunurong Land Council</th>
<th>Boonwurrung Foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td>20/07/11</td>
<td>Shane Nicholson</td>
<td>Dan Turnbull</td>
<td>Gheran Steel</td>
</tr>
<tr>
<td>21/07/11</td>
<td>Naomi Zukanovic</td>
<td>Dan Turnbull</td>
<td>Gheran Steel</td>
</tr>
<tr>
<td>22/07/11</td>
<td>Ron Jones</td>
<td>Dan Turnbull</td>
<td>Gheran Steel</td>
</tr>
<tr>
<td>25/07/11</td>
<td>Ron Jones</td>
<td>No Representative available</td>
<td>Robert Anthony</td>
</tr>
<tr>
<td>26/07/11</td>
<td>Ron Jones</td>
<td>No Representative available</td>
<td>Robert Anthony</td>
</tr>
<tr>
<td>27/07/11</td>
<td>Naomi Zukanovic</td>
<td>No Representative available</td>
<td>Robert Anthony</td>
</tr>
</tbody>
</table>

The standard assessment involved a five stage approach:

**Stage 1** - AHMS sought contact with all landowners who had agreed to be a part of the study to arrange a date for the archaeological survey to be conducted. AHMS also sought advice from each landowner on access issues and discussed requirements which some landowners had stipulated. Thirty-seven landowners who had agreed to be part of the study were contactable. This stage of work was used to define the scope of the standard assessment, including which parcels of land would be included in the investigation. A map showing the participating landholdings and is shown on Figure 15 and the property details are shown on Table 5.

**Stage 2** - An analysis of topographic maps and aerial photographs of the applicable properties was undertaken prior to the survey to identify landforms across the
study area and to identify areas of ground surface exposure in the form of tracks, unsealed roads, dams, cuttings and areas of ground exposure. These areas were targeted during the survey because they provided an opportunity to identify surface artefact scatters and to investigate exposed soil profiles.

**Stage 3** - The first step we took when entering each property was to drive around the property (where the landowner had given permission) to familiarise ourselves with the landscape and identify mature/old growth native trees and areas of ground surface visibility. This assisted in scoping out our approach to survey in each property.

**Stage 4** - Following the initial scoping work surveying was conducted on foot. The team walked in transects with a spacing of 5 metres between each team member.

The survey used the information obtained from analysis of aerial photographs and topographic maps (Stage 2), as well as the initial scoping work (Stage 3), to survey areas of ground surface visibility (to identify surface artefact scatters) and mature/old growth trees (to identify scarred trees). Areas of erosion and ground exposure were examined for archaeological evidence such as stone artefacts, charcoal and shell. Ground surfaces and cuttings were also examined to determine the degree of soil disturbance, erosion and potential for archaeological deposits below current ground. Mature trees were examined for evidence of scarring, axe marks and/or old footholds.

**Stage 5** - Surface artefact scatters found during the surveys were recorded in detail using a pro-forma developed for field recording. The location and extent of each surface site was recorded with Leica CS15 Differential GPS which provides sub 1 meter accuracy. Field notes were made and photographs taken to document landscape configuration, soil profiles, soil disturbance, ground visibility and vegetation types. During the survey we also sought to relocate previously registered Aboriginal places using a DGPS and the co-ordinates supplied for each place.
6.1.3 Survey Coverage

A total of 37 properties were surveyed within the study area (Figure 17). Details of the accessible properties and influences on survey coverage for each property are outlined in Table 7. Properties to the south of the Werribee River in the southern portions of PSP 91 were not included in the standard assessment at the request of GAA.

Survey coverage aimed to balance sampling of areas of ground surface exposure on these properties with detailed coverage of areas of high to very high sensitivity indicated in the predictive model developed during the desktop assessment. The survey also aimed to sample each of the landform types, providing coverage of crest, slope and floodplain landforms. Survey was comprehensive in the areas of highest predicted sensitivity along the margins of Skeleton Creek, Dry Creek and the Werribee River.
Table 7 - Survey Coverage Data

<table>
<thead>
<tr>
<th>ID</th>
<th>PS</th>
<th>Address</th>
<th>Ground Surface Visibility</th>
<th>Accessibility</th>
<th>Artefacts present</th>
</tr>
</thead>
<tbody>
<tr>
<td>17338</td>
<td>91</td>
<td>12 Davis Road</td>
<td>&lt; 1% Market garden crop</td>
<td>Limited due to crop</td>
<td></td>
</tr>
<tr>
<td>11352</td>
<td>91</td>
<td>22 Davis Road</td>
<td>&lt; 1% Market garden crop</td>
<td>Limited due to crop</td>
<td></td>
</tr>
<tr>
<td>11352</td>
<td>91</td>
<td>Davis Road</td>
<td>&lt; 1% Market garden crop</td>
<td>Limited due to crop</td>
<td></td>
</tr>
<tr>
<td>11493</td>
<td>91</td>
<td>Hogans Road</td>
<td>&lt; 2% Some exposure caused by track along creek</td>
<td>100%</td>
<td>Tarneit 6</td>
</tr>
<tr>
<td>11494</td>
<td>91</td>
<td>Hogans Road</td>
<td>&lt;1%, some exposure along tracks</td>
<td>100%</td>
<td>Tarneit 1,2,3,4,5</td>
</tr>
<tr>
<td>12064</td>
<td>91</td>
<td>23 Davis Road</td>
<td>&lt; 1% dense grass cover, only exposure under trees and on tracks</td>
<td>Limited due to crop in parts</td>
<td>Tarneit 8,9,10,11</td>
</tr>
<tr>
<td>12446</td>
<td>88</td>
<td>1245 Sayers Road</td>
<td>&lt; 1% dense grass cover, some exposure along Werribee River</td>
<td>100%</td>
<td>Tarneit 12,13,14</td>
</tr>
<tr>
<td>12446</td>
<td>91</td>
<td>Sayers Road</td>
<td>&lt; 1% dense grass cover, only exposure under trees and on tracks</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>12445</td>
<td>91</td>
<td>1170 Sayers Road</td>
<td>&lt; 1% dense grass cover, only exposure under trees and on tracks</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>12446</td>
<td>91</td>
<td>1180 Sayers Road</td>
<td>&lt; 1% dense grass cover, only exposure under trees and on tracks</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>12445</td>
<td>91</td>
<td>1160 Sayers Road</td>
<td>&lt; 1%, dense grass cover, some exposure in farm tracks</td>
<td>100%</td>
<td>Tarneit 16</td>
</tr>
<tr>
<td>12445</td>
<td>91</td>
<td>990 Sayers Road</td>
<td>&lt;2%, very dense grass cover, some exposure along drainage line and on farm tracks</td>
<td>100%</td>
<td>Tarneit 15</td>
</tr>
<tr>
<td>12250</td>
<td>91</td>
<td>Leakes Road</td>
<td>&lt;5%, dense grass in paddocks but some exposure in accessible ploughed area, tracks, and around dam</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>13320</td>
<td>90</td>
<td>80 Woods Road</td>
<td>5-10% dense grass cover, only exposure under trees and on tracks</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>PS</td>
<td>Address</td>
<td>Ground Surface Visibility</td>
<td>Accessibility</td>
<td>Artefacts present</td>
</tr>
<tr>
<td>-------</td>
<td>----</td>
<td>----------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>17948</td>
<td>90</td>
<td>Woods Road TRUGANINA VIC 3029</td>
<td>&lt;1%, dense grass cover</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>17235</td>
<td>90</td>
<td>Doherty's Road TRUGANINA VIC 3029</td>
<td>&lt;1%, limited exposure on tracks</td>
<td>Limited due to crop</td>
<td></td>
</tr>
<tr>
<td>12077</td>
<td>90</td>
<td>Derrimut Road TARNEIT VIC 3029</td>
<td>&lt;1%, dense grass cover</td>
<td>100%</td>
<td>Tarneit 17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,47,48,49,52</td>
</tr>
<tr>
<td>12076</td>
<td>90</td>
<td>Derrimut Road TARNEIT VIC 3029</td>
<td>20-30% dense grass cover &amp; crop in areas, some good exposure along creeks</td>
<td>Limited due to crop in parts</td>
<td>Tarneit 18</td>
</tr>
<tr>
<td>18743</td>
<td>90</td>
<td>Woods Road TRUGANINA VIC 3029</td>
<td>&lt;1% overall some exposure along drainage lines (40%) and areas not under crop</td>
<td>Limited due to crop in parts</td>
<td>Tarneit 34</td>
</tr>
<tr>
<td>18153</td>
<td>90</td>
<td>Leakes Road TARNEIT VIC 3029</td>
<td>&lt;1%, dense grass cover</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>18153</td>
<td>90</td>
<td>Leakes Road TRUGANINA VIC 3029</td>
<td>&lt;1%, dense grass cover</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>18153</td>
<td>90</td>
<td>Doherty's Road TRUGANINA VIC 3029</td>
<td>&lt;1%, dense grass cover</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>18153</td>
<td>90</td>
<td>Doherty's Road TARNEIT VIC 3029</td>
<td>&lt;1%, dense grass cover</td>
<td>100%</td>
<td>Tarneit 33, 50, 51</td>
</tr>
<tr>
<td>12249</td>
<td>89</td>
<td>Leakes Road TARNEIT VIC 3029</td>
<td>20-30% dense grasses but good exposure around basalt floaters and collapsing creek bank</td>
<td>Limited due to crop in parts</td>
<td>Tarneit 35,36,37,38,39,40,41,42,43,44,45,46</td>
</tr>
<tr>
<td>11966</td>
<td>90</td>
<td>Boundary Road TARNEIT VIC 3029</td>
<td>&lt;1% very dense grass, some limited exposure along creek</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>12250</td>
<td>89</td>
<td>820 Leakes Road TARNEIT VIC 3029</td>
<td>&lt;5% dense grass cover, few patches of exposure where cropped ground is not grassed over</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>12516</td>
<td>89</td>
<td>Tarneit Road TARNEIT VIC 3029</td>
<td>&lt;5% dense grass cover, few patches of exposure where cropped ground is not grassed over</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>PS</td>
<td>Address</td>
<td>Ground Surface Visibility</td>
<td>Accessibility</td>
<td>Artefacts present</td>
</tr>
<tr>
<td>--------</td>
<td>----</td>
<td>---------------------------</td>
<td>----------------------------------------------------------------</td>
<td>---------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>12515</td>
<td>6</td>
<td>Tarneit Road TARNEIT VIC 3029</td>
<td>&lt;1%, dense grass cover, only exposure around gates</td>
<td>Limited in part due to easement works</td>
<td></td>
</tr>
<tr>
<td>12515</td>
<td>7</td>
<td>1030 Tarneit Road TARNEIT VIC 3029</td>
<td>&lt;1%, dense grass cover, only exposure near house and around gates</td>
<td>Limited in part due to easement works</td>
<td></td>
</tr>
<tr>
<td>12081</td>
<td>9</td>
<td>Dohertys Road TARNEIT VIC 3029</td>
<td>0%, completely overgrown with high dense grasses, no track ways</td>
<td>Limited by dense grass</td>
<td></td>
</tr>
<tr>
<td>12223</td>
<td>3</td>
<td>85 Kenning Road TARNEIT VIC 3029</td>
<td>10 - 20%, good exposure along dry creek and around dam, dense grass over paddocks</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>12516</td>
<td>2</td>
<td>1150 Tarneit Road TARNEIT VIC 3029</td>
<td>10-20%, good exposure along track way surrounding paddock, dense grass throughout rest of paddock</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>11967</td>
<td>9</td>
<td>1411 Boundary Road MOUNT COTTRELL VIC 3024</td>
<td>&lt;1% dense grass cover over whole property</td>
<td>Gates locked, unable to access parts of property</td>
<td></td>
</tr>
<tr>
<td>11967</td>
<td>8</td>
<td>1391 Boundary Road MOUNT COTTRELL VIC 3024</td>
<td>&lt;1% dense grass cover - viewed from property boundary</td>
<td>Limited due to landowner being unavailable at arranged time</td>
<td></td>
</tr>
<tr>
<td>11967</td>
<td>7</td>
<td>1371 Boundary Road MOUNT COTTRELL VIC 3024</td>
<td>&lt;1% dense grass cover in each paddock - some exposure on sheep tracks and around house</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>11967</td>
<td>6</td>
<td>685 Davis Road MOUNT COTTRELL VIC 3024</td>
<td>50%, good exposure over ploughed ground, no exposure around sheds due to manicured lawn and vast gravelled area</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>12083</td>
<td>4</td>
<td>1503 Dohertys Road MOUNT COTTRELL VIC 3024</td>
<td>&lt;1%, dense grass cover</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>12145</td>
<td>9</td>
<td>105 Gard Road MOUNT COTTRELL VIC 3024</td>
<td>30%, exposure in horse paddocks, dense grass cover in remaining areas</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
### ABORIGINAL CULTURAL HERITAGE ASSESSMENT

