ARCHAEOLOGICAL SALVAGE

280 EVANS ROAD, CRANBOURNE WEST ARCHAEOLOGICAL SALVAGE OF VAHR 7921-1521

Sponsored by Perfection Private

4th June 2019

Prepared by Heritage Advisor
Dr Rhiannon Stammers

Archaeology At TARDIS
heritage advisors
PO Box 776
Beaconsfield, VIC 3807
www.aatardis.com.au

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VAHR 7921-1521

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Sponsor	Perfection Private
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Authors	Dr Rhiannon Stammers
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EXECUTIVE SUMMARY

This report presents the results of the archaeological salvage of stone artefact scatter VAHR 7921-1521 [280 Evans Road] in compliance with Condition 1 of approved CHMP 12874 (Murphy et al 2014) for the industrial subdivision of 280 Evans Road, Cranbourne West. Archaeology At Tardis heritage advisor Dr Rhiannon Stammers (project archaeologist) authored this report. The report was commissioned by KML Spatial on behalf of Perfection Private.

The activity area is located in Cranbourne West, approximately 45km southeast of Melbourne and comprises 24.51ha (approx.) of farm land. (Map 1 & 2).

At the time of the salvage there was no Registered Aboriginal Party (RAP). Representatives of the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (WWWCHAC) participated in the salvage.

CHMP 12874 resulted in the registration of VAHR 7921-1521, a stone artefacts scatter identified on an elevated sandy rise comprising 112 stone artefacts. Raw materials were dominated by silcrete (n=110) followed by quartz (n=1). Primary form comprised complete flakes (n=46), angular fragments (n=47), cores (n=2), split flake (n=3), proximal flake (n=6), medial flake (n=2) and distal flake (n=6).

ARCHAEOLOGICAL SALVAGE FIELDWORK (SECTION 2)

The aims of the archaeological salvage were to fulfil the conditions in CHMP 12874 including:

1) To further investigate the spatial and temporal distribution of the cultural material associated with VAHR 7921-1521;
2) To recover additional Aboriginal cultural heritage;
3) To help answer further current research questions and further contribute to archaeological knowledge of the place, the activity area or the surrounding region.

Salvage excavations complied with the Recommendations in Section 10.1 of CHMP 12874 resulting in a total of 10 salvage excavation pits being positive for stone artefacts, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP14 and TP15, from which 46 subsurface artefacts were recorded.

Overall, silcrete artefacts dominated the assemblage followed by quartz. Primary forms are dominated by primary forms are dominated by complete flakes (n=24, 54%) followed by angular fragments (n=8, 18%), unidirectional cores (n=3, 7 %), medial flakes – (n=3, 7%), distal blades (n=2, 4%), proximal flakes (n=2, 4%), complete blade (n=1, 2%), medial blade (n=1, 2%) and distal flake (n=1, 2%). Other characteristics of the assemblage relating to usewear / retouch, platform type, termination type, cortex, etc, were also presented (Section 2.4).

As required by aims of the salvage works research questions were addressed and discussed (Section 2.7&2.9). VAHR 7921-1521 consists primarily of a single knapping event evidenced in CHMP 12874 TP5. These silcrete artefacts were most likely flaked from the same core. The place likely represents a single or small number of visits by a single person or small family group to the swamp margin during the Mid-Late Holocene who were reducing cores of differing quality and raw materials to make implements for hunting and processing game.

RECOMMENDATIONS (SECTION 3)

Recommendation 1 VAHR 7921-1521

Archaeological salvage has fulfilled the compliance Recommendations in approved CHMP 12874. No additional archaeological salvage is required. The activity can proceed in the location of VAHR 7921-1521.

Recommendation 1 Reporting

A copy of the report will be lodged with AV and the appropriate VAHR forms submitted to AV.

Recommendation 4 Artefact Storage and Custody

Stone artefacts retrieved during the salvage excavations are currently in the custody of Archaeology At Tardis Pty Ltd. Pursuant to compliance Recommendation 4 (Murphy et al 2014: 77), the stone artefacts must be managed as follows:

> If no RAP is approved…custody of the artefacts will be offered to the following in order of priority:
>
> - any relevant registered native title holder;
> - any relevant native title party;
> - RAP applicant;
> - any relevant Aboriginal person or persons with traditional or familial links;
> - any relevant Aboriginal body or organisation which has historic or contemporary interest in Aboriginal heritage;
> - the owner of the land;
> - the Museum of Victoria (s.61(e)).
>
> If no party accepts custody of the artefact, then the Sponsor must ensure the artefacts are reburied as close to the original place location as practical within three months after the completion of the activity. The reburial location must be documented to sub-meter accuracy using GDA94 MGA coordinates and reported to OAAV. A reburial location within the electricity easement or other suitable area within the activity area would be recommended after completion of the activity.

All cultural heritage must be buried in a suitable weatherproof container along with a copy of the artefact inventory. An Object Collection Form must be completed and submitted to AV by a suitably qualified cultural heritage advisor. The cost of the reburial is to be borne by the sponsor or their agent. The exact location and timing should be as a result of communication between the relevant Aboriginal group and sponsor

Appropriate forms have been completed and have been submitted to Site Registry, Aboriginal Victoria.

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ACKNOWLEDGEMENTS

Archaeology At Tardis Pty Ltd would like to thank the following people for their assistance:

Louise Lowe – KLM Spatial
Craig Terrick and Trevor Downes – WWWCHAC

ABBREVIATIONS

AAT	Archaeology at Tardis Pty Ltd
AS	Artefact Scatter
ASTT	Australian Small Tool Tradition
BP	Years Before Present (1950)
CHMP	Cultural Heritage Management Plan
GDA	Geocentric Datum of Australia
HCO	Holocene Climatic Optimum
ka	Thousand years ago
Ma	Million years ago
MGA	Map Grid Australia
OAAV	Office of Aboriginal Affairs Victoria
PETM	Paleocene-Eocene Thermal Maximum
RAP	Registered Aboriginal Party
TOG	Traditional Owner Group
TP	Test Pit
VAHR	Victorian Aboriginal Heritage Registry
WWWCHAC	Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation

**Throughout this report several technical terms are used that may not be familiar to some readers. An extensive glossary has been included as Appendix 2 and should be referenced for an explanation of terms.*

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1 INTRODUCTION

This report presents the results of the archaeological salvage of stone artefact scatter VAHR 7921-1521 [280 Evans Road] in compliance with Recommendation 1 of approved CHMP 12874 (Murphy et al 2014) for the industrial subdivision of 280 Evans Road, Cranbourne West.

Archaeology At Tardis heritage advisor Dr Rhiannon Stammers (Project Archaeologist) authored this report. The report was commissioned by KML Spatial on behalf of Perfection Private.

The activity area is located in Cranbourne West, approximately 45km southeast of Melbourne and comprises 24.51ha (approx.) of farm land. (Map 1 & 2). At the time of the salvage there was no Registered Aboriginal Party (RAP). Representatives of the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (WWWCHAC) participated in the salvage.

1.1 CHMP 12874 Results and Compliance Conditions

A total of 54 test pits were hand excavated for the complex assessment for CHMP 12874, comprising one 1m x 1m and 53 0.5m x 0.5m. As a result of the complex assessment one Aboriginal stone artefact scatter was registered, VAHR 7921-1521. This site was found on the elevated sandy rise comprising 112 stone artefacts. Raw materials were dominated by silcrete (n=110), followed by quartz (n=1). Primary form comprised complete flakes (n=46), angular fragments (n=47), cores (n=2), split flakes (n=3), proximal flakes (n=6), medial flakes (n=2) and distal flakes (n=6).

The relevant recommendations in the plan are as follows (Murphy et al 2014: 74-77):

<u>Recommendations Prior to Activity</u>

Recommendation 1: VAHR 7921-1521 (Stone Artefact Scatter)

Prior to ground disturbance

Prior to the commencement of any ground disturbance within the extent of VAHR 7921-1521 (Map 16), limited salvage is to be undertaken with the following aims:

1) To further investigate the spatial and temporal distribution of the cultural material associated with VAHR 7921-1521;
2) To recover additional Aboriginal cultural heritage;
3) To help answer further current research questions and further contribute to archaeological knowledge of the place, the activity area or the surrounding region.

To achieve this aim controlled salvage must be undertaken of the artefact bearing deposit down to a sterile layer.

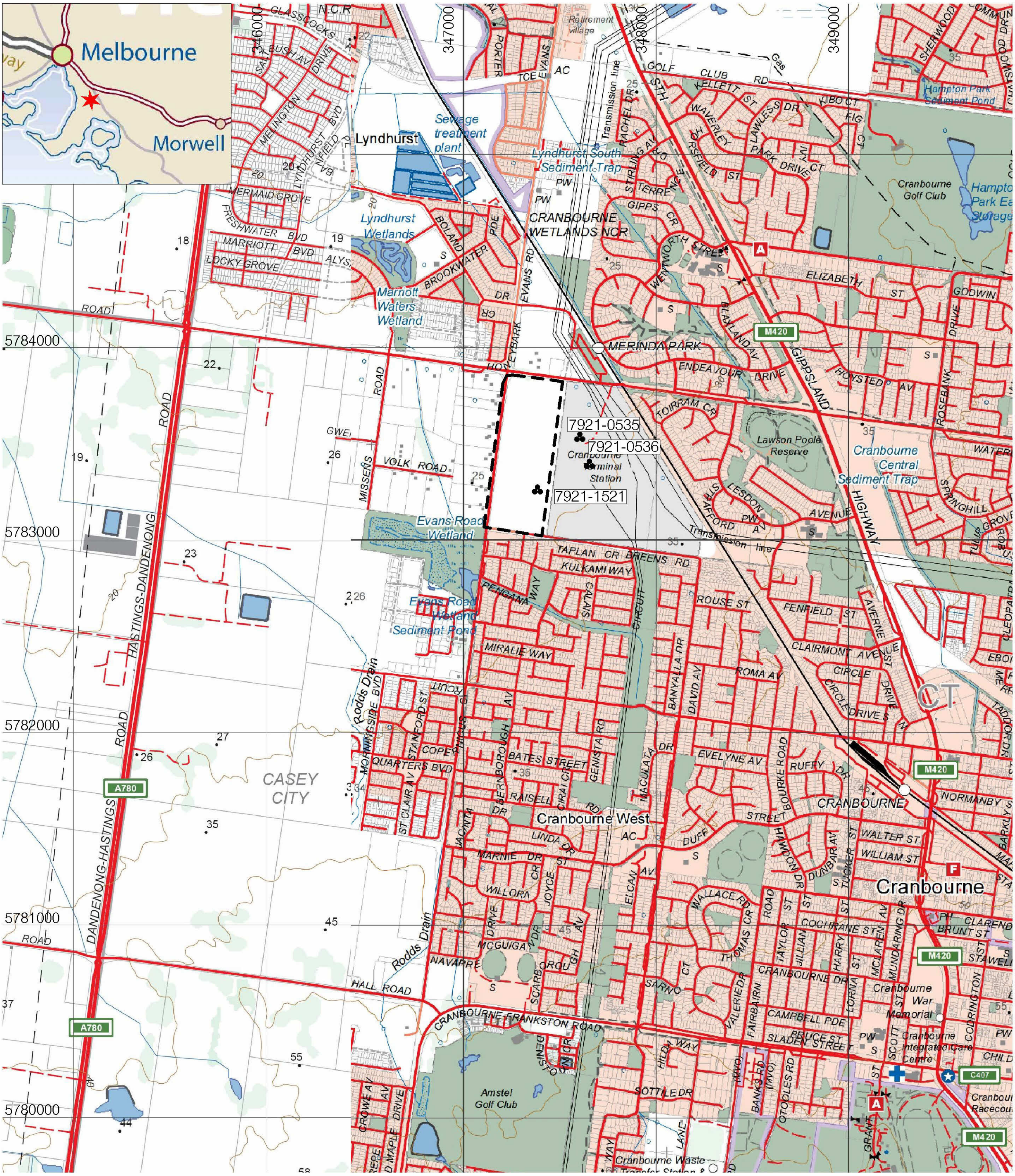
Salvage is to be conducted via the following methodology:

- Excavation of a minimum fifteen (100cm x 100cm x sterile base layer) salvage pits.
- During a meeting with OAAV (6 August 2014) (Appendix 8), OAAV requested that four salvage excavation pit be excavated in a "T" configuration within close vicinity to TP3. The position and configuration of the remaining salvage excavation pits

will be undertaken at locations within the extent of VAHR 7921-1521 (Map 16), as agreed upon between the TOG representatives and the cultural heritage advisor at the time of salvage;

- Excavation of the artefact bearing horizon must be conducted to proper archaeological practice by a qualified archaeologist and by hand;
- The salvage pits are to be recorded to sub-metre accuracy using GDA94 MGA coordinates;
- All sediments excavated 100% sieved using 5mm mesh;
- Artefacts found during excavation must be individually point provenanced to the nearest centimetre;
- All artefacts recovered are to be contained in bags with the artefacts provenance details labelled on the bag(s);
- The test pits must to be recorded in detail including, photographic records, pH levels, Munsell colour, sediment descriptions, stratigraphy and disturbance;
- A geomorphological assessment must be undertaken;
- All artefacts are to be recorded in detail including photographic records, typological determination, material type and size;
- All artefacts recovered are to be subject to detailed analysis, looking specifically at usewear and the potential for conjoining and residue analysis;
- Any organic feature discovered in relation with Aboriginal cultural heritage is to be salvaged completely and subjected to dating analysis. The cost is to be borne by the sponsor or their agent.

Following completion of the salvage excavation, the heritage advisor must complete appropriate VAHR forms and submit a report to OAAV detailing the results of the archaeological salvage.