<table>
<thead>
<tr>
<th>ID</th>
<th>PS P</th>
<th>Address</th>
<th>Ground Surface Visibility</th>
<th>Accessibility</th>
<th>Artefacts present</th>
</tr>
</thead>
<tbody>
<tr>
<td>120824</td>
<td>88</td>
<td>1383 Doherty Road MOUNT COTTRELL VIC 3024</td>
<td>20%, good exposure under trees around house, no exposure in back paddock which is reinstated native grasses</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
Figure 15: Properties surveyed within the study area.
6.1.4 General Observations

The key landform features of the study area are the Werribee River, Skeleton Creek and Dry Creek and their associated corridors and terraces. Areas of rock outcropping were observed along these watercourses, particularly along Skeleton and Dry Creeks. Native vegetation was limited to small pockets along the Werribee River where several mature river gums were observed. No cultural scars were observed on the mature trees. Areas of probable remnant native grassland were also observed growing densely in some paddocks.

The survey was used as an opportunity to improve our model of the extent and nature of past ground disturbance which had previously been assessed from historical and recent aerial images.

Disturbance within the study area was extensive and caused by a whole range of factors. The following specific disturbances to the study area were observed during the survey:

- Furrowing and ploughing for cultivation (wheat);
- Furrowing and ploughing for market gardening;
- Construction of dams;
- Construction of houses and out-buildings;
- Construction of formal gardens;
- Construction of sheds for farm activities;
- Construction of major and minor roads throughout the study area;
- Construction of driveways and path network;
- Construction of farm tracks;
• Removal of basalt floaters from paddocks;
• Stockpiling of basalt floaters in un-cropped areas;
• Installation of boundary fences; and
• Deposition of fill material along creek corridor.

These impacts have been previously discussed in the desktop assessment and are shown on Figures 10-13. It is considered unlikely that archaeological material will be located within areas of cut and fill disturbance (shaded red on Figures 10-13) because these areas comprise substantially modified and/or highly disturbed ground resulting from cut and fill for construction of dams and buildings. This is likely to have resulted in removal of archaeological deposits from these parts of the study area.

6.1.5 Artefact Scatters

Fifty new Aboriginal Places were recorded during the archaeological survey of the study area. The locations of these Aboriginal Places are outlined in figures 16-25. Details of the Aboriginal places found during the survey are also presented below. Despite our attempt to relocate the previously registered places within the study area, none of these were relocated. Factors such as very low ground surface visibility, difficulty accessing cropped areas and erosion along creek corridors influenced our ability to relocate these artefacts. Some of the previously recorded artefact scatters would have also been removed from the area during previous archaeological investigations.

PLEASE NOTE ADDITIONAL AMENDMENTS WILL BE REQUIRED TO THIS RESULTS CHAPTER ONCE VAHR NUMBERS ARE RECEIVED FROM AAV
Figure 16: Key to figures 19-27
Figure 17: Tarneit 1-10
Figure 18: Tarneit 12-14
Figure 19: Tarneit 15
Figure 20: Tarneit 16
Figure 21: Tarneit 19-32
Figure 23: Tarenit 35-45
Figure 24: Tarneit 46
Figure 25: Tarneit 17,18,25,26, 33, 47-51
Tarneit 1 - PSP91.

Isolated silcrete stone artefact found on a track within a grazing paddock on property 114940 (Figure 26).

Tarneit 2 - PSP91.

Isolated silcrete stone artefact found on a track within a grazing paddock on property 114940 (Figure 26).

Tarneit 3 - PSP91.

Isolated silcrete stone artefact found on a track within a grazing paddock on property 114940 (Figure 26).

Tarneit 4 - PSP91.

Isolated silcrete stone artefact found on a track within a grazing paddock on property 114940 (Figure 26).
Tarneit 5 - PSP91.

Scatter of four stone artefacts found within an area of exposure within a paddock on property 114940 (Figure 27). Two silcrete distal flakes and two quartz flakes present.

Tarneit 6 - PSP91.

Scatter of 17 stone artefacts (Figure 28), located within an area of exposure close to the confluence of the Werribee River and Davis Creek. Artefact details provided in Table 8 below.
Table 8: Artefacts, Tarneit 6.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Flake</td>
<td>2 positive and 1 negative scar</td>
</tr>
<tr>
<td>D</td>
<td>Silcrete</td>
<td>Core</td>
<td>Numerous scars - exhausted</td>
</tr>
<tr>
<td>E</td>
<td>Red Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Red Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Numerous scars</td>
</tr>
<tr>
<td>H</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Quartz</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>Silcrete</td>
<td>Scraper</td>
<td>Multiple scar &amp; retouch</td>
</tr>
<tr>
<td>M</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>Silcrete</td>
<td>Scraper</td>
<td>retouch</td>
</tr>
<tr>
<td>P</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>Q</td>
<td>Quartz</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
</tbody>
</table>

Figure 28: Representative sample of artefacts from Tarneit 6

Please note Tarneit 7 was deemed to not be a stone artefact during post survey analysis.
Tarneit 8 - PSP 91.

Two stone artefacts, one quartz flake and one possibly rubbed basalt cobble (Figure 29) located in an exposed area, directly adjacent to market garden crop located on property 120648.

![Artefacts composing Tarneit 8](image)

Tarneit 9 - PSP 91.

A stone artefact scatter consisting of eight artefacts (Table 9, Figure 30), located in an area of exposure, adjacent to market garden crop.

Table 9: Artefacts Tarneit 9.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Quartzite</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Quartz</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Quartz</td>
<td>Flake</td>
<td></td>
</tr>
</tbody>
</table>
Tarneit 10 - PSP 91.

Two stone artefacts, one silcrete blocky flake and one quartz blocky flake (Figure 31), located within a plough zone on property 120648.

Tarneit 11 - PSP 91.

One isolated silcrete core (Figure 32) located on a track way on property 120648.
Figure 32: Artefact in Tarneit 11

Tarneit 12 - PSP 88.

One isolated silcrete longitudinal flake, with numerous scars and a pronounced bulb of percussion, located within an eroding section of alluvial terrace on property 124460.

Tarneit 13 - PSP 88.

One isolated silcrete flake protruding from eroding river bank on property 124460.

Tarneit 14 - PSP 88.

A scatter of ten stone artefacts (Table 10, Figure 33) located on a high bluff (edge of rise) above Werribee River, amongst rock outcropping.

Table 10: Artefacts Tarneit 14.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Linear blade</td>
<td>Broken</td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Linear flake</td>
<td>Retouch</td>
</tr>
<tr>
<td>D</td>
<td>Quartzite</td>
<td>Primary flake</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Silcrete</td>
<td>Linear flake</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Silcrete</td>
<td>Linear flake</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Pronounced bulb</td>
</tr>
<tr>
<td>H</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Debitage</td>
</tr>
<tr>
<td>I</td>
<td>Silcrete</td>
<td>Core</td>
<td>Exhausted</td>
</tr>
<tr>
<td>J</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
</tbody>
</table>
Figure 33: Representative sample of artefacts from Tarneit 14

Tarneit 15 - PSP 91.

Two stone artefacts (Figure 334) located on property 124455 in an open area with 100% surface visibility, surrounding fields have near zero visibility due to long grass. One quartzite flake with possible retouch and one quartz flake.

Figure 34: Artefacts in Tarneit 15

Tarneit 16 - PSP91.

One quartzite flake (Figure 35) located on track which crosses the creek on property 124458. Artefact likely to have been deposited by flood waters.
An extensive scatter of artefacts found to be eroding out of a track between Dry Creek and Skelton Creek on Property 120770. Given that this area is at the confluence of two creeks it is likely to have been subject to continuous occupation. A representative sample of artefacts were recorded (Table 11) and photographed (Figure 36).

Table 9: Artefacts Tarneit 17.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
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<tbody>
<tr>
<td>A</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Quartzite</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td>Some use wear</td>
</tr>
<tr>
<td>H</td>
<td>Quartzite</td>
<td>Angular Fragment</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>Quartzite</td>
<td>Angular Fragment</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Quartzite</td>
<td>Angular Fragment</td>
<td></td>
</tr>
</tbody>
</table>
An extensive scatter of artefacts found to be eroding out of a track to the east of Skeleton creek on property 120770. This artefact scatter is likely to be continuous with Tarneit 17. A representative sample of artefacts were recorded (Table 12) and photographed (Figure 37).

Table 12: Artefacts Tarneit 18.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>Q</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>U</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
</tbody>
</table>
V | Quartz | Flake Fragment

Figure 37: Representative sample of artefacts from Tarneit 18

Tarneit 19 - PSP 90.

One isolated quartz flake fragment (Figure 38) located in an area of exposure within paddock on property 120770.

Figure 38: Tarneit 19

Tarneit 20 - PSP 90.

A scatter of artefacts (Table 13, Figure 39) located in an area of exposure under a tree on a rise above Dry Creek.
Table 13: Artefacts Tarneit 20.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Bulb, snapped at bottom</td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Backed blade</td>
<td>Use wear</td>
</tr>
<tr>
<td>D</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
</tbody>
</table>

Figure 39: Representative sample of artefacts in Tarneit 20

Tarneit 21 - PSP 90.

A scatter of artefacts (Table 14, Figure 40) located in an area of exposure under a tree on a rise above Dry Creek.

Table 14: Artefacts Tarneit 21.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Quartzite</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Debitage</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Quartzite</td>
<td>Quartzite</td>
<td>Clear platform</td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Silcrete</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Quartzite</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Quartzite</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>Quartzite</td>
<td>Flake</td>
<td></td>
</tr>
</tbody>
</table>
Figure 40: Representative sample of artefacts from Tarneit 21

Tarneit 22 - PSP 22.

A scatter of silcrete artefacts exposed under a tree on the rise above Dry Creek. A fragment of marine shell was also found amongst the stone artefacts (Figure 41).

Figure 41: Marine shell, part of Tarneit 22

Tarneit 23 - PSP 90.

Isolated quartz flake (Figure 42) found in an area of exposure close to Dry creek.
Figure 42: Tarneit 23

Tarneit 24 - PSP 90.

Isolated Silcrete flake found in an area of exposure beneath a tree on property 120770 (Figure 43).

Figure 43: Tarneit 24

Tarneit 25 - PSP 90.

A quartzite core and quartzite flake (Figure 44), located on the edge of a farm track.
Figure 44: Tarneit 25

Tarneit 26 - PSP 90.

Three stone artefacts (Figure 45) located on a track way, 2 silcrete artefacts, 1 x quartzite flake.

Figure 45: Tarneit 26

Tarneit 27 - PSP 90.

One quartzite and one silcrete flake (Figure 46) located on a track way on property 120770.

Figure 46: Tarneit 27
Tarneit 28 - PSP 90.

Small scatter of four stone artefacts (Figure 47) located on a trackway. One silcrete core, 2 silcrete flakes and 1 quartzite flake.

![Figure 47: Tarneit 28](image1)

Tarneit 29 - PSP 90.

A small scatter of three stone artefacts located on a track way on property 120770. One quartz flake, one silcrete cortical flake, one quartzite flake (Figure 48).

![Figure 48: Tarneit 29](image2)

Tarneit 30 - PSP 90.

One quartzite core (Figure 49) located on a track way within a pastured field on property 120770.
Figure 49: Tarneit 30

Tarneit 31 - PSP 90.

Two silcrete flakes located on a track way in a pastured field on property 120770 (Figure 50).

Figure 50: Tarneit 31

Tarneit 32 - PSP 90.

A scatter of seven stone artefacts (Table 15, Figure 51) located on a bluff above Dry Creek.
Table 15: Artefacts Tarneit 32.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Quartzite</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Quartzite</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Quartzite</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
</tbody>
</table>

Figure 51: Tarneit 32

Tarneit 33 - PSP 90.

An extensive scatter of artefacts associated with a distinct area of rock outcropping which overhangs a body of water (Figure 52). Artefacts were primarily located on the rocks and also along the slope above the rock outcropping. Over fifty artefacts were noted and a representative sample was recorded (Table 16) and photographed (Figure 53). The whole rock outcrop has been recorded as Tarneit 33 due to its prominence in the landscape and its significance to the Aboriginal representatives present during the survey.
Table 16: Artefacts Tarneit 33.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td>1 negative scar</td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Hinge termination</td>
</tr>
<tr>
<td>C</td>
<td>Quartzite</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Quartzite</td>
<td>Debitage</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Quartzite</td>
<td>Debitage</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Silcrete</td>
<td>Debitage</td>
<td>2 negative scars</td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Blade</td>
<td>Broken</td>
</tr>
<tr>
<td>H</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Silcrete</td>
<td>Distal flake</td>
<td>4 negative scars</td>
</tr>
<tr>
<td>J</td>
<td>Silcrete</td>
<td>Proximal flake</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Silcrete</td>
<td>Flake</td>
<td>3 negative scars</td>
</tr>
<tr>
<td>L</td>
<td>Silcrete</td>
<td>Debitage</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Quartzite</td>
<td>Debitage</td>
<td>Bulb</td>
</tr>
<tr>
<td>N</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
</tbody>
</table>

Figure 52: Tarneit 33, showing prominent outcropping rock
Figure 53: Top and bottom, representative sample of artefacts in Tarneit 33

Tarneit 34 - PSP 90.