Topographic map used for Location Plan: 1:30,000 Number T7921-1-4-3

0 500 1000
Scale of Metres

N

Legend:

- Activity Area Location (Inset)
- Activity Area Boundary 24.51 hectares (approx)
- Artefact Scatter VAHR 7921-xxxx

Parish: *Lyndhurst*
LGA: *Casey*

GDA Zone 55

ADVERTISED PLAN

Map 1 Activity Area Location an VAHR Places Within 200 metres

(Melway Ref: 129 D9)

Aerial Photograph: Courtesy of DSE Website 2006

Legend:

0 100 200
Scale of Metres

N

Activity Area Boundary
24.51 hectares (approx)

Artefact Scatter
VAHR 7921-1521

Parish: *Lyndhurst*
LGA: *Casey*

VAHR 7921-1521 Place Extent
And Salvage Area

GDA Zone 55

Map 2 Extent of Activity Area: Aerial Photograph

2 ARCHAEOLOGICAL SALVAGE FIELDWORK

2.1 Aims

The aims of the archaeological salvage were to fulfil the recommendations in CHMP 12874 including:

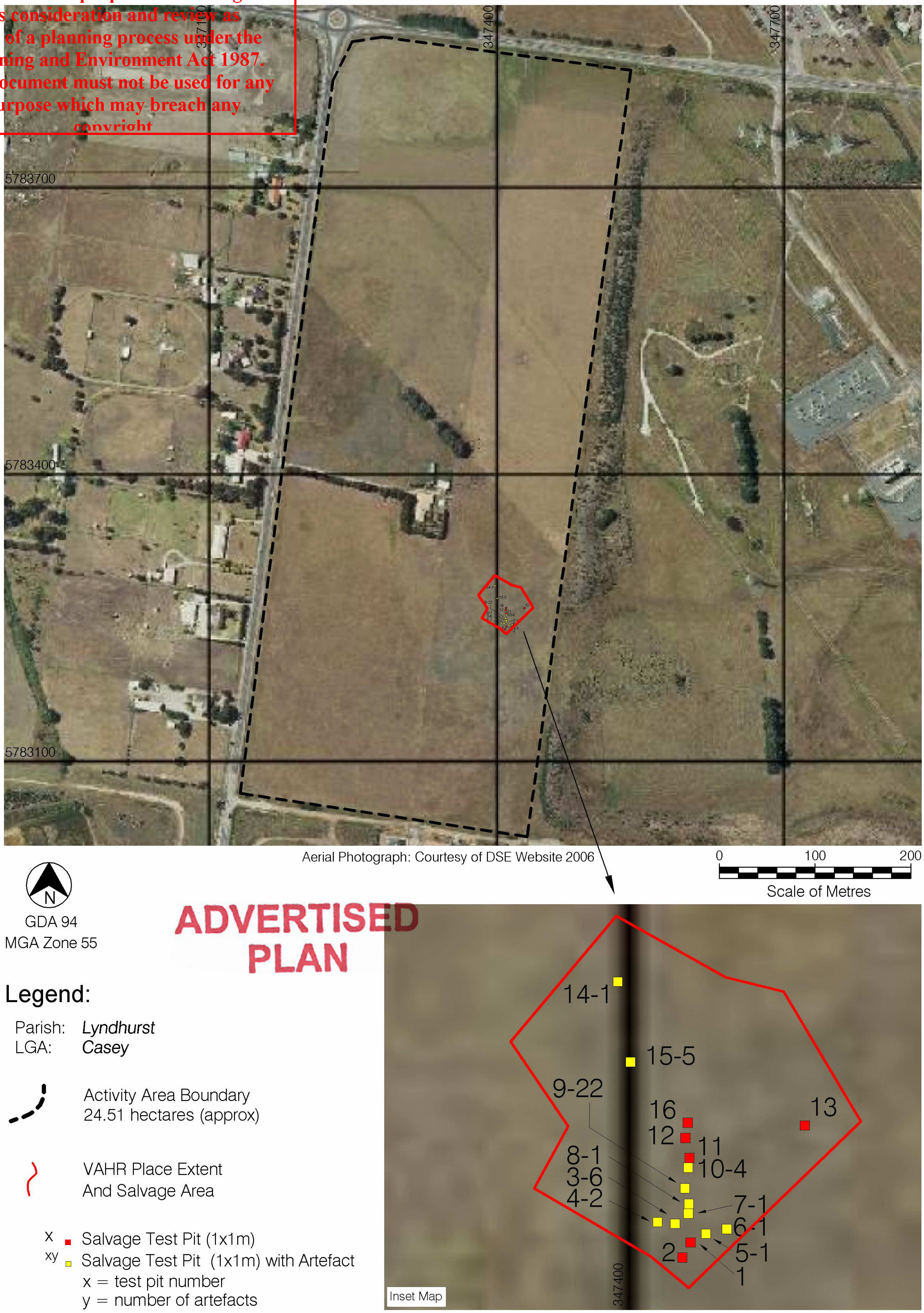
- Conduct salvage excavations within the place extent of VAHR 7921-1521.

2.2 Methodology

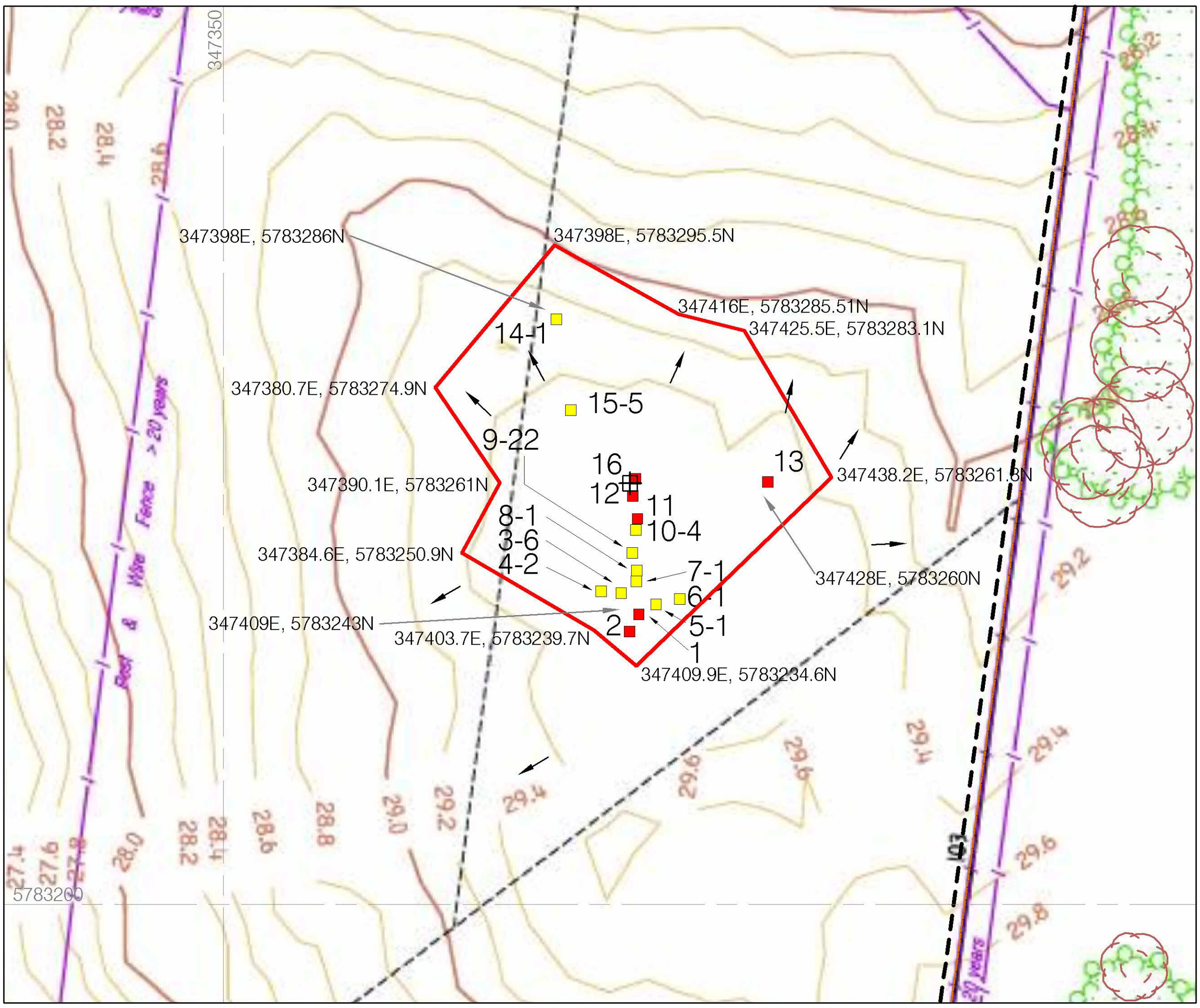
Salvage Excavations

The methodology complied with Recommendation 1 in Section 10.1 of CHMP 12874 including:

- Excavation of 16, 1m x 1m salvage pits.
- A"T" shaped excavation configuration within close vicinity to CHMP 12874 TP5 (Map 2);
- Excavation of the artefact bearing horizon conducted using proper archaeological practice by a qualified archaeologist and by hand;
- All salvage pits were recorded to sub-meter accuracy using GDA94 MGA coordinates;
- All sediments that were excavated were sieved using 5mm mesh;
- All artefacts that recovered were recorded to within cm accuracy and were collected and bagged. All provenance details were labelled on the bag(s);
- All test pits were recorded in detail including, photographic records, pH levels, Munsell colour, sediment descriptions, stratigraphy and disturbance (Appendix 1);
- A geomorphological assessment was undertaken (Section 2.6);
- All artefacts were recorded in detail including photographic records, typological determination, material type, size, conjoining analysis and usewear (Section 2.4);
- If any organic features were discovered in association with Aboriginal cultural heritage the feature was to be salvaged completely and subjected to dating analysis.



Map 3 Location of Salvage Excavations



Scale = 1:1000

0 30
Scale of Metres

Legend:

Primary Grid Coordinate
347409E, 5783261N
& Test Pit 1 (1x1m)
1 Artefact

Activity Area Boundary

Fence

x Salvage Test Pit (1x1m)
xy Salvage Test Pit (1x1m) with Artefact
x = test pit number
y = number of artefacts

Tree

Denotes Direction of Slight Slope

N

GDA
Zone 55

Map 4 Location of Salvage Excavations
within Extent of VAHR 7921-1521

2.3 Results

Fieldwork was conducted on 6th-8th and 12th of October 2015 by Mark Dowdell (Fieldwork Supervisor, AAT), Jessica Nicholls (Archaeologist, AAT) and WWWCHAC representatives Trevor Downes on the 6th, 7th and 12th October and Craig Terrick participated in fieldwork on 8TH October. A total area of 15m^2 was excavated focused on the low sandy rise landform within the site extent of VAHR 7921-1521 (**Map 4, Photo 1**).

Photo 1 Overview of the unexcavated sandy rise landform where VAHR 7921-1521 is located and salvage excavations were undertaken.

A total of 10 salvage excavation pits were positive for stone artefacts, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP14 and TP15, from which 46 subsurface artefacts were recorded (**Appendix 1, Table 1**). Artefact densities range from extremely low to low (**Table 1**) with the average artefact density of 4.6 artefacts per m^2. The highest density was found in TP9. These artefacts were found within brown silty sand between depth of 25cm and 55cm. This test pit was located on the crest of the sandy rise.

Table 1 Stone Artefact Densities

Excavation	Extent m^2	Number of Artefacts	Density Class
TP1	1	0	
TP2	1	0	
TP3	1	7	Very Low
TP4	1	1	Extremely Low
TP5	1	1	Extremely Low
TP6	1	1	Extremely Low
TP7	1	1	Extremely Low
TP8	1	1	Extremely Low

Excavation	Extent m^2	Number of Artefacts	Density Class
TP9	1	24	Low
TP10	1	4	Extremely Low
TP11	1	0	
TP12	1	0	
TP13	1	0	
TP14	1	1	Extremely Low
TP15	1	5	Very Low
TP 16	1	0	

2.4 Stone Artefacts

Only two raw materials are represented in the assemblage, silcrete (n=46, 96%) and quartz (n=2, 4%) (Chart 1). Primary forms are dominated by complete flakes (n=24, 54%) followed by angular fragments (n=8, 18%), unidirectional cores (n=3, 7 %), medial flakes – (n=3, 7%), distal blades (n=2, 4%), proximal flakes (n=2, 4%), a complete blade (n=1, 2%), a medial blade (n=1, 2%) and a distal flake (n=1, 2%) (Chart 2). No formal tools were identified in the assemblage