One isolated silcrete artefact with two flake scars, some retouch and use wear (Figure 54), located along an ephemeral drainage channel on property 187432.
Tarneit 35 - PSP 90.

One silcrete flake (Figure 55) found eroding from creek bank on property 122499.

Figure 55: Tarneit 35

Tarneit 36 - PSP 90.

A course silcrete like core exhibiting flake scars (Figure 56) which is not a local stone source, this object is likely to be a manuport.

Figure 56: Tarneit 36

Tarneit 37 - PSP 90.

A scatter of artefacts (Table 17, Figure 57) located in associated with a rock outcrop at the top of a creek bank (Dry Creek) (Figure 58). The rock outcropping in this area is circular in shape and is likely to have been used as a natural shelter or
wind break. The area within this circular feature is dense with grass and therefore visibility is limited, however, on each area of exposure artefacts were present.

Figure 57: Circular rock outcropping associated with Tarneit 37

Figure 58: Representative sample of artefacts from Tarneit 37
Table 17: Artefacts Tarneit 37.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td>Prominent bulb</td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Silcrete</td>
<td>Distal flake fragment</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Silcrete</td>
<td>Meidal flake fragment</td>
<td>1 negative scar</td>
</tr>
<tr>
<td>F</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td>5% cortex</td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Medial flake fragment</td>
<td>30% cortex</td>
</tr>
<tr>
<td>H</td>
<td>Silcrete</td>
<td>Proximal flake fragment</td>
<td>5 negative scars</td>
</tr>
</tbody>
</table>

Tarneit 38 - PSP 90.

A scatter of artefacts (Table 18, Figure 59) along the bank of Dry Creek. Artefacts are likely to have originated on the rise above the creek but have eroded/washed down onto the basalt outcropping below. A representative sample of artefacts was recorded and photographed.

Table 18: Artefacts Tarneit 38.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Crushed platform</td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Flat platform</td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Debitage</td>
<td>30% cortex</td>
</tr>
<tr>
<td>D</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Quartzite</td>
<td>Core</td>
<td>10 negative scars</td>
</tr>
<tr>
<td>F</td>
<td>Silcrete</td>
<td>Proximal Flake</td>
<td>Crushed platform</td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Core</td>
<td>6 negative scars</td>
</tr>
<tr>
<td>H</td>
<td>Silcrete</td>
<td>Proximal flake fragment</td>
<td>1 negative scar</td>
</tr>
<tr>
<td>I</td>
<td>Quartzite</td>
<td>Flake Fragment</td>
<td>Proximal</td>
</tr>
</tbody>
</table>
Figure 59: Representative sample of artefacts from Tarneit 38

Tarneit 39 - PSP90.

A scatter of artefacts (Table 19, Figure 60 & 61) along the bank of Dry Creek. Artefacts are likely to have originated on the rise above the creek but have eroded/washed down onto the basalt outcropping below. A representative sample of artefacts was recorded and photographed.

Table 19: Artefacts Tarneit 39.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td>Proximal</td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td>Proximal, 1 negative scar</td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td>Broken</td>
</tr>
<tr>
<td>E</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Broken</td>
</tr>
<tr>
<td>F</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Quartzite</td>
<td>Flake</td>
<td>Proximal</td>
</tr>
<tr>
<td>H</td>
<td>Quartzite</td>
<td>Flake</td>
<td>Proximal, 3 negative scars</td>
</tr>
<tr>
<td>I</td>
<td>Quartzite</td>
<td>Flake</td>
<td></td>
</tr>
</tbody>
</table>
Figure 60: Artefacts distributed across rock outcropping

Figure 61: Representative sample of artefacts from Tarneit 39

Tarneit 40 - PSP 89.

A scatter of artefacts extending along the mid slope of a creek bank (Dry Creek). The artefacts are likely to have been washed down from the slope above (covered in dense grass) and are caught in the cracks and ridges of the rock outcropping in this area. A representative sample was recorded and photographed (Table 20, Figure 62).
Table 20: Artefacts Tarneit 40.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td>Proximal</td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td>Proximal, 1 negative scar</td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Broken</td>
</tr>
<tr>
<td>F</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Broken</td>
</tr>
<tr>
<td>G</td>
<td>Quartzite</td>
<td>Flake</td>
<td>Proximal</td>
</tr>
<tr>
<td>H</td>
<td>Quartzite</td>
<td>Flake</td>
<td>Proximal, 3 negative scars</td>
</tr>
<tr>
<td>I</td>
<td>Quartzite</td>
<td>Flake</td>
<td></td>
</tr>
</tbody>
</table>

Figure 62: Representative sample of artefacts from Tarneit 40

Tarneit 41 – PSP89.

A small scatter of artefacts (Table 21, Figure 63) located on the upper slope of dry creek valley in an area of exposure on property 122499.

Table 21: Artefacts Tarneit 41.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Quartzite</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
</tbody>
</table>
Figure 63: Representative sample of artefacts from Tarneit 41

Tarneit 42 - PSP 89.

Two silcrete flake fragments (Figure 64) located on a farm track on property 122499 within close proximity to Dry Creek.

Figure 64: Tarneit 42

Tarneit 43 - PSP89.

Isolated silcrete flake fragment (Figure 65) with 5 negative scars located on a farm track on property 122499.
Extensive scatter of artefacts located along the slope of Dry Creek. Artefacts were visible in areas of exposure but are likely to be more extensive beneath the dense grasses surrounding the area. A representative sample of artefacts was recorded and photographed (Table 22, Figure 66 & 67).

Table 22: Artefacts Tarneit 44.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Silcrete</td>
<td>Blade</td>
<td>Flat platform</td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Blade</td>
<td>Proximal</td>
</tr>
<tr>
<td>C</td>
<td>Quartz</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Proximal</td>
</tr>
<tr>
<td>E</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td>Proximal, 3 negative scars</td>
</tr>
<tr>
<td>F</td>
<td>Silcrete</td>
<td>Blade</td>
<td>Proximal</td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Cortical platform, 4 negative scars</td>
</tr>
<tr>
<td>H</td>
<td>Quartzite</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Silcrete</td>
<td>Medial Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Silcrete</td>
<td>Flake</td>
<td>Crushed platform</td>
</tr>
<tr>
<td>L</td>
<td>Silcrete</td>
<td>Debitage</td>
<td>6 negative scars</td>
</tr>
<tr>
<td>M</td>
<td>Silcrete</td>
<td>Blade</td>
<td>3 negative scars</td>
</tr>
<tr>
<td>N</td>
<td>Silcrete</td>
<td>Flake</td>
<td>2 negative scars</td>
</tr>
<tr>
<td>O</td>
<td>Quartz</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>Quartz</td>
<td>Flake</td>
<td>Proximal</td>
</tr>
</tbody>
</table>
Figure 66: Cluster of artefacts in Tarneit 44

Figure 67: Representative sample of artefacts from Tarneit 44

Tarneit 45 - PSP 89.

Extensive scatter of artefacts located in areas of exposure along the banks of Dry Creek and extending up the slope of the creek bank into what is now a plough zone.
Over 100 artefacts were sighted in this area and a representative sample was recorded and photographed (Table 23, Figure 69).

Table 23: Artefacts Tarneit 45.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Quartzite</td>
<td>Proximal flake fragment</td>
<td>Flat platform</td>
</tr>
<tr>
<td>B</td>
<td>Silcrete</td>
<td>Proximal flake fragment</td>
<td>Flat platform</td>
</tr>
<tr>
<td>C</td>
<td>Quartz</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Quartzite</td>
<td>Proximal flake</td>
<td>Crushed platform</td>
</tr>
<tr>
<td>E</td>
<td>Quartzite</td>
<td>Proximal blade fragment</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Core</td>
<td>14 negative scars</td>
</tr>
<tr>
<td>H</td>
<td>Silcrete</td>
<td>Medial flake</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Silcrete</td>
<td>Medial flake</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>Quartzite</td>
<td>Distal flake fragment</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Quartz</td>
<td>Proximal flake fragment</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>Silcrete</td>
<td>Proximal flake fragment</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Silcrete</td>
<td>Proximal flake fragment</td>
<td>3 negative scars, flat platform</td>
</tr>
<tr>
<td>N</td>
<td>Silcrete</td>
<td>Flake</td>
<td>4 negative scars, flat platform</td>
</tr>
<tr>
<td>O</td>
<td>Silcrete</td>
<td>Flake</td>
<td>3 negative scars</td>
</tr>
<tr>
<td>P</td>
<td>Quartz</td>
<td>Blade</td>
<td></td>
</tr>
</tbody>
</table>
Figure 69: Sample of artefacts within Tarneit 45

Tarneit 46 - PSP 89.