Chart 1 Stone Artefact Raw Material and Primary Forms

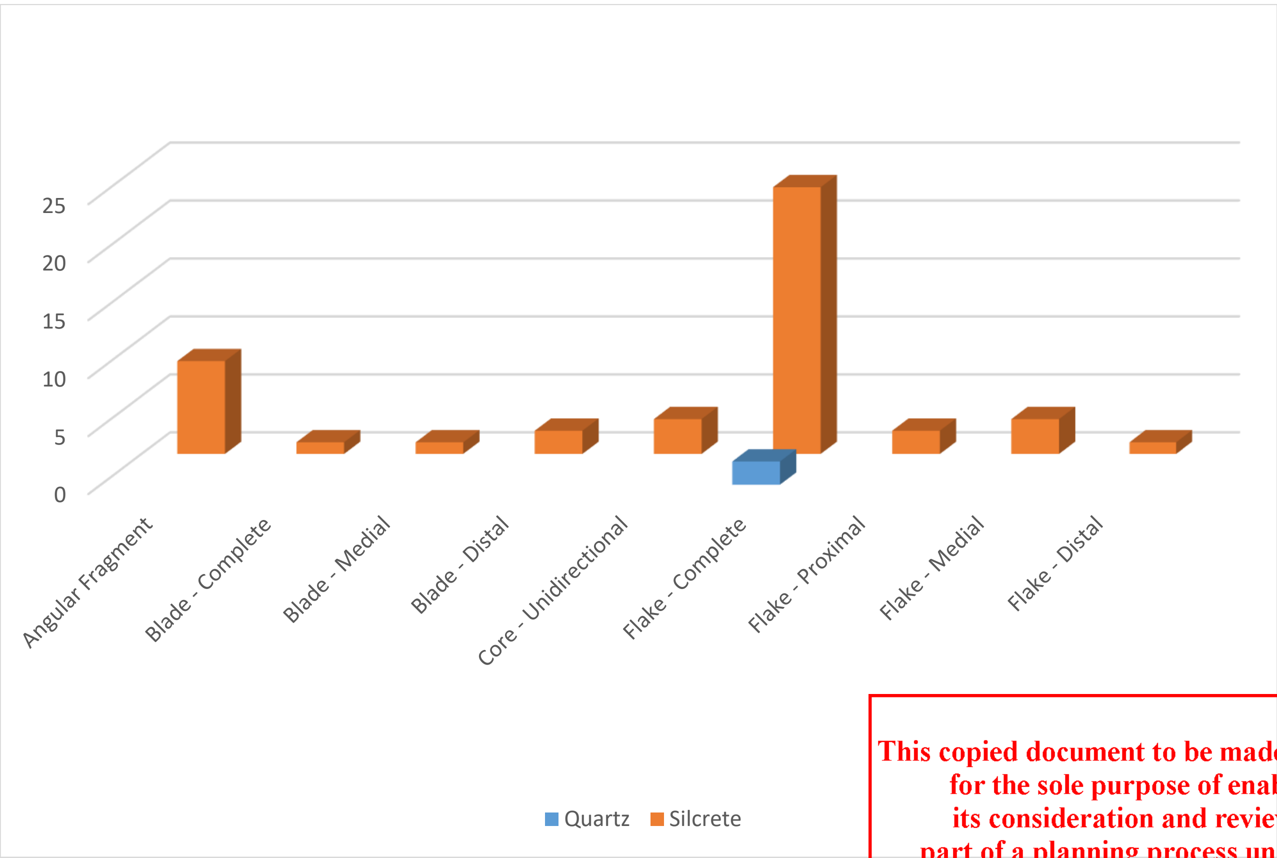
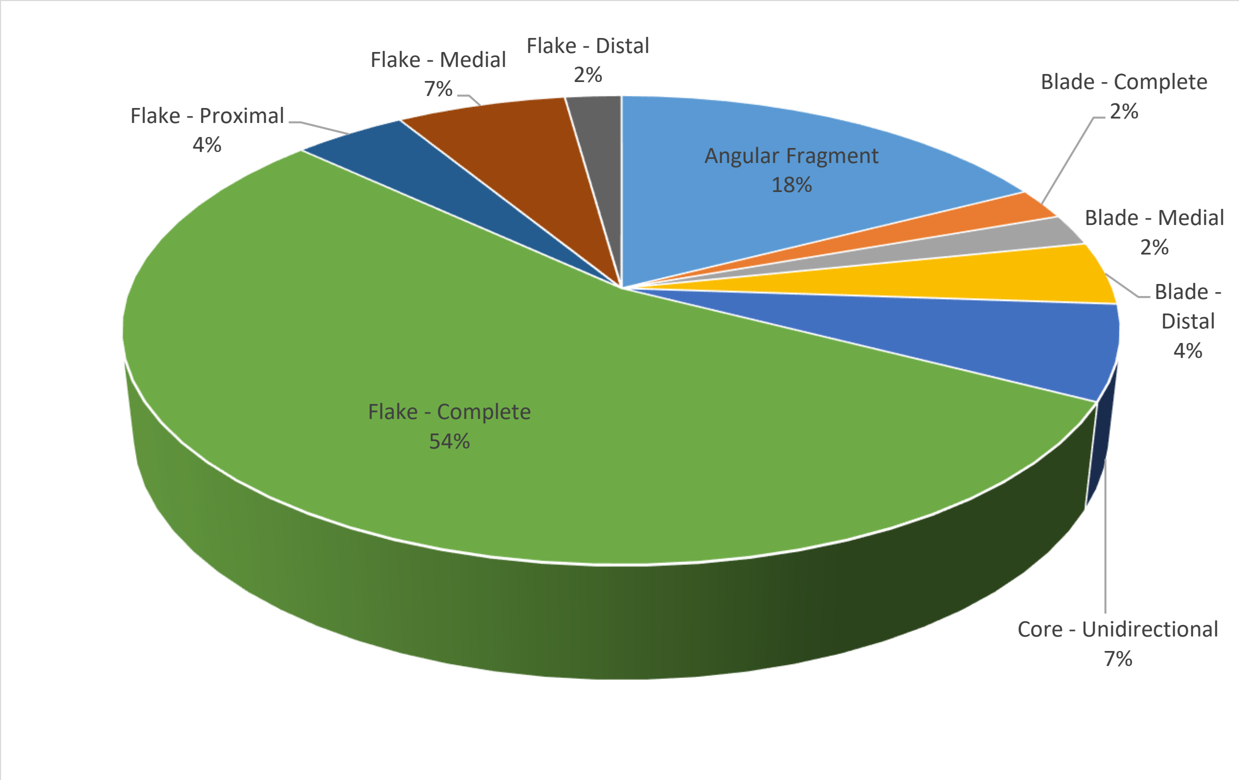
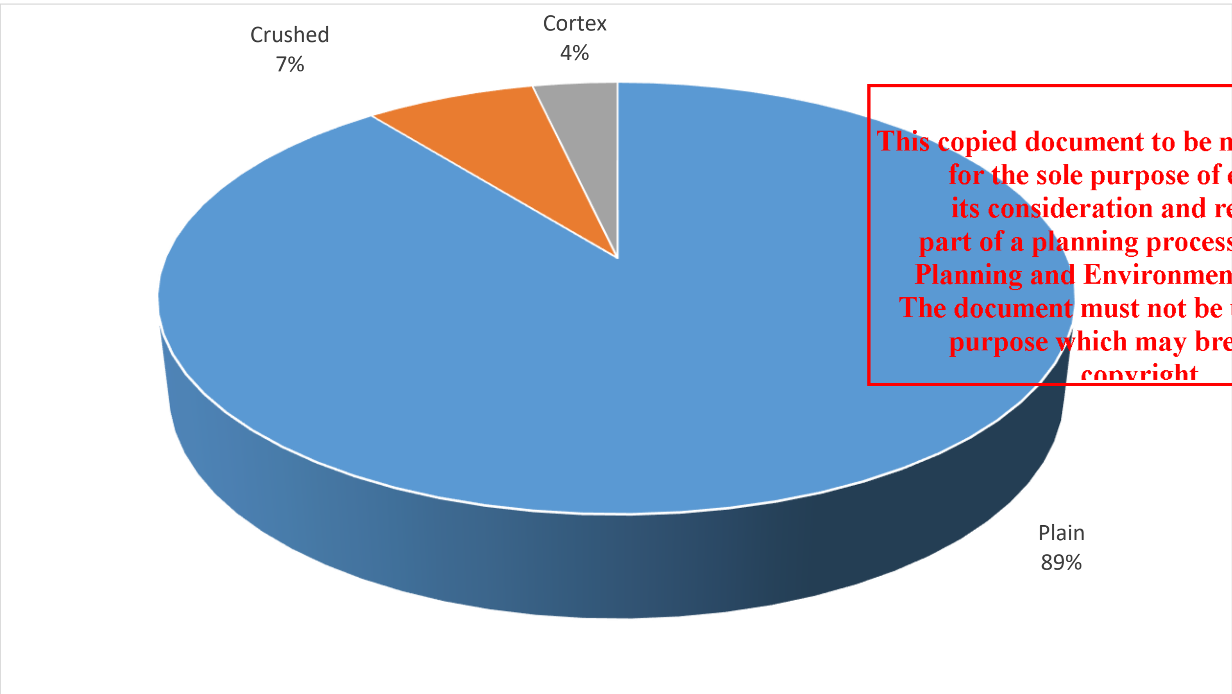


Chart 2 Primary Forms



Platform type was recorded for 27 flakes and one blade, these included plain (n=25, 89%), crushed (n=2, 7%) and cortex (n=1, 4%) platforms (Chart 3).

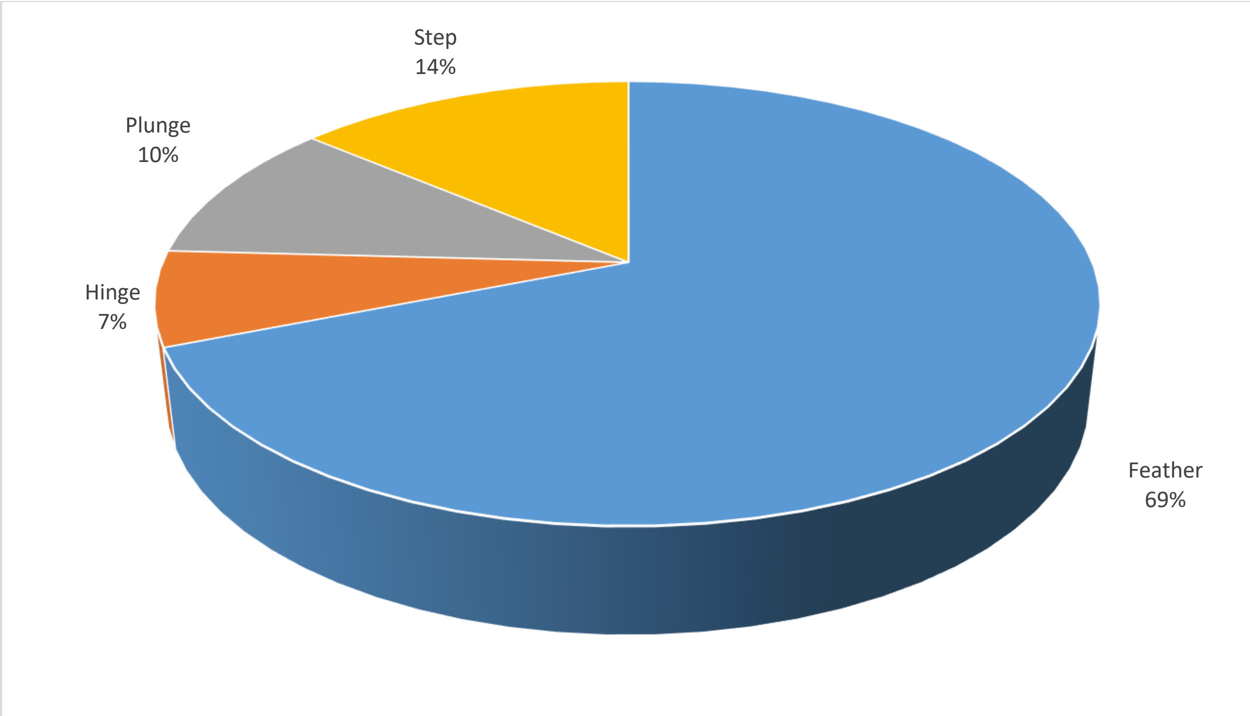
Chart 3 Platform Types



Terminations were observed on 29 artefacts comprising 28 flakes and one blade. Platform types recorded include feather (n=20, 69%), step (n=4, 14%), plunge (n=3, 10%) and hinge (n=2, 7%) terminations (Chart 4). The percentage of feather terminations in both flakes and blades being of 50% indicates that a there was a high level of control exercised by the knapper

(Holdaway & Stern 2004: 133) with lower proportions of hinge, plunge and step terminations for both flakes and blades.

Chart 4 Termination Types



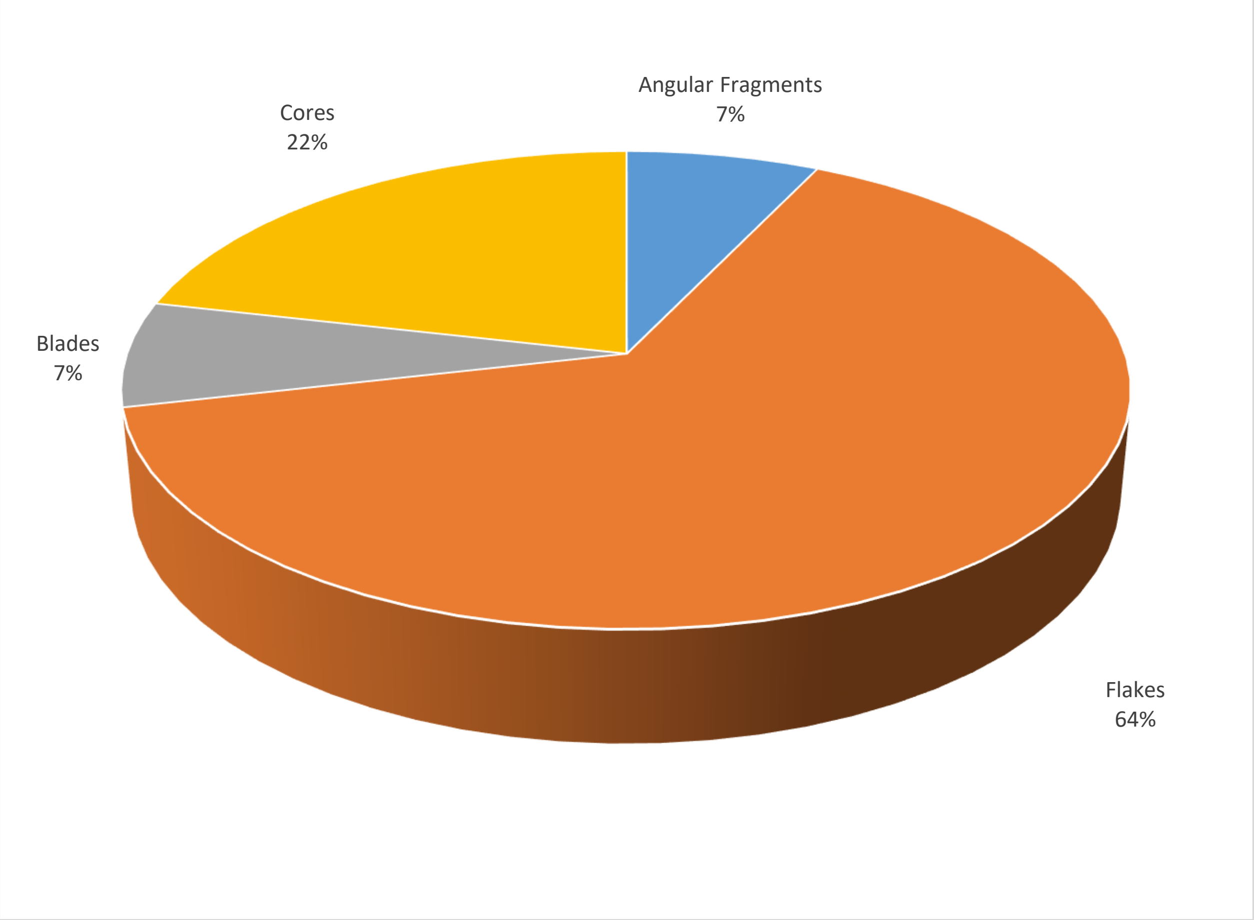
There are three uni-directional cores recorded in the assemblage. All cores were produced on silcrete and are relatively small with an average maximum dimension of 41.7mm. The largest core is 78mm in length while the smallest is 21mm in length. The average of the largest complete flake scar on cores is 21.7mm in length with a maximum of 25mm and a minimum of 20mm. No formal core types were identified. Although all made from silcrete, two of the cores were manufactured using poor quality silcrete that has several nodular inclusion and is poorly sorted. The remaining core is heavily worked and very fine grained. The larger poorer quality cores potential indicate exploratory reduction of the poorer material, with the knapper seeking suitable knapping material. Whereas, the fine quality core was reduced to near exhaustion before discard. Other larger silcrete cores that were of good quality material were likely taken from site and reduced elsewhere. Combined with the evidence of the platform type above and the cortex below, the assemblage indicates both primary and secondary stone reduction was conducted on-site.

Table 2 Cortex on Artefacts: Primary Form & Raw Material

Primary Form	Raw Material Silcrete
Angular Fragments	1
Flakes	9
Blades	1
Cores	3
Totals	14

Cortex was recorded on 30% of the assemblage (Table 2). Of the assemblage that preserves cortex all are silcrete. Primary form is dominated by flakes (n=9, 64%) followed by cores (n=3, 22%), an angular fragment (n=1, 7%) and a blade (n=1, 7%)(Chart 5).

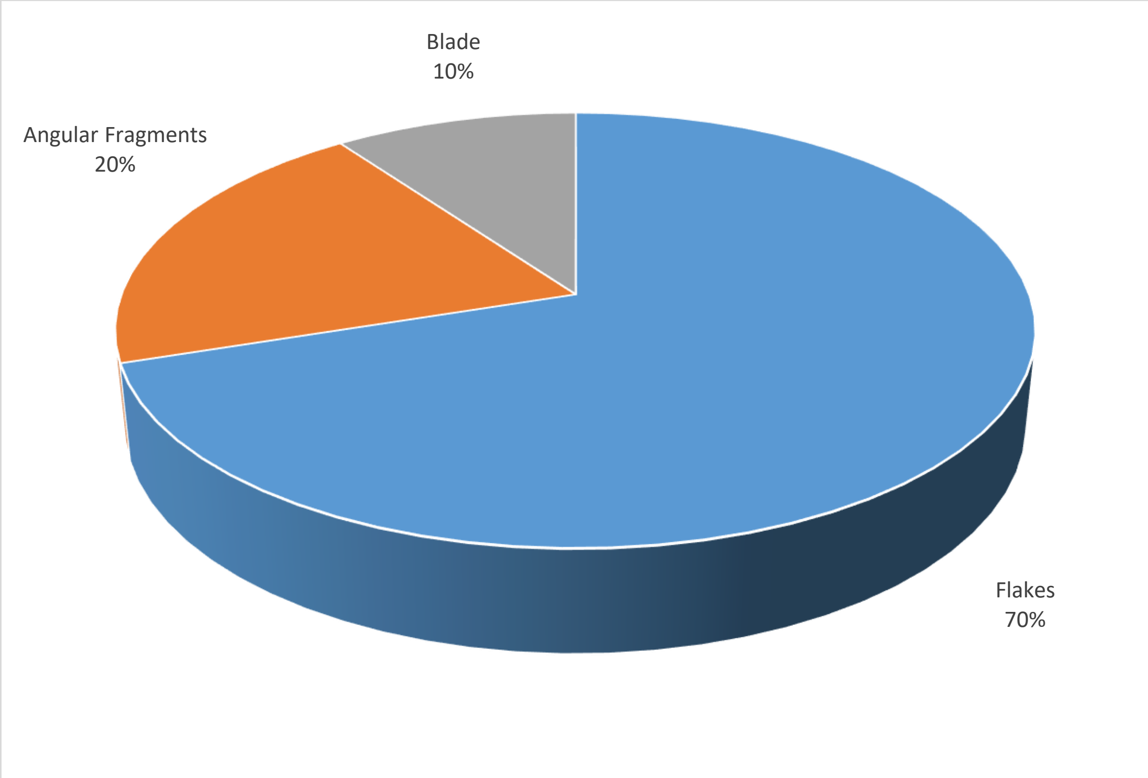
Chart 5 Cortical Assemblage and Primary Form



A total of 10 artefacts have retouch or usewear; however, no formal tools were identified. Flakes dominate (n=7, 70%) followed by angular fragments (n=2, 20%) and a blade (n=1, 10%) (Chart 6). These may reflect either utilised artefacts or retouched waste flakes from the manufacture of formal tools that were then removed from site and discarded elsewhere.

No artefact conjoins were identified within the salvage assemblage.

Chart 6 Retouch and Usewear



2.5 Landforms, Geomorphology and Geology

Geology

The geology of the salvage area is dominated by Sandringham Sandstone (previously mapped as Red Bluff Sandstone) ferruginised sands and gravels (VandenBerg 1997; Morand 2010) (Figure 1). These Miocene-Pliocene (23-2.6 Ma BP) age concreted sands are fluvial and paralic in origin and cover most of the northern terrestrial regions of Port Phillip Bay and Western Port Bay (Holdgate & Gallagher 2003; Abele 1976). The bedrock and soil profile above the rock is strongly differentiated, poorly sorted, mainly coarse pale yellow and brown sands with variable amounts of gravel, finer sands and clay (Figure 2) (Jenkin 1974; VandenBerg 1997). Coarse material tends to occur in lenses, and is frequently cross-bedded, with finer particles present in continuous beds (Jenkin 1974). Weathering of the strata has resulted in the formation of fine clayey sand regolith with pisolitic inclusions derived from the decomposition of the Sandringham Sandstone rock (VandenBerg 1997; Jenkin 1974). It is likely that the regolith has some aeolian component introduced to it due to the proximity of the unit to local Cranbourne Sand deposits (Geological Survey of Victoria 1967). The Sandringham Sandstone is typically 12 metres thick, but can be up to 24 metres thick in places (Jenkin 1974).

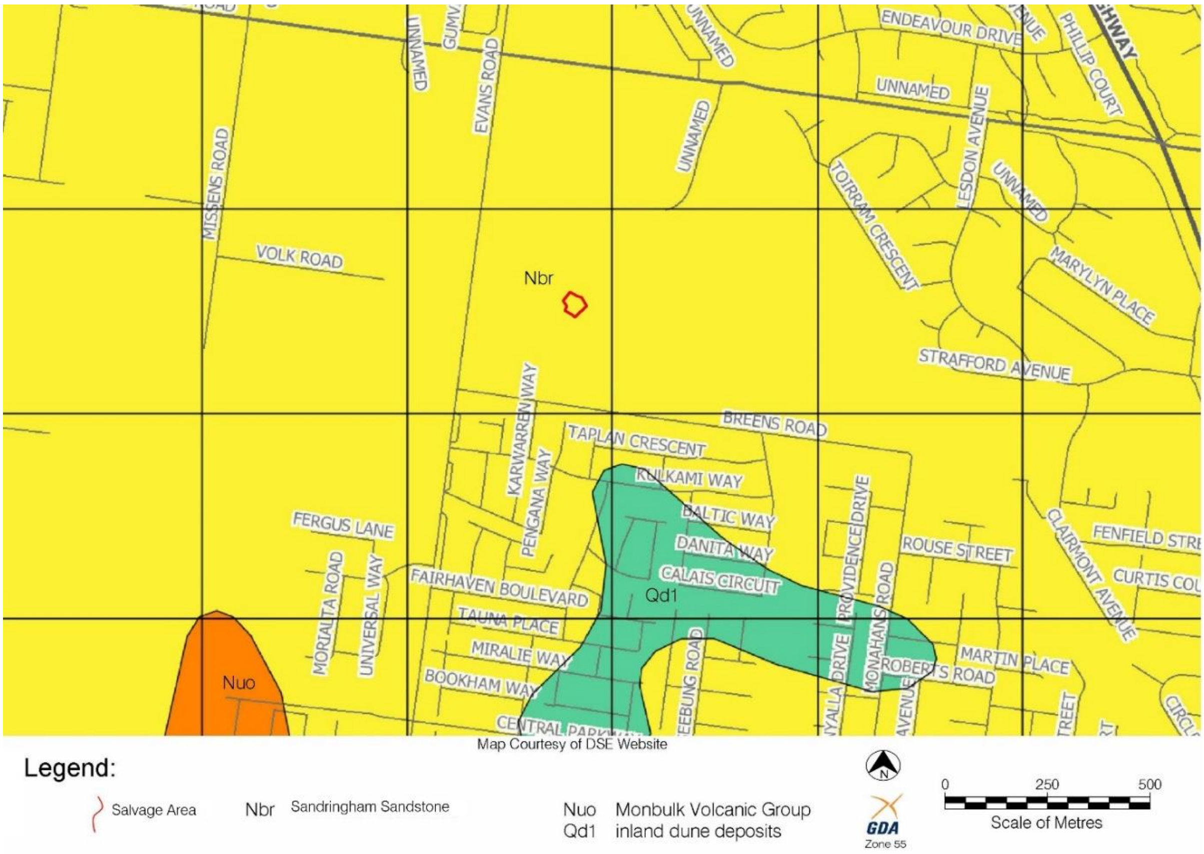


Figure 1 Geology of the Salvage Area

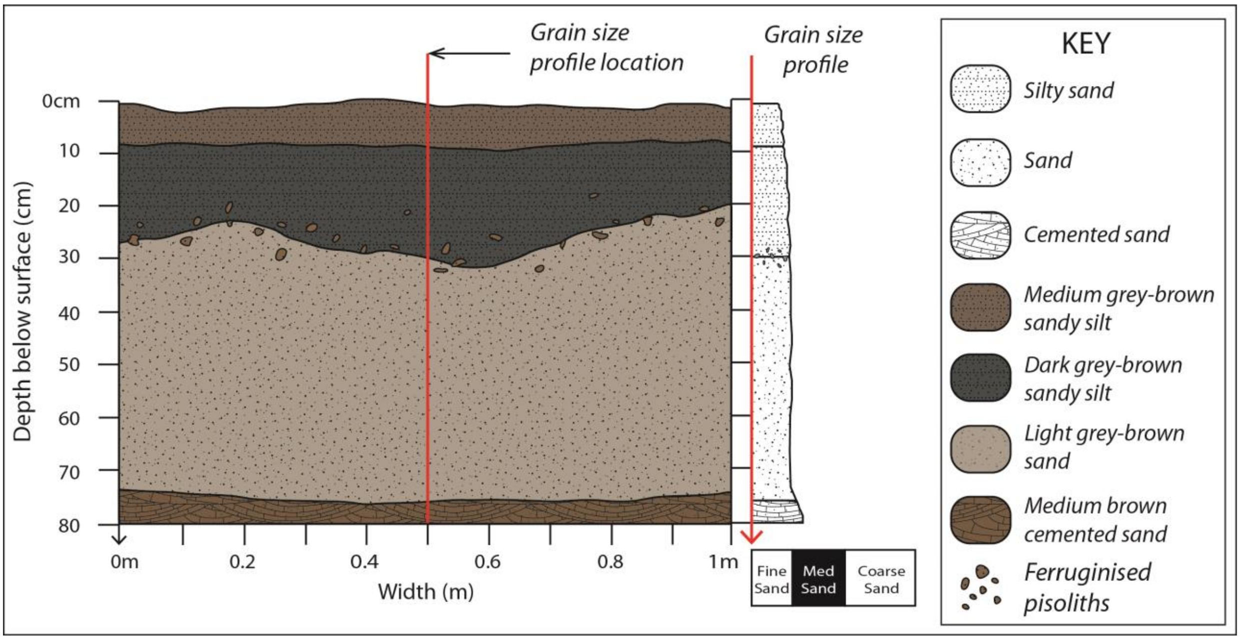


Figure 2 Stratigraphic representation of Sandringham Sandstone soil profile

In places, the Sandringham Sandstone is overlain by a thin, unmapped mantle of Cranbourne Sand aeolian deposits. These sands are comprised of clear, medium to fine colourless quartz, with some near-surface iron staining present from contact with the Sandringham Sandstone (Jenkin 1974). These dunes and sand sheets trend NW-SE, with their postulated source being re-worked sands from Port Phillip Bay (Jenkin 1974). In periods of drier climates (primarily the Last Glacial Period) the deposits were thought to have extended across Westernport Bay prior to marine transgression (Cupper et al 2003). Where undisturbed, the Cranbourne Sands contain obvious bedding and distinct soil horizons (Bowler 2007). The thin soils present on the unit are usually strongly acidic with one or more indurated sand horizons present below dark-light grey sandy topsoils (Joyce et al 2003).

Geomorphology & Landform

The northern section of the Mornington Peninsula is part of the Eastern Plains geomorphic region of Victoria (Joyce et al 2003). The plains have flat to undulating relief and are covered with Late Cainozoic sedimentary deposits (Joyce et al 2003). These plains separate the Western Port and Port Phillip Sunklands to the east and west respectively, with the watershed of both located near Botanic Ridge near Cranbourne, and southeast of the salvage area (Hills 1975; Joyce et al 2003). The region is bounded by faults (Selwyn and Tyabb Faults) with much of the relief dependent on the past movement of these structures and the subsequent deposition of Quaternary sediments (Joyce et al 2003).

Drainage on the Eastern Plains unit is linear in orientation, with bedrock bedding planes playing little part in drainage patterns (Jenkin 1974). Instead, the drainage patterns are largely due to the orientation of the dunes present and the close proximity of Carrum Swamp (Hills 1975; Jenkin 1974). These factors create parallel stream networks, with watercourses flowing from southeast to northwest along the dune swales and alluvial valleys towards the Carrum Swamp (Jenkin 1974). In the past, streams connected the small swamps that lay between the dune ridges; however, most of these swamps have been drained and the streams modified by human influences. The former swamp situated north of the salvage area is one such swamp (Figure 3).

Due to the low relief and elevation of the salvage area, the main geomorphic processes that have and are acting on the area are eustatic sea level and weathering processes. Changes in sea level have contributed to the sedimentation and erosion cycles of the region by effectively lowering and increasing the base level. Decreases of sea level typically cause erosion of the ground surface, while increases cause sedimentation. Decreases in sea level in the past have had a two-fold influence on the landscape, causing increased erosion on the Sandringham Sandstone surface, while uncovering a sediment source for the Cranbourne Sand deposits (Jenkin 1974). The sea level regression allowed prevalent westerly winds to transport sand from this new source across the northern parts of the Mornington Peninsula (Jenkin 1974). Weathering processes such as chemical weathering and physical weathering have acted on the Sandringham Sandstone to produce concreted pisoliths and the mobilisation of iron at the top of the profile (Abele 1976). The mobilisation of iron can continue upwards into the Quaternary aeolian sediments, creating an additional ferruginised layer with pisolith inclusions.