An isolated silcrete flake (Figure 70) with a pronounced bulb and four negative scars located in close proximity to Dry Creek.

Figure 70: Tarneit 46
Tarneit 47 - PSP 90.

Small scatter of three silcrete flakes (Figure 71) located in an area of exposure near a hedgerow.

![Figure 71: Representative sample of Tarneit 47](image)

Tarneit 48 - PSP 90.

Isolated silcrete flake fragment (Figure 72) located in an area of exposure caused by rabbit furrowing.

![Figure 72: Tarneit 48](image)

Tarneit 49 - PSP 90.

A scatter of artefacts located on exposed sloping ground above Skeleton Creek. A representative sample of artefacts was recorded and photographed (Table 24, Figure 73).
Table 24: Artefacts Tarneit 49.

<table>
<thead>
<tr>
<th>Artefact ID</th>
<th>Raw Material</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Silcrete</td>
<td>Flake</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Quartzite</td>
<td>Flake fragments</td>
<td>4 negative scars</td>
</tr>
<tr>
<td>C</td>
<td>Silcrete</td>
<td>Blade</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Quartzite</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Quartzite</td>
<td>Manuport</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Silcrete</td>
<td>Flake</td>
<td>2 negative scars</td>
</tr>
<tr>
<td>G</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td>2 negative scars</td>
</tr>
<tr>
<td>H</td>
<td>Silcrete</td>
<td>Flake Fragment</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Silcrete</td>
<td>Proximal flake</td>
<td>3 negative scars</td>
</tr>
<tr>
<td>J</td>
<td>Silcrete</td>
<td>Proximal flake</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Silcrete</td>
<td>Flake</td>
<td>5 negative scars</td>
</tr>
</tbody>
</table>

Figure 73: Representative sample of artefacts from Tarneit 49

Tarneit 50 - PSP 90.

Seven artefacts (Figure 74) found eroding from the creek bank of Skeleton Creek. These artefacts were left in situ and not recorded in detail.
Figure 74: Representative sample of artefacts in Tarneit 50

Tarneit 51 - PSP 90.

A small scatter of 4 artefacts found eroding from the creek bank of Skeleton Creek. Two quartzite artefacts, one silcrete and one milky quartz (Figure 75).

Figure 75: Tarneit 51
6.2 Survey Conclusions

The results of the archaeological survey indicate that although there is potential for low density artefact scatters to be distributed across the landscape, there is a higher density and frequency of surface sites in close proximity to watercourses.

The survey has demonstrated that the Werribee River, Davis Creek, Dry Creek and Skeleton creek corridors have a high level of archaeological sensitivity because they contain a high density of Aboriginal places relative to other landforms within the study area. This pattern has been found numerous times during prior regional and local scale assessments. The results of the survey support the predictive model and predictive sensitivity mapping developed during the desktop assessment.

Notwithstanding the above conclusions, it is also important to note that ground surface visibility was generally poor outside the creek corridors - therefore it is likely that surface and sub-surface cultural deposits extend further outside the creek corridors to a greater extent than was detected during the survey. An example of this was Tarneit 45, an artefact scatter located along the bank of Dry Creek. In this case the landowner had recently ploughed the adjacent field right up the break of slope leading to the creek, therefore creating approximately 90% ground surface visibility and the survey team was able to see that the artefact scatter extended well beyond the creek line and into the ploughed field.

A limited number of conclusions regarding likely archaeological patterning were made drawing on the results of survey:

- Ground surface visibility in the PSPs was generally extremely low and was therefore ineffective at determining the nature and density of potential surface Aboriginal cultural material within areas of dense grassland or other ground cover;

- The surface survey was ineffective at detecting the presence, nature or density of sub-surface archaeological material. Sub-surface deposits may be
buried below the modern ground surface with no surface evidence. Surface artefacts may also be re-worked by erosion or ground disturbances and therefore may not necessarily indicate the presence of sub-surface deposits;

- Intact archaeological deposits will only be present in areas that have not been significantly disturbed by European activities. Archaeological deposits within areas that are under cultivation are likely to be heavily disturbed;

- Areas of prior cut and fill disturbance are unlikely to contain Aboriginal cultural heritage, and therefore should be excluded from the scope of complex assessment. All other areas have some potential to contain Aboriginal cultural heritage and should be included in a programme of landform based test excavation as part of the complex assessment. These complex assessments would be carried out by individual landowners on a property by property basis.

- Artefacts are present across the majority of the landforms in the study area, although at varying densities;

- There was a clear pattern of higher density and frequency of surface sites in close proximity to watercourses, particularly at confluences and on the major rivers and creeks. This supports the predictive model developed during the desktop assessment;

- Given these higher densities, alluvial terraces or floodplains associated with these water courses are likely to be highly sensitive for Aboriginal cultural material. The survey also indicated that flat elevated land surfaces in relatively close proximity to permanent water sources also have a high level of archaeological potential;

- Relatively undisturbed portions of alluvial terrace, particularly adjacent to the Werribee River, have clear potential to contain deep high density and highly significant archaeological deposits with archaeological research potential and some local and regional rarity;
• Although density and frequency of surface sites decreases outside the creek corridors, this is partly a function of lower ground surface visibility on the volcanic plain landform;

• No particular pattern of surface sites in proximity to wetlands / former wetlands was detected during the survey, however, this is most likely a result of access restrictions and low ground surface visibility in areas adjacent to wetlands / former wetlands; and

• Although many Mature Eucalypts were examined (particularly along the major creek and river riparian corridors), none contained evidence of scarring.

6.3 Cultural Values

During the survey, the Aboriginal community representatives were consulted about key cultural and landscape values.

The aim of this consultation was to gain an indication of the cultural values which may be relevant to the landscape and to assist in developing a scope for more detailed cultural values assessment during complex assessments.

Cultural values are likely to be associated with but not limited to the following:

• Waterways and wetlands

• Areas of natural habitat (particularly areas of remnant vegetation)

• Habitat of specific plant or animal species that are / were important resources or had spiritual or totemic significance

• Known archaeological / cultural sites

• Old Trees
• Burial Places (including areas that have a higher potential to contain burials, such as soft alluvial soils on terrace landforms)

• Ceremonial sites

• Tracks and routes

• Stone sources

• Hills and high points within the volcanic landscape

• Rock outcrops, particularly outcropping rock along creek corridors

• Places of post contact and contemporary importance / history.

During the survey, the Aboriginal community representatives identified two key places in the landscape that had important cultural values.

The first place was the Werribee River corridor and the surrounding alluvial terraces on property 124460. The Aboriginal representatives felt very strongly that this was an important place, likely to contain a rich history of occupation within the distinct and relatively undisturbed alluvial terracing. Of particular note to the representatives were the old River Gums along the river corridor and the relatively undisturbed nature of this area. Aerial photographs demonstrate that this area is likely to be the most intact portion of the Werribee River corridor within the study area. The representatives felt this area should be conserved and any housing proposed or associated works for the area should be set back from the top of the slope to retain the character, aesthetic value and landscape amenity of the place.

The second place discussed was an area surrounding the confluence of Dry Creek and Skeleton Creek and a third un-named creek line running to the north and south. Several large artefact scatters were located in this area (Tarneit 19-52). The Aboriginal community representatives stated that this area should be conserved as an excellent example of an intact, substantially undisturbed creek corridor (particularly as a confluence). Again, the representatives felt that any proposed
housing or development should be set back from this area in order to maintain the character, integrity and amenity of the place.

These places of potential cultural value are shown on Figure 78. We also recommended these places should be priority conservation areas and retained in their current form (either as dedicated Aboriginal conservation areas or in open space, riparian corridors and/or bio-links on the precinct structure plans).

### 6.4 Revised Model & Sensitivity Mapping

The results of the survey were also used to review the predictive model developed during the desktop assessment phase of the project and a new version of the predictive model is presented in Figure 76.