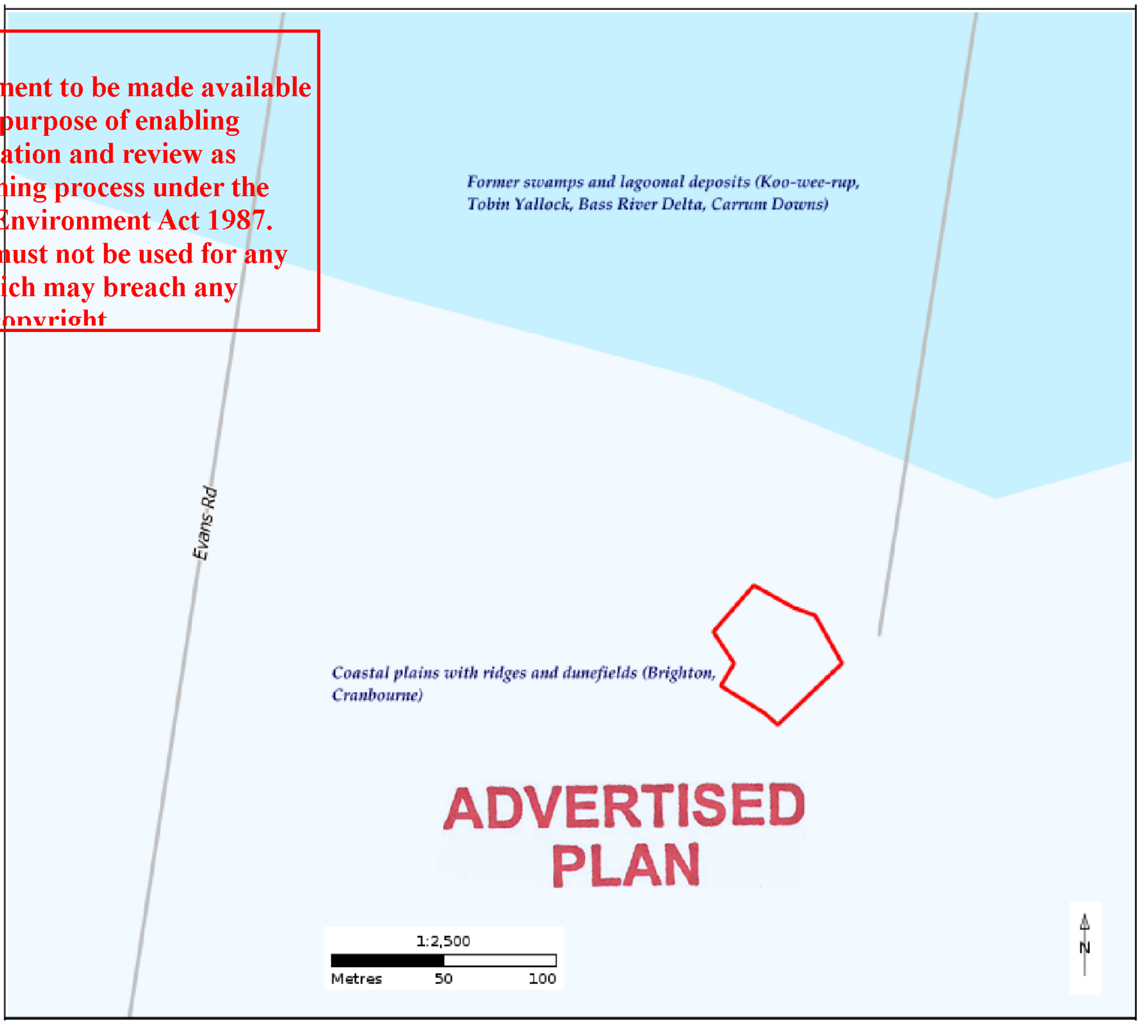


Figure 3 **Surface Geomorphology of the Salvage Area and Surrounds (salvage area outlined in red).**

Geological & Geomorphological History

The landscape seen at present has its roots in the Mid-Late Cretaceous, when Australia and Antarctica began to split apart (Jenkin 1976). Tectonic processes became pronounced in response to the widespread rifting, their effects lasting up until the Late Tertiary (Duddy 2003; Ollier 1995). In response to crustal extension, rapid subsidence occurred under the weight of over 10^5 km^3 of deposited volcanic and fluviatile sediments that washed into the basin during the period from flanking terrestrial surfaces (Duddy 2003; Bryan et al 1997; Jenkin 1974). Substantial tectonic reorganisation continued in the Mid-Late Cretaceous during the initial separation of the two continents, and included folding, faulting and uplifting of the landscape (Duddy 2003; Hills 1975). The Mornington Peninsula was formed during this period of tectonic reorganisation as part of the southwest-trending Mornington Peninsula-King Island High which separated the Gippsland and Otway Basins (Duddy 2003). As the landscape was rapidly uplifted, stripping of sediment occurred along the Mornington surface, exposing the Palaeozoic rock strata in places, mostly to the south of the activity area (Duddy 2003; Hill 1999; Joyce et al 2003).

Following the tectonic reorganisation, basic igneous activity occurred in Victoria during the Paleocene and Eocene (59-30 Ma BP) in the form of the voluminous extrusion of the Older Volcanics unit in eastern Victoria (Day 1989). At this time, climates were warmer and wetter than present, as the Australasian Plate was under the influence of the Paleocene-Eocene Thermal Maximum (PETM) (~55 Ma BP) (White & Mitchell 2003; Tripati & Elderfield 2005). Both this short period of warmth and the slightly cooler temperatures of the Early Tertiary (66-34 Ma BP) allowed for increased rates of rock weathering, which continued intermittently up until the end of the Pliocene, where cooler, drier climates became more widespread (White & Mitchell 2003).

Intermittent tectonic activity occurred throughout the Tertiary, peaking around 8-4 Ma BP, with some uplifted areas reaching several hundred metres above previous Cretaceous levels (Sandiford et al 2004). During the Oligocene (34-23 Ma BP), significant north-east trending faults activated in eastern Victoria, creating up to 1km of vertical displacement in the landscape (Dyksterhuis & Müller 2008). In the period of time between the Early Tertiary and the Early Quaternary, many faults in eastern Victoria were observed to have reactivated at least once, causing several tectonic movement events and landscape deformation (Dyksterhuis & Müller 2008). Tectonic movement, particularly uplift, was usually followed by rapid erosion and removal of weathered sediment from the uplifted areas of landscape (Joyce et al 2003). The sudden increase in elevation subsequently increased the erosional activity of streams and slope processes, facilitating the stripping of soil and weathered sediment from the landscape (Joyce et al 2003; Jenkin 1999).

Sea level from the Miocene onwards fluctuated, causing several changes in depositional regime across the landscape. It was during this stage that the Miocene-Pliocene Sandringham Sandstone was deposited (Abele 1976; Holdgate & Gallagher 2003). In the Early Miocene (23-15 Ma BP), lower sea levels allowed continental deposition to dominate, with braided streams laying down sequences of quartz pebbles, sands and clays (Abele 1976). An increase in sea level in the Late Miocene and Early Pliocene (11-3 Ma BP) increased sedimentation along marine-terrestrial margins, depositing the upper sequences of the Sandringham Sandstone unit in marginal marine conditions (Abele

1976; Gostin 1973). Sea level retreated once more in the Mid-Late Pliocene allowing for a period of intense leaching and ferruginisation, cementing the Tertiary bedrock sequences (Gostin 1973).

During the Last Glacial Period (33-18 ka BP), shifts in climate promoted the formation and movement of the Cranbourne Sands across the Mornington Peninsula and the southern areas of the Koo Wee Rup Swamp (Cupper et al 2003). A combination of lowering of sea levels, prevailing westerly wind direction and lack of vegetation cover mobilised dunes across much of Victoria, particularly in the north and along the southern coastlines, causing them to cover vast areas of the landscape with constantly moving transgressive sand sheets and dunes (Hesse & McTainsh 1999; Cupper et al 2003). These sands appear to have extended from around Frankston to the northern part of the Westernport Bay area during lower sea levels, with the main source region for the Cranbourne Sands being Port Phillip Bay (Cupper et al 2003; Jenkin 1974). As the climate ameliorated at the end of the LGM, these sheets and dunes appear to have stabilised as vegetation expanded, covering the dunes at the advent of warmer, wetter climates and sea levels increased, cutting off the sand source regions from the depositional areas (Wiggs 2011; Cupper et al 2003).

Forests increased in size and extent following the increase in rainfall and sea level up to the Holocene Climatic Optimum (HCO) approximately 6 ka BP, when sea levels reached approximately 1-3m above current levels (Bryant 1992). The main swamps to the north and northwest expanded in size and depth due to the increase in base level, while sedimentation of streams also increased, producing the alluvial flats and floodplains seen today (Cupper et al 2003). The increase in swamp size is evidenced directly north of the salvage area (Figure 3). This period was short, and soon after the HCO, climates cooled and dried out, and the sea level dropped. This produced increased incision of streams as base level decreased, and many paired terraces were created along stream channels in coastal Victoria. In the lead up to the present, the climate continued to dry, and in conjunction with lowering sea levels after the HCO, saw Port Phillip dry up for a brief period between 2.8-1ka BP in response to the blockage of the bay by the Nepean Bay Bar (Holdgate et al 2011). This blockage was broken through by sea water around 1ka BP, allowing for the flooding of the bay to current levels (Holdgate et al 2011).

The drier climatic conditions persisted until European settlement, when land clearance began to create land for pasture. Removal of the vegetation increased erosion, which produced an increase in sediment being transported into the local streams (Dodson & Mooney 2002). Erosion is still the main geomorphic process acting on the landscape at present, with most of the sediment being eroded from the slopes, transported to the stream, eroded from the local stream banks and transported downstream out of the catchment (Wallbrink & Hancock 2003).

Geomorphological History

Time period	Geological event/Environmental conditions	Effect
Mid-Jurassic - Late Cretaceous (176-90 Ma)	- Australia & Antarctica begin to separate	Widespread uplifting and erosion remove thick sequences of pre-Cretaceous regolith from flanking terrestrial surfaces. Tectonic uplift creates the Mornington Peninsula-King Island High ridge
Paleocene-Eocene (66 – 34 Ma BP)	- Older Volcanics extruded - Paleocene-Eocene Thermal Maximum (PETM)	Tectonic reorganisation prompts the extrusion of the Older Volcanics in Eastern Victoria. Short period of PETM warmer climates promote increased rock weathering
Eocene – Pliocene (56-2.6 Ma BP)	- Intermittent & discontinuous tectonic uplift	Tectonic re-activation creates widespread faulting and deformation across Victoria. Erosion of soil follows uplift
Miocene – Pliocene (23-2.6 Ma BP) 	- Sea level fluctuations	Initial increase in sea level in Early Miocene promotes continental fluvial deposition of lower Sandringham Sandstone strata. Further increases in sea level in the Late Miocene-Early Pliocene allow marginal marine sequences of Sandringham Sandstone to be deposited in the landscape. Sea level retreat in Mid-Late Pliocene promotes weathering and ferruginisation of surface rock strata
Late Pliocene - Late Pleistocene (2.6 Ma – 18ka BP)	- Sea level retreat - Last Glacial Period	Sea levels retreat from Miocene high (3-4m above current levels) in lead up to Last Glacial Maximum. Climates become cool & dry. Vegetation cover decreases, allowing for increased river discharge and erosion. Cranbourne Sand sediments are transported from the west across the northern areas of the Mornington Peninsula and Western port Bay. Sea level ~120m lower than present
Early-Late Holocene (10-4ka BP)	- Holocene Climatic Optimum (HCO)	Sea levels increase to 1-3m above present levels & climates become warmer and wetter than present. Cranbourne Sand dunes and sheets stabilise. Increase in sedimentation due to increase in base-level.
Late Holocene (4-1ka BP)	- Climatic aridification	After HCO, sea level dropped & climates cooled. Incision of streams increased after HCO in response to base-level drop. Port Phillip Bay dries up ~2.8ka BP before being flooded again at ~1ka BP

Time period	Geological event/Environmental conditions	Effect
Late Holocene – Present (~1850 – Present)	- European settlement	Clearing of landscape by Europeans for pasture. Vegetation removal increases erosion on slopes and increases sedimentation downstream

2.6 Soil Profile

The stratigraphy is in general composed of grey/brown silty sand topsoil (A1) overlying brown silty sand (A2) with a layer of dark grey brown silty sand with ironstone & coffee rock inclusions (A3) present in some excavations. The excavated A-horizon ranged from 40cm to 55cm across the salvage area. As required by the salvage Recommendations, excavations focused on the recorded artefact bearing layer; 10cm to 40cm, as recorded in CHMP 12874.

Disturbance from farming actives, exotic tree planting and removal, bioturbation from rabbits and stock trampling were noted across the salvage area. The presence of glass and ceramic fragments at depths of 10-20cm also indicates that some of the near-surface sediments may be disturbed or have accumulated relatively recently.

Photo 2

Salvage pit TP4. Facing north.

Photo 3

Salvage pit TP4 plan view. Facing north.

2.7 VAHR 7921-1521 [280 Evans Road]

Place Type:	Artefact scatter			
Primary Grid Coordinate*:	347409E 5783261N (GDA94 Zone 55)			
Contents:		CHMP 12874	Salvage	Total
	Silcrete	111	44	155
	Angular Fragments	44	6	50
	Complete Flakes	46	12	58
	Split Flakes	3	-	3
	Proximal Flakes	6	2	8
	Medial Flakes	2	3	5
	Distal Flakes	6	1	7
	Complete Blades	-	1	1
	Medial Blade	-	1	1
	Distal Blade	-	2	2
	Unidirectional Core	1	3	4
	Multidirectional Core	1	-	1
	Geometric Microliths	2	-	2
	Quartz	1	2	3
	Flakes	1	2	3
Vertical Artefact Distribution:	Surface	0		
	0-10cm	4		
	10-20cm	5		
	20-30cm	5		
	30-40cm	11		
	40-50cm	132		
Artefact Density per m^2:	10.53			
Known Extent:	2007.51m^2			
Disturbance:	Grazing, ploughing, stock trampling, tree removal & bioturbation			
Landform:	Sandy Rise			
Waterways:	Former swamp			
Scientific Significance:	Low			
Nature:	The salvage excavations have altered the nature of the place as detailed in CHMP 12674 (Section 8.2.1). Specifically, the salvage excavations have lowered the average artefact density and the scientific significance of the place.			

VAHR 7921-1521 is a subsurface stone artefact scatter that is located on a low sandy rise adjacent to a former swamp. The place has been disturbed by vegetation clearance, grazing, stock trampling, ploughing and tree removal. There was no evidence of high integrity occupation deposits or features and all subsurface cultural material was found in natural soil horizons. The place primarily represents a single knapping event, evidenced by the high density silcrete artefacts (CHMP 12874 TP5,knapped to produce microliths. Due to the presence of a geometric microlith, the place likely dates to the Mid-Late Holocene.

Photo 4

A sample of the stone tools recovered during the salvage (dorsal).

Photo 5
A sample of the stone tools recovered during the salvage (ventral).

Photo 6

A sample of artefacts from CHMP 12874 TP5, most likely flaked from the same core in a single knapping event.

Photo 7

A sample of conjoined artefacts from CHMP 12874 TP5.

2.8 Research Questions

The following research questions were considered to address point 3 of the Recommendation 1 of CHMP 12874 and addresses the entire assemblage as recorded during both CHMP 12874 and the salvage excavations.

When did Aboriginal people occupy this place?

Aboriginal people most likely occupied the place during the Mid-to-Late Holocene. The presence of geometric microliths indicates the assemblage is part of the Australian Small Tool Tradition (ASTT) and the ASTT has been dated to 6,000 and 7,000 years ago (Hiscock & Attenbrow 2004). Although geometric microliths are typical of the ASTT, the presence of this tool type is not necessarily an accurate indicator of the age of the place as microliths have been recovered from Pleistocene aged archaeological sites in both Queensland and New South Wales (Campbell 1982; Hiscock & Attenbrow 1998; Slack et al 2004).

The landform and depositional context from which the assemblage originates from is also attributed to the Mid-to-Late Holocene, the period of latest landscape formation associated with present sea level stabilising approximately 5,000 to 6,000 years ago (Marsden & Mallet 1975: 114-116; Bird 1993: 145; Douglas & Ferguson 1993: 387).

What activities took place at this location?

Activities that were conducted at the site are indicated by the formal tool-types found in the assemblage and the assemblage composition. Most of the assemblage comprises of small angular fragments and very small flakes (Appendix 1, Murphy et al 2014) that were created during the knapping process. The high number of small flaking debris and stone artefacts that appear to be made from the same raw material indicates that knapping was conducted at this locality.

Conjoining artefacts are present in the assemblage (one set of four, one set of three and two sets of two pieces) (Photo 7). The sets of two and three do not refit at impact points and are therefore breakages have occurred post production of the artefacts. This is an indication that the assemblage has been subject to low levels of disturbance after its creation; trampling and ploughing are common causes and both these disturbances were noted during excavations. Three out of the set of four conjoining artefacts can be fitted back together in a way that indicates the order in which they were manufactured. Specifically, a series of three small flake removals can be reconstructed to reveal that unidirectional flaking of high quality silcrete took place at this locality. Conjoins such as this one are usually only present in assemblages that have not been subject to significant levels of disturbance.

The assemblage contains five cores (four unidirectional and one multidirectional). Although the presence of the multidirectional core suggests that a generalised reduction strategy was being employed, bladelets have been removed from the unidirectional cores. The lack of bladelets in the assemblage suggests that this artefact type may have been preferentially selected for use or further modification elsewhere.

Some formal tool production was conducted at this locality, as evidenced by the presence of two geometric microliths and a small number of blade sections. The presence of blade sections may represent abandoned production attempts or portions of blades that were deemed unsuitable for tool production. Additionally, 10 artefacts display retouch or usewear. These may reflect either indicate expedient use of non-formal artefacts for a range of activities or retouched waste flakes/debris from the manufacture of formal tools.

Cortex was found on 9% of the assemblage including two large silcrete cores, which display up to 66% cortex, indicating that primary as well as secondary reduction was conducted on-site. The coupled with the artefacts conjoins and the high density of homogenous silcrete artefacts identified in CHMP 12874 test pit TP5, the evidence clearly confirms the conclusions by Murphy et al (2014) that relatively intact soil profiles were present in the activity area. The intensive knapping event was produced from a single nodule or several nodules of silcrete from the same raw material source.

Are there technological or functional differences between the stone artefact distributions with depth of deposit, i.e., through time?

No archaeological stratigraphy was observed during the salvage excavations. Stone artefacts were found to a maximum depth of 55cm in natural and sometimes disturbed, soil horizons. The lack of archaeological stratigraphy and associated dateable material means that there was no evidence to determine any technological or functional differences between stone artefact distributions with depth of deposit or through time. Low integrity material, such as environmental charcoal, was also not observed macroscopically during excavation and this may indicate periodic flooding on the sandy rise by the nearby swamp at times of high water levels.

What are the likely sources of raw materials and what do they tell us about the movement of material and / or people through the landscape?

Stone sources for the region include sources of silcrete, coastal flint, chert and quartz. The flint is likely to be sourced along the coastline, having been washed onshore from offshore outcrops of limestone (Scott-Virtue 1982). Silcrete boulders in southeastern Australia are typically sub-basaltic silcrete, and are associated with basalt flows of the Older Volcanic group along the Mornington Peninsula, French Island and Phillip Island. Erosion of the basalt can promote subsequent erosion of the underlying silcrete deposits, and these boulders can form aprons along slopes and stream courses (Webb 1995). Chert and quartz can be sourced from the Silurian and Ordovician marine sediments along the Mornington Peninsula, with the quartz occurring in hydrothermal veins that have been weathered and exposed to the surface over time.

The limited number of raw materials represented in the stone tool assemblage can all be sourced locally and do not provide evidence of trade or movement of people outside of the traditional tribal boundaries.

How do typological patterns in the stone tool assemblages compare with those from other Aboriginal Places in the region?

Typologically, the stone tool assemblage is representative of the ASTT with formal tools consisting of geometric microliths and the presence of blades. This is consistent with other Aboriginal places within Victoria dating to the Mid-Late Holocene, with assemblages commonly containing a similar portion of formal tools. Similarly the proportions of flaking debitage and raw material selection are typical, with silcrete being the predominant choice of raw material. What is unusual is the restricted range of raw materials. Typically, a broader range of raw materials are present including coastal flint, chert and quartzite.

2.9 Discussion

VAHR 7921-1521 [280 Evans Road] is located on a small sandy rise within the plains adjacent to the former Carrum Swamp. Prior to European settlement, the swamp was an important resource that Aboriginal people would have relied on. During the Holocene Climatic Optimum, a period when the sea level was higher and the climate was wetter, the swamp provided permanent year round supply of potable water and associated flora and fauna. The Holocene Climatic Optimum ended around 5-4,000 years BP, after which the climate became dryer and the swamp may have become less permanent and more seasonal in the area close to the salvage area. Despite this, the swamp was likely an important local resource along with Port Phillip. At this time microliths associated with the ASTT appear in the archaeological record in Victoria. The stone tool assemblage recovered from the salvage area contains artefacts typical of the ASTT. Occupation along the margins of the swamp, as represented by the stone tool assemblage may have occurred sometime around the end of the HCO at approximately 5,000 years BP.

The historic swamp would have provided reliable resources within a transit zone between the coastal zone and the open grasslands further inland. Port Phillip is located approximately 12km to the west, which is about a three hours walk away. Raw materials such as silcrete were locally available, which provides an explanation for the dominance of the raw material in the assemblage. The swamp was centrally located within a range of coastal, riverine, swamp and plains resources and would have been an attractive place for Aboriginal people to camp, manufacture stone tools, repair toolkits, work hides and wood, and conduct a range of other social activities that leave no tangible evidence in the archaeological record.

VAHR 7921-1521 consists primarily of a single knapping event evidenced in CHMP 12874 TP5. These silcrete artefacts were most likely flaked from the same core. The place likely represents a single or small number of visits by a single person or small family group to the swamp margin during the Mid-Late Holocene who were reducing cores of differing quality and raw materials to make implements for hunting and processing game.

3 RECOMMENDATIONS

Recommendation 1 VAHR 7921-1521

Archaeological salvage has fulfilled the compliance Recommendations in approved CHMP 12874. No additional archaeological salvage is required. The activity can proceed in the location of VAHR 7921-1521.

Recommendation 1 Reporting

Upon approval of this report by the sponsor, a copy of the report will be lodged with AV and the appropriate VAHR forms will be submitted to AV.

Recommendation 4 Artefact Storage and Custody

Stone artefacts retrieved during the salvage excavations are currently in the custody of Archaeology At Tardis Pty Ltd. Pursuant to compliance Recommendation 4 (Murphy et al 2014: 77), the stone artefacts must be reburied once the activity is complete as per the following:

The Sponsor must ensure the artefacts are reburied as close to the original place location as practical within three months after the completion of the activity. The reburial location must be documented to sub-meter accuracy using GDA94 MGA coordinates and reported to OAAV. A reburial location within the electricity easement or other suitable area within the activity area would be recommended after completion of the activity. A representative of each relevant Traditional Owner Group must be invited to attend the reburial.

All cultural heritage must be buried in a suitable weatherproof container along with a copy of the artefact inventory. An Object Collection Form must be completed and submitted to AV by a suitably qualified cultural heritage advisor. The cost of the reburial is to be borne by the sponsor or their agent. The exact location and timing should be as a result of communication between the relevant Aboriginal group/s and sponsor.

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APPENDIX 1 – EXCAVATION AND ARTEFACT INVENTORY

TP	Easting	Northing	Extent[1]	Depth[2]	Arts[3]	Distribution[4]	Location	Profile Description	PH
1			100x100	40	-	-	Slight Rise	[1] 0-30cm – weak, grey SILTY SAND. [2] 30-40cm - strong, weak grey SILT	6.5 6.5
2			100x100	40	-	-	Slight Rise	[1] 0-30cm – weak, grey SILTY SAND. [2] 30-40cm - strong, weak grey SILT	6.5 6.5
3			100x100	40	7	15-20:1 30-35: 6	Low Rise	[1] 0-20cm – firm, greyish brown SILTY SAND. [2] 20-40cm – firm, light brown SILTY SAND. [3] 40cm+- very firm, orange brown SILTY SAND.	6.5 6.5 6.5
4			100x100	55	1	40-45: 1	Low Rise	[1] 0-30cm – weak, grey SILTY SAND. [2] 30-55cm - firm, orange brown SILTY SAND.	6.5 6.5
5			100x100	45	1	30-35: 1	Low Rise	[1] 0-25cm – weak, grey SILTY SAND. [2] 25-35cm – weak, whitish grey SILTY SAND. [3] 35-45cm+ - weak brown SILTY SAND.	6.5 6.5 6.5
6			100x100	50	1	40-45: 1	Low Rise	[1] 0-10cm – very firm, grey SILTY SAND. [2] 10-30cm - weak light grey SILTY SAND [3] 30-50cm – weak mottled brown and white SILTY SAND [4] 50cm+ - firm orange and white CLAYEY sand	6.5 6.5 6.5 6.5
7			100x100	50	1	40-45: 1	Low Rise	[1] 0-20cm – firm, grey SILTY SAND. [2] 20-40cm – firm, brown SILTY SAND. [3] 40cm+- strong, white grey CLAYEY SAND.	6.5 6.5 6.5
8			100x100	45	1	5-10: 1	Low Rise	[1] 0-30cm – very firm, grey SILTY SAND. [2] 30-45cm - weak, light brown SILTY SAND.	6.5 6.5
9			100x100	55	24	20-25: 1 35-40: 19 40-45: 3 45-50: 1	Low Rise	[1] 0-25cm – very firm, grey SILTY SAND. [2] 25-55cm – weak, brown SILTY SAND [3] 55cm+ - very strong, dark grey SAND	6.5 6.5 6.5
10			100x100	40	4	20-25: 4	Low Rise	[1] 0-35cm – very firm, grey SILT [2] 35-40cm – very strong, dark grey SAND	7 6.5
11			100x100	45	-	-	Low Rise	[1] 0-25cm – very firm, grey SAND. [2] 25-40cm – firm, brown SAND. [3] 40-45cm+ - strong dark greyish brown SILTY SAND.	6.5 6.5 6.5
12			100x100	45	-	-	Low Rise	[1] 0-20cm – strong, grey SILTY SAND [2] 20-45cm – weak, brownish grey SAND	6.5 6.5

TP	Easting	Northing	Extent[1]	Depth[2]	Arts[3]	Distribution[4]	Location	Profile Description	PH
13			100x100	50	-	-	Slight Rise	[1] 0-30cm – very firm, grey SANDY SILT. [2] 30-50cm - weak, whitish grey SILTY SAND.	7 6.5
14			100x100	40	1	30-35: 1	Slight Rise	[1] 0-10cm – strong, grey SILTY SAND. [2] 10-40cm – very strong, dark grey SAND. [3] 40cm+ - very strong dark greyish and white CLAYEY SAND.	6.5 6.5 6.5
15			100x100	50	15	10-15: 1 30-35: 3 40-45: 1	Slight Rise	[1] 0-20cm – strong, grey SILTY SAND. [2] 20-45cm – weak, dark greyish brown SAND. [3] 45cm+ - strong dark greyish and white CLAYEY SAND.	6.5 6.5 6.5
16			100x100	45	-	-	Slight Rise	[1] 0-20cm – very firm, grey SILTY SAND. [2] 20-45cm – weak, dark greyish brown SAND. [3] 45cm+ - strong dark greyish and white CLAYEY SAND.	6.5 6.5 6.5

1. Extent in cm (length x width); 2. Finishing depth of excavation in cm; 3. Number of artefacts; 4. Depth of artefacts in cm. Test pit coordinates are shown on the complex assessment map.

TP	Spit depth (cm)	*Depth (m)*	*Raw Material*	*Primary Form*	*Cortex %*	*% of edge with retouch/ usewear (flakes, blades and angular fragments only)*	*Flake Platform (complete and proximal flakes and blades only)*	*Flake Termination (complete, distal and longitudinal split flakes and blades only)*	*Number of complete scars (cores only)*	*Longest scar (axial mm) (cores only)*	*Formal Tool/ Core Type (if any)*	*Secondary Modification (if any)*	*Length - axial for flakes and blades (mm)*	*Width - axial for flakes and blades (mm)*	*Thickness (mm)*	*Maximum Dimension (mm)*
3	15-20	0.2	Silcrete	Flake - Medial	1-32%	None							25	10	5	25
3	30-35	0.35	Silcrete	Flake - Complete	None	None	Plain	Feather					9	17	3	17
3	30-35	0.35	Silcrete	Flake - Complete	None	1-32%	Plain	Feather					14	15	2	18
3	30-35	0.35	Silcrete	Flake - Proximal	1-32%	None	Plain						15	10	4	15
3	30-35	0.35	Silcrete	Core - Unidirectional	1-32%				3	20			26	23	11	26
3	30-35	0.35	Silcrete	Flake - Proximal	1-32%	None	Plain	Feather					10	9	3	12
3	30-35	0.35	Silcrete	Flake - Complete	None	None	Crushed	Feather					10	8	1	10
4	40-45	0.45	Silcrete	Flake - Complete	1-32%	None	Plain	Plunge					73	39	20	77
5	30-35	0.35	Silcrete	Flake - Medial	1-32%	None		Crushed					23	5	3	23
6	40-45	0.45	Silcrete	Blade - Distal	None	33-66%		Feather					11	6	2	11
7	40-45	0.45	Silcrete	Flake - Complete	None	1-32%	Plain	Feather					13	15	4	19
8	5-10	0.1	Quartz	Flake - Complete	None	1-32%	Crushed	Feather					13	10	4	14
9	20-25	0.25	Quartz	Flake - Complete	None	None	Plain	Plunge					16	6	4	16
9	35-40	0.4	Silcrete	Core - Unidirectional	33-66%				1	25			78	54	27	78
9	35-40	0.4	Silcrete	Angular Fragment	None	None							56	41	19	56