The area of very high sensitivity associated with the confluence of Dry Creek and Skeleton Creek was extended to take into account areas of rock outcropping which were not visible on aerial photographs as well as the extensive artefact scatters located in this area.
7 MANAGEMENT RECOMMENDATIONS

7.1 PSP Planning and Design

The results of the desktop and standard assessment were used to develop a predictive model of the archaeological sensitivity of the study area. The desktop identified previously recorded Aboriginal places registered on the VAHR within the study area and the standard assessment identified previously unrecorded Aboriginal places within the study area.

The predictive model and archaeological sensitivity map shown on Figure 78 is designed to inform GAA PSP design and planning work. The sensitivity map is also designed to provide landowners and development proponents with a guide to archaeological sensitivity within various parts of the study area to assist in gauging risk and making informed decisions about development design.

In general terms, the risk of impact on significant archaeological and Aboriginal cultural heritage values is likely to increase in accordance with sensitivity level. Therefore, areas that are in the very high sensitivity zone are likely to have the highest level of archaeological significance and as a result these areas are also likely to have the highest level of risk for development proponents. Likewise, areas of very low sensitivity or which are disturbed have a very low risk level.

We would recommend the following PSP design responses with reference to the sensitivity zones shown on Figure 76:

a. Aboriginal Conservation Areas (shaded blue on Figure 76): We recommend these areas be dedicated as Aboriginal conservation areas or be retained in their current form in open space, riparian, bio-link, set-backs and/or asset protection zones. The landscape integrity and amenity of these areas should be retained, including appropriate set-backs that ensure the visual curtilage is unaffected by housing or other forms of development. To ensure their...
viability as conservation areas, appropriate and robust planning provisions should be established during the PSP design process. Provisions should include specific measures that limit ground disturbance or erosion within the conservation areas into the future. The areas highlighted blue on Figure 78 are an indication of where the conservation zone should be placed in accordance with the recommendations made in this report.

b. Priority Impact Avoidance Areas (shaded yellow on Figure 76): We recommend these areas have priority for conservation. Where decisions about conservation or open space allocation are made by GAA or individual landowners / development proponents, the higher priority areas should be considered as ‘first priority’ options for conservation. It may not be possible to include all of the higher priority land in conservation, however, where it is feasible it should be actively considered.

Options for conservation could include dedication of areas as Aboriginal conservation zones or retention of areas in their current form in open space, riparian, bio-link, set-backs and/or asset protection zones. Where possible, the landscape integrity and amenity of these areas should be retained, including appropriate set-backs where this is relevant. Appropriate and robust planning provisions should be established during the PSP design process for areas proposed to be included in conservation. Provisions for dedicated conservation areas should include specific measures that limit ground disturbance or erosion within the conservation areas into the future.

c. Very High & High Sensitivity: Retain as much as possible in open space, riparian, bio-link, set-backs and asset protection zones. The aim of PSP design should be to minimize future development impact on these areas (particularly the Very High sensitivity zone). This approach will protect areas with high potential for significant archaeological deposits and cultural values. The approach will also save time and money in reducing the scope of mitigation and salvage of sensitivity areas.
d. **Moderate Sensitivity**: Where there is an opportunity, development impact should be minimized where practicable. For instance, where there are opportunities to establish open space, these could be placed on areas of moderate sensitivity to protect Aboriginal heritage and reduce the scope of expensive and time consuming archaeological mitigation measures and salvage.

e. **Low Sensitivity**: No design and planning recommendations. These areas are essentially archaeologically ‘neutral’.

f. **Very Low Sensitivity and Disturbed**: These areas could be the focus of development, particularly high impact features of a subdivision like a town centre, medium or high density residential, industrial or commercial.
Figure 76: Revised sensitivity model showing proposed conservation areas
7.2 Scope for Standard Cultural Heritage Management Plan

Following extensive discussions between Growth Areas Authority, Aboriginal Affairs Victoria and AHMS, the following recommendations are made in relation to preparing a Standard CHMP for evaluation and approval under the Aboriginal Heritage Act.

A Standard Cultural Heritage Management Plan (CHMP) for the properties within PSPs 88-91 where a complex CHMP is not warranted should be prepared and submitted for evaluation. Under the Aboriginal Heritage Regulations 2007, a complex CHMP assessment is only required for land where it is likely that Aboriginal cultural heritage is present and where the extent, nature and significance of cultural heritage is not adequately known.

This report has concluded that areas assessed as having ‘disturbed’, ‘very low’ and ‘low’ sensitivity (see Figure 78) have a lower probability that they will contain Aboriginal cultural heritage. Furthermore, the nature, extent and significance of Aboriginal cultural heritage within these sensitivity zones is well understood. Robust patterns in the distribution, nature and density of archaeological deposits across the region have been clearly established as a result of numerous large test excavation programmes (particularly since the introduction of the 2006 Aboriginal Heritage Act). Therefore, in our view, properties in ‘disturbed, very low and low’ sensitivity zones should not require further complex assessment.

A CHMP to standard assessment level should be prepared for properties which meet the following set of criteria:

- The property was surveyed by AHMS;
- The property does not contain recorded Aboriginal places;
AHMS did not locate any new Aboriginal places during survey of the property; and

The property is located entirely within areas of ‘disturbed’ and/or ‘low’ and/or ‘very-low’ sensitivity as shown on Figure 78.

The Standard CHMP should also include all land where no further ground disturbance works will occur, such as conservation areas and passive open space where no ground disturbance is proposed.

The Standard CHMP will provide relevant landholders with a final approved CHMP that they can use for future development of their land without the need for undertaking complex CHMP assessment work. It will also provide these landowners with a high level of certainty during their development works and clear contingencies to allow them to efficiently manage any unexpected discovery of Aboriginal cultural deposits during development works.

The properties that meet the criteria above are outlined in the table below and shown on Figure 77:

<table>
<thead>
<tr>
<th>Property Number</th>
<th>PSP #</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>119679</td>
<td>88</td>
<td>1411 Boundary Road Mount Cotterell 3024 (5/LP113710)</td>
</tr>
<tr>
<td>119678</td>
<td>88</td>
<td>1391 Boundary Road Mount Cotterell 3024 (6/LP113710)</td>
</tr>
<tr>
<td>119677</td>
<td>88</td>
<td>1371 Boundary Road Mount Cotterell 3024 (7/LP3710)</td>
</tr>
<tr>
<td>119676</td>
<td>88</td>
<td>685 Davis Road Mount Cotterell 3024 (8/LP113710)</td>
</tr>
<tr>
<td>120834</td>
<td>88</td>
<td>1503 Doherty’s Road Mount Cotterell 3024 (1/LP92917)</td>
</tr>
<tr>
<td>121459</td>
<td>88</td>
<td>105 Gard Road Mt Cotterell 3024 (40/LP 92917)</td>
</tr>
<tr>
<td>125157</td>
<td>89</td>
<td>1030 Tarneit Road Tarneit 3029 (1/PS706373)</td>
</tr>
<tr>
<td></td>
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<td>125165</td>
<td>89</td>
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<td>122500</td>
<td>89</td>
<td>820 Leakes Road Tarneit 3029 (1/PS642329)</td>
</tr>
<tr>
<td>122499</td>
<td>89</td>
<td>Leakes Road Tarneit 3029 (1/PS642330)</td>
</tr>
</tbody>
</table>
Figure 77: Properties which meet the criteria for standard assessment CHMP
7.3 Complex Assessments

The proposed activity (residential subdivision) would be a ‘high-impact’ development and would be considered a ‘sub-division’ under Regulation 48 of the Aboriginal Heritage Regulations 2007.

Prior to the commencement of individual development projects within the Tarneit PSPs, projects that are located within or partly within an area of cultural heritage sensitivity as defined by the Aboriginal Heritage Regulations 2007 (see Figure 78) will be required to prepare a cultural heritage management plan. The only exception to this would be if all of the development area has been subject to significant ground disturbance in the past.

Significant ground disturbance is defined as disturbance of the topsoil or surface rock layer of the ground or a waterway by machinery in the course of grading, excavating, digging, dredging or deep ripping but does not include ploughing or other deep ripping in the Aboriginal Heritage Regulations 2007. In most cases, it is very difficult to demonstrate significant ground disturbance across the entirety of a typical residential sub-division project. Therefore any developments within or partly within the areas of sensitivity (current areas of sensitivity are shown on Figure 78) are highly likely to require completion of a complex CHMP before a Planning Permit can be approved for those projects.