TP	Spit depth (cm)	*Depth (m)*	*Raw Material*	*Primary Form*	*Cortex %*	*% of edge with retouch/ usewear (flakes, blades and angular fragments only)*	*Flake Platform (complete and proximal flakes and blades only)*	*Flake Termination (complete, distal and longitudinal split flakes and blades only)*	*Number of complete scars (cores only)*	*Longest scar (axial mm) (cores only)*	*Formal Tool/ Core Type (if any)*	*Secondary Modification (if any)*	*Length - axial for flakes and blades (mm)*	*Width - axial for flakes and blades (mm)*	*Thickness (mm)*	*Maximum Dimension (mm)*
9	35-40	0.4	Silcrete	Flake - Complete	1-32%	1-32%	Cortex	Feather					19	16	4	25
9	35-40	0.4	Silcrete	Flake - Complete	None	None	Plain	Feather					17	24	4	25
9	35-40	0.4	Silcrete	Angular Fragment	None	None							15	10	8	15
9	35-40	0.4	Silcrete	Flake - Complete	None	None	Plain	Feather					27	36	5	36
9	35-40	0.4	Silcrete	Flake - Complete	None	None	Plain	Feather					20	19	3	23
9	35-40	0.4	Silcrete	Flake - Complete	None	None	Plain	Step					11	15	3	16
9	35-40	0.4	Silcrete	Flake - Complete	None	None	Plain	Feather					14	11	8	17
9	35-40	0.4	Silcrete	Flake - Complete	None	None	Plain	Feather					15	9	4	15
9	35-40	0.4	Silcrete	Angular Fragment	1-32%	None							57	29	26	57
9	35-40	0.4	Silcrete	Angular Fragment	None	None							38	23	11	38
9	35-40	0.4	Silcrete	Flake - Complete	1-32%	None	Plain	Feather					24	25	7	29
9	35-40	0.4	Silcrete	Flake - Complete	None	None	Plain	Feather					19	28	16	29
9	35-40	0.4	Silcrete	Angular Fragment	None	None							25	20	12	25

TP	Spit depth (cm)	*Depth (m)*	*Raw Material*	*Primary Form*	*Cortex %*	*% of edge with retouch/ usewear (flakes, blades and angular fragments only)*	*Flake Platform (complete and proximal flakes and blades only)*	*Flake Termination (complete, distal and longitudinal split flakes and blades only)*	*Number of complete scars (cores only)*	*Longest scar (axial mm) (cores only)*	*Formal Tool/ Core Type (if any)*	*Secondary Modification (if any)*	*Length - axial for flakes and blades (mm)*	*Width - axial for flakes and blades (mm)*	*Thickness (mm)*	*Maximum Dimension (mm)*
9	35-40	0.4	Silcrete	Flake - Complete	None	None	Plain	Feather					25	30	5	34
9	35-40	0.4	Silcrete	Flake - Distal	None	None		Step					10	23	7	24
9	35-40	0.4	Silcrete	Angular Fragment	None	1-32%							19	10	4	19
9	35-40	0.4	Silcrete	Flake - Complete	None	None	Plain	Plunge					44	36	14	49
9	40-45	0.45	Silcrete	Core - Unidirectional	33-66%				2	20			21	20	14	21
9	40-45	0.45	Silcrete	Flake - Complete	33-66%	None	Plain	Feather					27	15	9	27
9	40-45	0.45	Silcrete	Flake - Complete	None	1-32%	Plain	Feather					14	12	3	14
9	45-50	0.5	Silcrete	Angular Fragment	None	None							28	26	12	28
10	20-25	0.25	Silcrete	Blade - Complete	None	None	Plain	Feather					34	13	3	34
10	20-25	0.25	Silcrete	Blade - Distal	1-32%	None		Step					11	12	3	17
10	20-25	0.25	Silcrete	Flake - Complete	None	None	Plain	Hinge					15	10	2	16
10	20-25	0.25	Silcrete	Blade - Medial	None	None							13	6	1	13
14	30-35	0.35	Silcrete	Flake - Complete	None	1-32%	Plain	Feather					26	15	6	26
15	10-15	0.15	Silcrete	Flake - Complete	1-32%	None	Plain	Step					21	16	5	24

TP	Spit depth (cm)	*Depth (m)*	*Raw Material*	*Primary Form*	*Cortex %*	*% of edge with retouch/ usewear (flakes, blades and angular fragments only)*	*Flake Platform (complete and proximal flakes and blades only)*	*Flake Termination (complete, distal and longitudinal split flakes and blades only)*	*Number of complete scars (cores only)*	*Longest scar (axial mm) (cores only)*	*Formal Tool/ Core Type (if any)*	*Secondary Modification (if any)*	*Length - axial for flakes and blades (mm)*	*Width - axial for flakes and blades (mm)*	*Thickness (mm)*	*Maximum Dimension (mm)*
15	30-35	0.35	Silcrete	Angular Fragment	None	1-32%							18	18	9	18
15	30-35	0.35	Silcrete	Flake - Medial	None	None							18	14	5	20
15	30-35	0.35	Silcrete	Flake - Complete	None	None	Plain	Hinge					16	17	4	17
15	40-45	0.45	Silcrete	Flake - Complete	None	1-32%	Plain	Feather					12	19	3	19

APPENDIX 2 – CONDITIONS OF CHMP 12874

PART 2 – CULTURAL HERITAGE MANAGEMENT RECOMMENDATIONS

These recommendations become compliance requirements once the Cultural Heritage Management Plan is approved.

10 SPECIFIC CULTURAL HERITAGE MANAGEMENT REQUIREMENTS

These recommendations become compliance requirements once the Cultural Heritage Management Plan is approved.

Based on the findings of this report the following recommendations are made:

10.1 Recommendations

Recommendations Prior to Activity

Recommendation 1: VAHR 7921-1521 (Stone Artefact Scatter)

VAHR 7921-1521 is a subsurface stone artefact scatter which has been assessed as having *high* cultural significance by WTLCCHC, and *moderate-high* scientific significance (Section 8.8 & Appendix 6). The extent, nature and significance of the place was determined during the complex assessment (r.60(1)(b) *Aboriginal Heritage Regulations 2007*, Section 8).

It is recommended that limited archaeological salvage be conducted within the place extent of VAHR 7921-1521 that is to be directly impacted by the activity (Map 15), due to the *moderate-high* scientific significance of the place.

Prior to ground disturbance

Prior to the commencement of any ground disturbance within the extent of VAHR 7921-1521 (Map 16), limited salvage is to be undertaken with the following aims:

1) To further investigate the spatial and temporal distribution of the cultural material associated with VAHR 7921-1521;

2) To recover additional Aboriginal cultural heritage;

3) To help answer further current research questions and further contribute to archaeological knowledge of the place, the activity area or the surrounding region.

To achieve this aim controlled salvage must be undertaken of the artefact bearing deposit down to a sterile layer.

Salvage is to be conducted via the following methodology:

- Excavation of a minimum fifteen (100cm x 100cm x sterile base layer) salvage pits.

- During a meeting with OAAV (6 August 2014) (**Appendix 8**), OAAV requested that four salvage excavation pit be excavated in a "T" configuration within close vicinity to TP5. The position and configuration of the remaining salvage excavation pits will be undertaken at locations within the extent of VAHR 7921-1521 (**Map 16**), as agreed upon between the TOG representatives and the cultural heritage advisor at the time of salvage;

- Excavation of the artefact bearing horizon must be conducted to proper archaeological practice by a qualified archaeologist and by hand;

- The salvage pits are to be recorded to sub-metre accuracy using GDA94 MGA coordinates;

- All sediments excavated 100% sieved using 5mm mesh;

- Artefacts found during excavation must be individually point provenanced to the nearest centimetre;

- All artefacts recovered are to be contained in bags with the artefacts provenance details labelled on the bag(s);

- The test pits must to be recorded in detail including, photographic records, pH levels, Munsell colour, sediment descriptions, stratigraphy and disturbance;

- A geomorphological assessment must be undertaken;

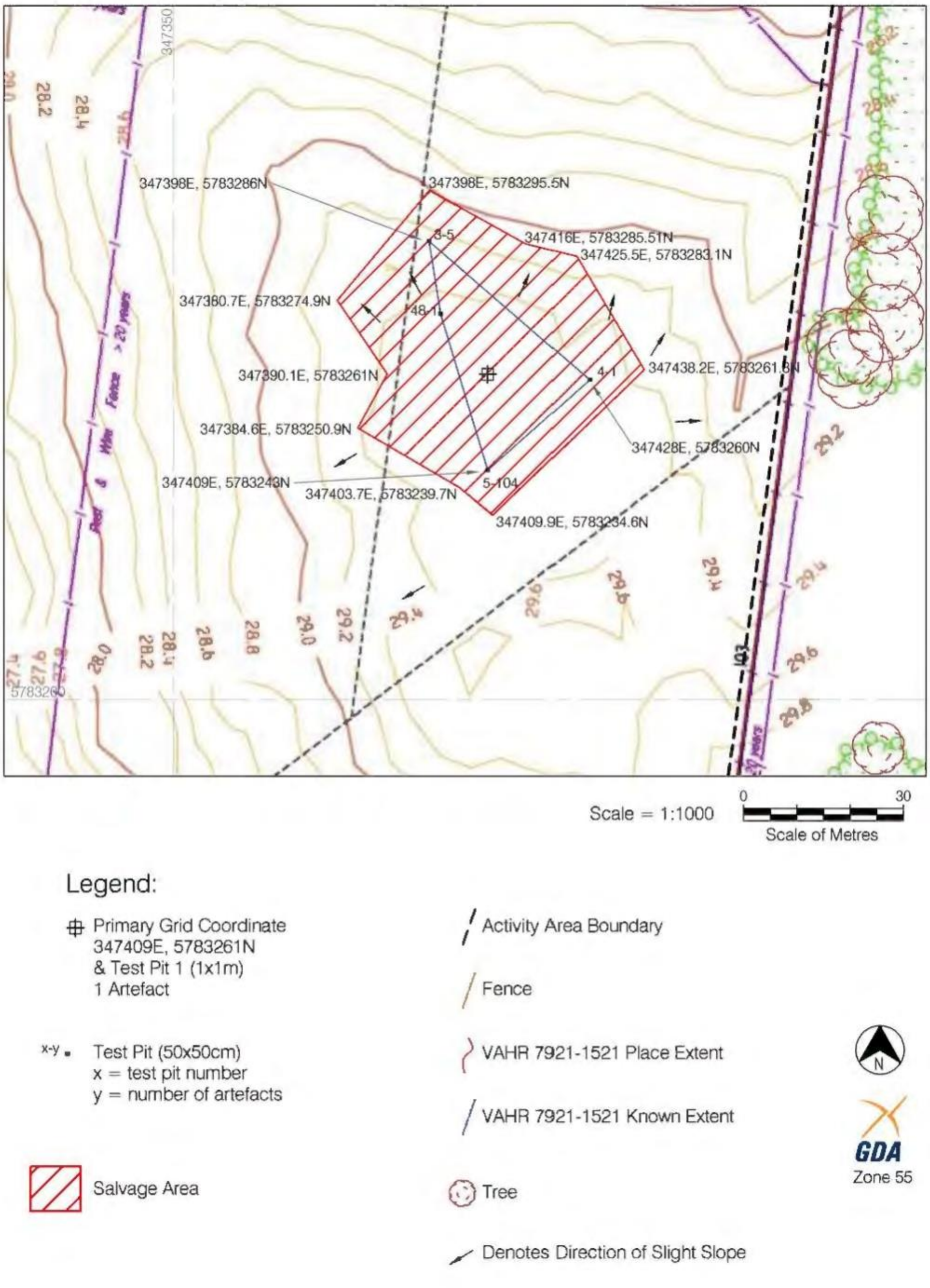
- All artefacts are to be recorded in detail including photographic records, typological determination, material type and size;

- All artefacts recovered are to be subject to detailed analysis, looking specifically at usewear and the potential for conjoining and residue analysis;

- Any organic feature discovered in relation with Aboriginal cultural heritage is to be salvaged completely and subjected to dating analysis. The cost is to be borne by the sponsor or their agent.

Following completion of the salvage excavation, the heritage advisor must complete appropriate VAHR forms and submit a report to OAAV detailing the results of the archaeological salvage.

The custody and management of artefacts must be conducted according to **Recommendation 4**.



Map 16 Location of Archaeological Salvage to be undertaken within the Extent of VAHR 7921-1521

Recommendation 2: Aboriginal Heritage Information

Prior to commencing works within the activity area, all employees and contractors actively involved in ground disturbance works within the activity must be made aware of the potential for unexpected Aboriginal cultural heritage being unearthed during works. As a minimum, such awareness is to include:

- Information material available on-site throughout the entire activity; and
- Instructions on how to proceed if cultural heritage material is identified.

Information material can be obtained as mini posters from the DPC website at: http://www.dpc.vic.gov.au/index.php/aboriginal-affairs/publications-and-research/aboriginal-cultural-heritage-mini-poster-series

Cultural heritage information must be provided by the Sponsor A copy of Part 2 of the approved CHMP must be on site or be readily accessible at all times.

Recommendations During and Post Activity

Recommendation 3: Contingency Plan

The Contingency Plan presented in Section 11 must be adopted.

Recommendation 4: Custody and Management of Aboriginal Cultural Heritage

Stone artefacts retrieved during the assessment are currently held by AAT. Artefacts will be retained by AAT until the CHMP is approved or until a RAP is approved, whichever is earlier. If no RAP is approved then custody of the artefacts will be offered to the following in order of priority:

- any relevant registered native title holder;
- any relevant native title party;
- RAP applicant;
- any relevant Aboriginal person or persons with traditional or familial links;
- any relevant Aboriginal body or organisation which has historic or contemporary interest in Aboriginal heritage;
- the owner of the land;
- the Museum of Victoria (s.61(e)).

If no party accepts custody of the artefact, then the Sponsor must ensure the artefacts are reburied as close to the original place location as practical within three months after the completion of the activity. The reburial location must be documented to sub-meter accuracy using GDA94 MGA coordinates and reported to OAAV. A reburial location within the electricity easement or other suitable area within the activity area would be recommended after completion of the activity.

All cultural heritage must be buried in a suitable weatherproof container along with a copy of the artefact inventory. An Object Collection approved form must be completed and submitted to OAAV by a suitably qualified cultural heritage advisor. The cost of the reburial is to be borne by the sponsor or their agent. The exact location and timing should be as a result of communication between the relevant Aboriginal group and sponsor. Appropriate management measures must be implemented to ensure that the reburied artefacts are not disturbed in the future.

Any Aboriginal cultural heritage found during the conduct of the activity must be dealt with according to the Contingency Plan.

APPENDIX 3 – SIGNIFICANCE ASSESSMENT

Table 3 Scientific Significance Rating

VAHR 7921-1521		
Query	Answer	Rating
Artefact density per m^2	10.53	1
Extent of place	2007.51m^2	0
Natural soil horizons	Yes	1
Disturbance	Yes	-1
Contact or Pleistocene / Early Holocene*	No	0
More than one period*	No	0
High integrity occupation deposits, surfaces or features*	No	1
Multiple artefact horizons, stratified high integrity occupation deposits, surfaces or features*	No	0
Natural history research potential*	No	0
Representativeness*	Common	0
Scientific Significance	2/ Low	

The following framework rates Aboriginal cultural heritage places on selected place attributes that examine in detail questions of place contents, condition and representativeness.