Where a CHMP will be required we recommend the use of a landform based approach to complex assessment (test excavation). The landform based approach aims to systematically test each landform within an study area to establish the extent of cultural material present. This approach is recommended because it is a very efficient and effective means of assessing the nature, extent and significance of Aboriginal cultural heritage across large landscapes. It also provides for a consistent approach across the PSPs and significant sampling efficiencies by using a

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Please note: the area of cultural heritage sensitivity changes over time as new Aboriginal places are discovered. It is critical that a Cultural Heritage Advisor be engaged to search the ACHRIS sites database and determine whether an individual project or land parcel is located within or partly within an area of cultural heritage sensitivity before commencement of a new project.
common approach that can be utilized by all the landowners and proponents within the study area.

The extent of testing and sample effort should be based on the level of sensitivity shown on the predictive sensitivity mapping shown on Figure 76. Areas which are disturbed or have very low sensitivity should not require further test excavation because they are considered ‘unlikely’ to contain Aboriginal cultural heritage (the Aboriginal Heritage Regulations 2007 only require complex assessment in areas that are ‘likely’ to contain Aboriginal cultural heritage. However, areas ranging from low to very high sensitivity should be included in a systematic programme of landscape-based archaeological test excavation that aims to establish the extent nature and significance of the Aboriginal cultural material within areas of proposed development impact (NB: Areas set aside as open space, conservation or other uses that do not entail development disturbance will not be included in complex assessment and can therefore be excluded from complex assessment scope of work). All levels of sensitivity (low to very high) will need to be included in the scope of complex assessments in order to efficiently test the predictive model.

In addition to test excavation, individual complex assessments should also include consultation with the Bunurong Land Council Aboriginal Corporation, Boonwurrung Foundation and the Wurrundjeri Tribe Land & Compensation Cultural Heritage Council to identify cultural values. These groups must also be invited to participate in any further survey or test excavation fieldwork.

Proposed sampling densities for complex assessments are outlined below. These densities are based upon previous landform based testing, conducted at Botanic Ridge PSP and Minta Farm PSP for the Growth Areas Authority in which the level of testing outlined below was successfully used to establish the extent, nature and significance of the Aboriginal Cultural Heritage across each landscape and identify statistically robust landform and environmental trait patterning. We recommend a minimum sampling density as per Table 25 below.
Table 25: Proposed sampling densities.

<table>
<thead>
<tr>
<th>Sensitivity Level</th>
<th>Testing Required (per 10 hectare)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>3 square metres</td>
</tr>
<tr>
<td>Moderate</td>
<td>8 square metres</td>
</tr>
<tr>
<td>High</td>
<td>10 square metres</td>
</tr>
<tr>
<td>Very High</td>
<td>12 square metres</td>
</tr>
</tbody>
</table>
Figure 78: Areas of archaeological sensitivity within the study area
7.4 Management Requirements

The following recommendations set out the key legal requirements that will apply to PSP planning and development within the study area:

a. **Subdivision or development projects** (greater than 2 lots and/or two dwellings) located within or partly within areas of cultural heritage sensitivity will require completion of mandatory cultural heritage management plans (CHMPs) before Planning Permits can legally be approved for these projects. Currently there is no Registered Aboriginal Party for the Tarneit PSP land on the eastern side of the Werribee River, therefore the current evaluating authority would be Aboriginal Affairs Victoria (AAV). CHMPs must be prepared by a qualified Cultural Heritage Advisor and must be approved by AAV before they are in force.

Development proponents should engage a Cultural Heritage Advisor to determine whether or not their property is located partly within an area of cultural heritage sensitivity early in the project planning process (NB: the area of cultural heritage sensitivity changes over time and therefore it is critical to search this prior to commencement of a project).

If individual development proponents believe their land has been subject to significant ground disturbance (either mechanical excavation disturbance and/or deep ripping) they could consider engaging a cultural heritage advisor to undertake an assessment and make a determination.

b. **Areas where no development or ground disturbance is proposed** - No complex assessment will be required in areas where development and disturbance is not proposed. Inclusion of areas of high to very high sensitivity in conservation, open space, biolinks and/or riparian corridors will reduce the scope of Complex Assessment required and provide good outcomes in protecting significance Aboriginal heritage;
c. **Known Aboriginal Places** - Known Aboriginal places registered on the Victorian Aboriginal heritage register (VAHR) and places found during the standard assessment described in this report are protected by the Aboriginal Heritage Act 2006. It is an offence to disturb or destroy these places without first obtaining either a Permit to Harm or an approved CHMP from AAV.

d. **Blanket Protection** - Irrespective of whether or not a CHMP is required for a particular development or activity, the Aboriginal Heritage Act 2006 provides blanket protection for Aboriginal cultural heritage. If any Aboriginal objects (artefacts), sites, places or skeletal remains are identified at any time before or during development works, they cannot be harmed until either a Permit to Harm or a CHMP that specifically permits harm to that place has been approved by AAV.
REFERENCES


169


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Lawler, M (2010)b ‘Proposed Gross Pollutant Traps at Skeleton Creek (Group B) Hoppers Crossing, Tarneit and Truganina, Victoria’. AAV Report # 10877


Nicholls, C (2005)a An Archaeological Assessment Proposed Wedge Street Bridge Werribee and Doherty’s Road Upgrade, Tarneit. AAV Report # 3277.

Nicholls, C (2005)b An Archaeological Investigation Wootten Road Tarneit. AAV Report Number 3278.


http://www.dpi.vic.gov.au/dpi/vro/portregn.nsf/696c4532f2cc03304a256718003e5c09/9e30498c41e91e58ca256b9900154a71?OpenDocument


Thomas, W. LT. (n.d) Notebook: Original Manuscript. R. B. Papers, Box 1176/6a, La Trobe Library, Melbourne.

Thomas, W. Journal November (1841) Box 2 and 3.


Online sources

Melbourne Water Website

www.melbournewater.com.au

Department of Primary Industries Website

www.dpi.vic.gov.au

Department of Sustainability and Environment Website

www.dse.vic.gov.au

Department of Planning and Community Development Website

www.dpcd.vic.gov.au
APPENDIX 1 - NOTICE OF INTENT

Notice of Intent to prepare a Cultural Heritage Management Plan for the purposes of the Aboriginal Heritage Act 2006

SECTION 1 – Sponsor Information

Name of Sponsor: Dane Logan

Business Name: Growth Areas Authority

Postal Address: Level 29, 35 Collins St Melbourne

Telephone Number: 96510661

Email Address: dane.logan@gaa.vic.gov.au

SECTION 2 – Description of proposed activity and location

* Provide a project name: PSP 88, 89, 90 & 91 Tarneit

* List the relevant municipal districts (ie. Local Council or Shire): Wyndham Shire

* Clearly identify the proposed activity for which the cultural heritage management plan is to be prepared (ie. mining, road construction, housing subdivision):

  Development of Precinct Structure Plan (subdivision)

* Clearly identify the area (such as listing cadastral information, attaching a copy of a title search, or indicating the street address):

  Land known as Tarneit PSPs (88-91) bounded to south by Shaw Road and to north by Boundary Road

  (see attached map)

* Attach a map (to scale, with a north arrow and indicating the municipal district - if any) that clearly identifies the area and boundaries in respect of which the cultural heritage management plan is to be prepared:

  - Please ensure the map refers to existing roads and features, rather than proposed roads and features.
  - Please ensure the map has the activity area outlined on it.

  The map should have a legend, north arrow, scale, at least 3 readily identifiable geographical locations (such as road intersections, parcel boundaries, or main river crossings), and should state the map’s projection.

SECTION 3 – Cultural Heritage Advisor

If you would like a Cultural Heritage Advisor is person who has the qualifications or experience [or both] required under section 199 of the Act, notify the status of this Cultural Heritage Management Plan, please provide the following details for that person:

Name: Emma Rae

AHMS

Email: erae@ahms.com.au

SECTION 4 – Expected start and finish date for the cultural heritage management plan

Start date: 05 / 7 / 2011

Finish date: 05 / 10 / 2011
SECTION 5 – Why are you preparing this Cultural Heritage Management Plan?

☑ A Cultural Heritage Management Plan is required by the Aboriginal Heritage Regulations 2007

What is the High Impact Activity listed in the regulations? Subdivision r.46

Is any part of the activity in an area of cultural heritage sensitivity, as listed in the regulations? ☑ YES ☐ NO

☐ Other reasons (Voluntary)

☐ An Environmental Effects Statement is required

☐ A Cultural Heritage Management Plan is required by the Minister for Aboriginal Affairs

SECTION 6 – List the relevant registered Aboriginal parties (if any)

This section should only be completed where there is a registered Aboriginal party in relation to the Plan.

No approved RAP

SECTION 7 – Signature of Sponsor

I certify that to the best of my knowledge and belief that the information supplied is correct and complete.

Signed: [Signature]

Date: 5/7/21

For and on behalf of the Growth Areas Authority

SECTION 8 – Notification Checklist

☐ Ensure appropriate attachments are completed and attached to this notification (see section 2 of this form).

Please ensure this notice and all attached items are sent to:

Deputy Director
Aboriginal Affairs Victoria
Department of Planning and Community Development
(SPD Box 2392)
MELBOURNE VIC 3001

Email: vahvr@dpwd.vic.gov.au

Notes:

- Ensure that any relevant registered Aboriginal party is also notified. A copy of this notice may be used for this purpose.
- A registered Aboriginal party is allowed up to 14 days to provide a written response to a notification specifying whether or not it intends to evaluate the management plan.
- In addition to notifying the Deputy Director, any relevant registered Aboriginal party or a sponsor must also notify any owner and/or occupier of any land within the area to which the management plan relates. A copy of this notice may be used for this purpose.
APPENDIX 2 - SCHEDULE TO PLANNING SCHEME (UGZ)
APPENDIX 3 - GLOSSARY OF TECHNICAL TERMS

Aeolian  Wind generated geological processes. In an archaeological context it usually refers to wind blown deposits and sands.

Backed Artefact / Backing  A retouched tool (maybe a complete, distal, medial or proximal flake) that displays evidence of backing along one lateral margin. This backing may be initiated from the ventral surfaces or alternately may be an example of bidirectional backing initiated from both surfaces (Holdaway and Stern 2004:259). There are four main types of commonly recognised backed artefacts, which include ‘Bondi Points; geometric microliths (or ‘Backed Blades’), Juan Knives and Eloueras’.

Bipolar  A method of removing flakes from a core, by striking a core against an anvil (Holdaway and Stern 2004:11). This is often evidenced by crushing at the platform and/or at the termination of the flake; Bipolar flaking is also evidenced as crushing at the base (end opposite the platform) of a core.

Blade  A flake that is twice as long as its width.

Bulbar  Refers to a bulb of percussion produced during a conchoidal fracture

Chert  ‘a dense, extremely hard, microcrystalline or cryptocrystalline, siliceous sedimentary rock, consisting mainly of interlocking quartz crystals, sub-microscopic and sometimes containing opal (amorphous silica). It is typically white, black or grey, and has an even to flat fracture. Chert occurs mainly as nodular or concretionary aggregations in limestone and dolomite, and less frequently as layered deposits (banded chert). It may be an organic deposit (radiolarian chert), an inorganic precipitate (the primary deposit of colloidal silica), or a siliceous replacement of pre-existing rocks’ (Lapidus 1990:102).
Conchoidal
Where a force strikes the surface of a core forming a circular or ‘ring’ crack that bends back towards the surface of the core, forming a partial bulb of percussion. The fracture frequently moves towards the exterior surface of the core, detaching a flake (Holdaway and Stern 2004:34).

Core
Andrefsky (1998:80-81) states a core can be understood as ‘an objective piece that has had flakes removed from its surface’; Holdaway and Stern (2004:37; 5-8) provide further clarification ‘artefacts that retain the negative flake scars of previous flake removals’.

Cortex
The outer layer of patination of rock is known as cortex. It is found on weathered stone (Holdaway & Stern 2004: 26-27). Cortex types (mostly rough, water worn or pebble) can indicate the source that stone material was obtained from.

Debitage
Small spalls and flakes produced during percussion, bipolar and pressure flaking.

Fine Grained Basalt
Basalt is a volcanic rock. See Volcanic below.

Flake
Depending on the completeness of the flake, a flake may have a number of common characteristics which may include: a platform, bulb of percussion, errailure (or bulbar) scar, point of force impact (PFI or umbo), dorsal ridge and ventral surface, fissures (or indentations), ripple marks (which radiate away from the point of force impact/umbo) and a termination. Not all of these features are typically found on every flake, however they are attributes likely to be present from conchoidal fracture.

Negative Flake Scar
The negative indentation or scar left behind on a flake, core or tool when a flake is removed. The presence and abundance of negative flake scars can reveal information about the process of flaking. For example negative flake scars on a) cores can provide information on how intensely the core has been used, b) on the dorsal surface of a flake can indicate how intensely the core was flaked before this flakes was removed and/or that
the core platform was cleaned off to start flaking again (platform rejuvenation), c) along the edge of a flake can indicate retouch/backing (Holdaway and Stern 2004:184).

### Point
A term applied to certain formal types such as Bondi Points.

### Platform
A striking platform or a platform is the surface from which a flake is struck from a Core (Holdaway and Stern 2004:5); flakes retain part of the platform on their proximal end.

### Quartz
‘crystalline silica, SiO2. It crystallizes in the trigonal system, commonly forming hexagonal prisms. For cryptocrystalline varieties of silica see Chalcedony. Colourless and transparent quartz, is found in good crystals, is known as rock crystal. Varieties that are colours due to the presence of impurities may be used as gemstones, amethyst, purple to blue-violet, rose quartz, pink; citrine, orange- brown; smoky quartz, pale yellow to deep brown’ (Lapidus 1990:429).

### Quartzite
‘a metamorphic rock consisting primarily of quartz grains, formed by the recrystallization of sandstone by thermal or regional metamorphism; a metaquartzite and a sandstone composed of quartz grains cemented by silica; an orthoquartzite’ (Lapidus 1990:430).

### Retouch
Modification of a flake or core prior to use. Retouch is the ‘removal of a series of small, contiguous flakes’ from the edges of the artefact (Holdaway and Stern 2004:33). There are several different types of retouch which are identified as backing; stepped; scalar; invasive; notched and serrated retouch.

### Reduction
By definition stone material is made smaller when it is struck to produce stone flakes and tools. This process is known as stone reduction.

‘Modern stone artefact analyses use the reductive nature of stone artefact manufacture as the basis for reconstructing the processes by which artefacts were made. By analysing the size
and form of artefacts, archaeologists can obtain information about how stone was acquired from its source, the form in which the stone was transported to campsites, how it was worked, and the way stone artefacts were use until discarded’ (Holdaway and Stern 2004:3).

**Scarred Tree**
A tree that has been marked as a result of bark being removed by Aboriginal people for cultural reasons or for use in making shields, containers, canoes etc. Some trees may also have marks caused by making toe holds for climbing up trees.

**Scientific Significance**
The objective of undertaking scientific significance assessment for a site is to determine its research potential in terms of contribution to knowledge about the past. Criteria used to evaluate scientific potential include condition/integrity, representativeness and rarity

**Scraper**
‘A minimal definition of a scraper is that it is a flake with one or more margins of continuous retouch’. It also indicates the stage of reduction the flake has reached (see Holdaway and Stern 2004:227).

**Silcrete**
‘a hard surface deposit composed of sand and gravel cemented by opal, chert and quartz, formed by chemical weathering and water evaporation in semi-arid climate. Extensive deposits of silcrete are found in S. Africa and Australia. Silcrete is a siliceous duricrust’ (Lapidus 1990:472).

**Termination**
There are a number of different flake terminations (or ends of a flake) which are possible through flaking stone material. The main types of flake terminations include step, hinge, feather and plunging. Flake terminations can provide information about how the flake was removed.

**Tool**
A tool is an artefact which shows evidence of modification (i.e. by retouch) or without modification (i.e. show signs of usewear) (Holdaway and Stern 2004:33; 39).
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuff</td>
<td>‘pyroclastic rock composed mainly of volcanic ash (fragments &lt;2mm in diameter). Tuffs may be classified as crystal tuff if they contain a large proportion of crystal fragments, vitric tuff composed mainly of glass and pumice fragments and lithic tuff, containing mainly rock fragments. A consolidated mixture of lapilli and ash is a lapilli tuff’ (Lapidus 1990:519-520).</td>
</tr>
<tr>
<td>Usewear</td>
<td>‘Evidence of distinctive patterns of wear [which is] sometimes found on the edges of artefacts that were believed to have been used for specific purposes’ (Holdaway and Stern 2004:41). Several types of usewear can be observed. Holdaway and Stern (2004:41; 167) identify ‘chattering’ and ‘edge damage’ as one form of usewear.</td>
</tr>
<tr>
<td>Volcanic</td>
<td>‘All extrusive rocks and associated high-level intrusive ones. The group is entirely magmatic and dominantly basic. Igneous lithic material generally dark in colour and may be glassy (like obsidian) or very fine-grained or glassy igneous rock produced by volcanic action at or near the Earth’s surface, either extruded as lava (e.g. basalt) or expelled explosively’ (Lapidus 1990:535).</td>
</tr>
</tbody>
</table>