Average Artefact Density

Places with higher average artefact densities per m^2 contain larger amounts and more varied information. Higher artefact densities usually represent more intensive and varied human behaviour. For example, focussed Aboriginal activity, such as longer-term campsites, will generally leave high concentrations of cultural material. In contrast, Aboriginal people traversing the landscape, dropping or otherwise discarding stone artefacts on a regular basis will often leave a very low density of artefacts. The higher the density of stone artefacts within a place, the higher its scientific significance.

Formal artefact density calculations for place scientific significance assessments are based on the results of hand excavated test pits. Once place boundaries are known the average artefact density is calculated by dividing the number of recorded artefacts by the extent of the area excavated (m^2). The density scale is based on benchmarking conducted on various known places which have been excavated using proper archaeological practice and have different levels of scientific significance.

Extent of Artefact Densities

Larger places are usually considered to have higher scientific significance than smaller ones because they generally contain more information. Furthermore, larger places were likely the focus of more intensive and varied Aboriginal behaviour. If places have artefact densities of 46 per m^2 or above, then they are likely to be assessed having at least moderate scientific significance (see below). Based on consulting experience and benchmarking (see *Average Artefact Density* above) a significant size threshold is notionally considered here to be at least 100m x 100m in extent (or 10,000m^2).

Natural Soil Horizons

Natural formation processes may form natural soil layers or horizons by the laying down of sediments by natural agents such as wind and water (Isbell 2002; McKenzie et al 2004; cf Schiffer 1972, 1976: 15-16). These horizons may be subsequently created or destroyed by various post-depositional processes. The process of soil profile genesis and development may bury artefacts but without forming obvious anthroposols or high integrity occupation deposits. Artefacts found within natural soil profiles habitually form artefact horizons. The temporal and spatial integrity of artefact horizons will depend on the depositional and post-depositional formation processes of these deposits. Generally they have less temporal and spatial integrity than intact high integrity occupation deposits and, with all other criteria being equal, have less scientific significance. They comprise the overwhelming artefact scatter type encountered during complex assessments.

Disturbance

Disturbance of Aboriginal cultural heritage places can take many forms and include both environmental and human agents not only at the time of deposition but also after places have been abandoned. Disturbance can be categorised as low, high or significant. Low disturbance is when archaeological deposits or features have little discernible disturbance so they are essentially intact and retain a high degree of spatial and temporal integrity. High disturbance is when agents have likely altered the temporal and spatial integrity to an extent which has lowered their information potential and therefore scientific significance. Examples of high disturbance include deflation, native vegetation clearance, ploughing, rabbit burrowing, heavy stock trampling and stock rubs. Significant ground disturbance has altered the information potential of a place to such a degree that it has effectively destroyed the integrity of the place. Examples of significant ground disturbance include heavy natural erosion, or grading, excavating digging, dredging and deep ripping by machinery. The information potential remaining will essentially be the intrinsic attributes of the artefacts themselves.

Period and Number of Periods Represented

Most places contain stone tool assemblages attributed to the Australian Small Tool Tradition which may be dated 6,000 and 7,000 years ago (Hiscock & Attenbrow 2004). The landform and depositional context is also usually attributed to the period of latest landscape formation associated with present sea level stabilising 5,000 to 6,000 years BP (Marsden & Mallet 1975: 114-116; Bird 1993: 145; Douglas & Ferguson 1993: 387; Kershaw 1995: 669). Other periods, such as the Late Pleistocene and European Contact, are poorly represented in the archaeological knowledge base. Due to their rareness they are of high research interest and significance. Places with more than one period represented allow the investigation of cultural change, interaction and adaptation over a longer period of time. Based on the criteria of research potential and rarity, these places will have increased scientific significance.

High Integrity Occupation Deposits, Surfaces and / or Features

A high integrity occupation deposit can be defined as a deposit formed by the laying down of deposits (artefacts and / or sediments) by human activities that bury artefacts and form distinct *archaeological* stratigraphic entities such as layers (e.g. dense lens of stone artefacts & bone between natural soil horizons, stratified shell deposits) or features (e.g. hearths, occupation mounds). An occupation surface is a distinct layer or interface between depositional strata upon which human activities were carried out and artefacts / features deposited. Most commonly this may be represented by a prior land surface (e.g. soil horizon) that has been subsequently buried by natural soil horizons (e.g. dune deposits). High integrity occupation deposits, features and surfaces have a high degree of spatial and temporal integrity and therefore will have higher scientific significance than archaeological deposits with lower integrity (e.g. artefact horizons in environmental deposits).

Multiple Artefact Horizons, Stratified High Integrity Occupation Deposits, Surfaces and / or Features

Places with multiple artefact horizons, stratified high integrity occupation deposits, surfaces and / or features have the potential to investigate chronological change within places; often with greater time depth and chronological resolution compared to places with lower spatial and temporal integrity. They are rarer, have higher research potential, and therefore also have higher scientific significance. High integrity occupation deposits, surfaces and features will likely have higher scientific significance than artefact horizons.

Natural History Potential

Some places have environmental evidence that may span many thousands of years and therefore have the potential to answer significant research questions regarding natural history, climatic and environmental conditions. This evidence can be used to investigate human evolution and adaptation. Generally this evidence is rarely found in Victorian places and has high research potential and scientific significance.

Representativeness

Representativeness refers to the regional distribution of a particular place-type and its scientific significance. It is assessed to whether the place is common, rare or very rare in a given region. Assessments of representativeness are biased by current knowledge of the distribution and numbers of places in a region. Current knowledge varies from place to place, depending on the extent and quality of previous archaeological research. Consequently, a place that is assigned low scientific significance based on other queries, but is considered a rare occurrence, may only be regarded as such in terms of current knowledge of the regional archaeology. Its rareness may not necessarily increase the place significance to moderate or above. The representativeness used for Aboriginal cultural heritage places are:

- Common occurrence;
- Rare occurrence;
- Very rare occurrence.

Common places include the majority of stone artefact scatters. Typically such stone artefact scatters have the following attributes: below moderate artefact density class (≤45 artefacts per m^2); date to the Late Holocene, and no evidence of high integrity occupation deposits or features, stratified or otherwise. Rare stone artefact scatters typically have the following attributes: moderate or above artefact density class (≥46 artefacts per m^2); more than one artefact horizon; more than one period of occupation (e.g. early and late Holocene); but may not have high integrity occupation deposits. Very rare stone artefact scatters typically have the following attributes: moderate or above artefact density class (≥46 artefacts per m2); high integrity occupation deposits, stratified or otherwise; and occupation from more than one period (e.g. late Pleistocene and late Holocene). Ensuring a representative sample of significant place-types is preserved provides opportunities for research questions and techniques not yet developed to be available for future archaeologists.

Stone artefact scatters identified during this investigation are rated according to the following queries and answers:

1. What is the average artefact density per metre?

Stone Artefact Density (per m^2)*	Score	Density Class
1 – 4	0	Extremely low
5 – 15	1	Very low
16 – 30	2	Low
31 – 45	3	Low – moderate
46 – 60	4	Moderate
61 – 75	5	Moderate – high
76 – 90	6	High
91+	7	Very high

*Minimum artefact size 10mm

2. If the average artefact density rates 46 artefacts per m^2 or above, is the density spatially extensive (more than 100m x 100m, 10,000m^2)? **No = 0, Yes = +1**
3. Are artefacts within natural soil horizons? **No = high integrity occupation deposits (see below), Yes = 0**
4. Are the natural soil horizons disturbed? **No = 0, Yes (high) = -1, Yes (significant) = -2**
5. Are European Contact or Pleistocene / Early Holocene periods represented? **No = 0, Yes = +1**
6. Is more than one period represented? **No = 0, Yes = +1**
7. Are there high integrity occupation deposits, occupation surfaces and / or features? **No = 0, Yes = +1**
8. Are there multiple artefact horizons, stratified high integrity occupation deposits, occupation surfaces and / or features? **No = 0, Yes = +1 (artefact horizons), Yes = +2 (high integrity occupation deposits, surfaces, features)**
9. Is there an opportunity to research natural history (e.g. climate & environmental changes)? **No = 0, Yes = +1**
10. Is the place a common, rare or very rare occurrence? **C = 0, Rare = +1, Very rare = +2**

Artefact scatters are rated according to the following scores from the detailed list of queries above:

Score	Scientific Significance Rating
0	extremely low
1	very low

Score	Scientific Significance Rating
2	low
3	low – moderate
4	moderate
5	moderate – high
6	high
7+	very high

APPENDIX 4 – HERITAGE ADVISOR CV

Dr Rhiannon Stammers

Archaeologist

Rhiannons@tardisenterprises.com.au | 03 9676 9009

Qualifications

Doctor of Philosophy, Archaeology, La Trobe University
Bachelor of Archaeology (Hons, first class), La Trobe University.

Memberships

Australian Archaeology Association
The Society for Archaeological Sciences
Cultural Heritage Advisor: *Aboriginal Heritage Act 2006*

Role Responsibilities

- Report writing and proofing
- Conducting fieldwork,
- Background research
- Site survey and excavation
- Identification and analysis of artefacts
- Artefact and stratigraphic drawing

Career Summary

Rhiannon entered commercial archaeology in late 2017. Since then she has managed and completed a number of varied reports including CHMPs. In 2013 she completed her honours degree, focused on Indigenous archaeology from the Willandra Lakes (NSW) and in 2018 she completed her PhD in bone technology from the Earlier Stone Age in South Africa. She has extensive field experience both in Australia and in South Africa, working on sites from the late Pliocene/early Pleistocene and Middle and Later Stone Ages in South Africa, and early Australian Pleistocene and Holocene sites.

Relevant Experience

Approved Cultural Heritage Management Plans

Stockyard Hill Wind Farm Nanimia Hill, Micrositing (March 2019)
Project archaeologist and heritage advisor undertaking all aspects of project management and report production on behalf of Stockyard Hill Wind Farm Pty Ltd.

Subdivision of Land & Development Stockland, Minta Farm West, Berwick (March 2019)
Heritage advisor undertaking amendments to an approved CHMP on behalf of Stockland Developments Pty Ltd

Cherry Tree Hill Wind Farm CHMPs 15518, 16221 and 16222 (January 2019)
Heritage advisor and archaeologist undertaking all aspects of project management and fieldwork for three CHMPs relating to additional works at Cherry Tree Hill Windfarm, Kerrisdale.

900 Princes Hwy, Pakenham CHMP 15789 (October 2018)
Heritage advisor and archaeologist undertaking aspects of project management and fieldwork on behalf of Pioneers Market Place Pty Ltd.

Bushfire Powerline Replacement Program, Coliban 1 CHMP 15551 (July 2018).
Heritage advisor and archaeologist undertaking all aspects of project management and fieldwork for the CHMP on behalf of Powercor Australia.

CHMP Desktop Assessments Only

Outer Suburban Arterial Roads Project (OSAR), Hallam South Road Upgrade (January 2018)

Dr Rhiannon Stammers
Archaeologist
Rhiannons@tardisenterprises.com.au | 03 9676 9009

Archaeologist undertaking a desktop assessment as part of the Hallam South Road Upgrade CHMP on behalf of VicRoads for the proposed OSAR project. Responsibilities included register searches, background literature reviews, and authoring the desktop report for Indigenous cultural heritage.

Outer Suburban Arterial Roads Project (OSAR), Hallam South Road Upgrade (January 2018)
Archaeologist undertaking a desktop assessment as part of the Hallam South Road Upgrade CHMP on behalf of VicRoads for the proposed OSAR project. Responsibilities included register searches, background literature reviews, and authoring the desktop report for Indigenous cultural heritage.

Outer Suburban Arterial Roads Project (OSAR), Findon Road Upgrade (November 2017)
Archaeologist undertaking a desktop assessment as part of the Findon Road Upgrade CHMP on behalf of VicRoads for the proposed OSAR project. Responsibilities included register searches, background literature reviews, and authoring the desktop report for Indigenous cultural heritage.

Archaeological Salvages

Archaeological Salvage of VAHR 7822-4058: 38 Saric Court Plumpton (December 2018)
Heritage advisor undertaking all aspects of project management and fieldwork for the salvage of VAHR 7822-4058 on behalf of Villa World Properties Pty Ltd

CIRQ, Dunnings Road Point Cook Archaeological Salvage (June 2018)
Archaeologist undertaking analysis and report writing for the archaeological salvage at Dunnings road, Point Cook in compliance with Conditions 8.1, 8.2 and 8.3 of approved CHMP 14405.

Due Diligence Assessments

Amber Estate - Education Centre, 380 Vearings Road, Wollert – Due Diligence Report (January 2018)
Project archaeologist undertaking a due diligence assessment on behalf of ID FLK Amber Developments for the proposed Education Facility in Wollert. Responsibilities included register and database searches, literature reviews and authoring due diligence assessment for Indigenous and historical cultural heritage.

Breakwater Link - Road, Breakwater— Historic Due Diligence Report (June 2018)
Project archaeologist undertaking a due diligence assessment on behalf of VicRoads for the proposed Breakwater Link Road, Breakwater. Responsibilities included register and database searches, literature reviews and authoring due diligence assessment for Indigenous and historical cultural heritage

Other Reports

Heritage Statement for 800-820 Somerton Road, Greenvale (Febuary 2019)
Project archaeologist undertaking an investigation into the cultural heritage statutory obligations regarding the land situated at 800-820 Somerton Road, Greenvale, for a proposed residential subdivision.

Heritage Statement for 35 McDonalds Track Lang Lang (January 2019)
Project archaeologist undertaking an investigation into the cultural heritage statutory obligations regarding the land situated at 35 McDonalds Track Lang Lang, for a proposed mixed use development/ subdivision.

Heritage Statement for 1785 South Gippsland Highway, Cranbourne East (January 2019)
Project archaeologist undertaking an investigation into the cultural heritage statutory obligations regarding the land situated at 1785 South Gippsland Highway, Cranbourne East, for the upgrade and supply of power.

Heritage Statement for 390 McClelland Drive, Langwarrin (March 2018)
Project archaeologist undertaking an investigation into the cultural heritage statutory obligations regarding the land situated at 390 McClelland Drive, Langwarrin for a proposed residential development/ subdivision.

Dr Rhiannon Stammers
Archaeologist
Rhiannons@tardisenterprises.com.au | 03 9676 9009

Mornington Flinders Road PAHT (February 2018)
Project archaeologist undertaking a PAHT on behalf of Ten Minute by Tractor Winery for the redevelopment of the Cellar Door and Winery facilities. Responsibilities included register and database searches, literature reviews and authoring due diligence assessment for Indigenous and historical cultural heritage.

Malcolm Creek Rehabilitation Cultural Heritage Permit (May 2018)
Project archaeologist undertaking a cultural heritage permit for the disturbance of Silverton 4 (VAHR 7822-0325) by Melbourne Water.

Mayfield Farm and Berry Lane, Plenty Road Mernda, Consent to Damage Approvals (July 2018)
Prepare and submit documentation to Heritage Victoria on behalf of RCL Real Estate for the Plenty Road Upgrade.