

Residential Subdivision Redstone Hill, Sunbury

CHMP No. 13370

06 November 15



A Report to Villawood Properties Pty Ltd

Cultural Heritage Advisor: Petra Schell

Authors: Claire St George, Sharon Lane and
Caroline Spry

Sponsor: Villawood Properties Pty Ltd

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Cover photograph: View of cropped paddocks along the southern slopes of Redstone Hill.
Photo taken facing south.

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RESIDENTIAL SUBDIVISION, REDSTONE HILL, SUNBURY

Cultural Heritage Management Plan Number: 13370

Sponsor: Villawood Properties (ABN 16 100 813 161)

Cultural Heritage Advisor: Petra Schell

Authors: Claire St George, Sharon Lane and Caroline Spry

Issue Date: 06 November 2015

Assessment: Complex Assessment (in accordance with r.56 of the Aboriginal Heritage Regulations 2007)

Size of Activity Area: Large (in accordance with r.68 of the Aboriginal Heritage Regulations 2007)

Copies Issued To: Villawood Properties

Wurundjeri Tribe Land and Compensation Cultural Heritage Council
(WTLCCHC)

Office of Aboriginal Affairs Victoria (OAAV)

Quality Control: Petra Schell



Wurundjeri
Tribe

Land & Compensation
Cultural Heritage
Council Incorporated

4/12/2015

File No. WT0513 CHMP No. 13370

Mr. Adam Davidson
Villawood Properties
Level 1, 6 Riverside Quay
Southbank
Victoria 3006

Dear Adam Davidson,

RE: Cultural Heritage Management Plan - Residential Subdivision, Redstone Hill, Sunbury

I refer to your application to the Wurundjeri Tribe Land & Compensation Cultural Heritage Council dated 6/11/15 (received 15/11/15) seeking approval of the cultural heritage management plan 13370 entitled Residential Subdivision, Redstone Hill, Sunbury.

With reference to s.53 and s.62(a)-(e) of the *Aboriginal Heritage Act 2006* (the Act), the Wurundjeri Tribe Land & Compensation Cultural Heritage Council have considered and have approved this plan.

If you require any additional information about this advice, please contact me on the number below.

Yours sincerely,

Alex Parmington
Manager, Cultural Heritage Unit

Cc. petra@ochreimprints.com.au

EXECUTIVE SUMMARY

Background

This Cultural Heritage Management Plan (CHMP) has been prepared for a proposed residential subdivision across three properties at Redstone Hill, Sunbury.

The CHMP was commissioned by Villawood Properties (the Sponsor). This mandatory CHMP was prepared in accordance with the requirements of the *Aboriginal Heritage Act 2006* (the Act).

The aims of the CHMP were to:

- Identify the location, nature and significance of Aboriginal places within the activity area;
- Assess whether harm to Aboriginal places can be avoided by the proposed activity; and,
- Develop a framework for managing Aboriginal places, prior to, during and subsequent to the activity taking place.

Activity Area Location and Description

The activity area covers c. 273 ha and is bordered to the south by Jacksons Creek, to the north by Sunbury Road, and by private properties to the north and south. The activity area incorporates much of the summit of Redstone Hill and many of the surrounding private properties. In addition, the activity area includes:

- Redstone Hill Road and its road reserves; and
- two planned intersections onto Sunbury road located c. 625 m and 1.2 km south east of the Redstone Hill and Sunbury Road intersection.

The activity area is dominated by Redstone Hill, which is a dormant volcano that rises 300 m above the surrounding volcanic plains. In the south Jacksons Creek deeply dissects the plain with moderate to steep slopes, including escarpments between Redstone Hill and Jacksons Creek. In contrast slopes north towards Sunbury Road are not as steep and level out along the north eastern part of the activity area forming part of the surrounding gently undulating plain.

A majority of private land within the activity area is utilised for agricultural and/or grazing purposes. This land has in many cases been cleared of basalt floaters with cairn like piles of cleared rock particularly prevalent around the upper slopes and summit of Redstone Hill. The uncultivated land located at the southern extent of the activity area contains steep escarpments, spurs, lower valley slopes, terraces and the Jacksons Creek floodplain which

contains remnant and regenerated vegetation. This land does not appear to be utilised for any agricultural activities though it appears to have been subject to localised mining and other industry in the historical period.

Infrastructure in the activity area is largely limited to:

- informal vehicle tracks;
- fences,
- a large dam in the south eastern corner of the activity area, and a smaller one immediately to the south west of the larger one;
- two residential dwellings in the portion of the activity area north of Redstone Hill Road;
- a residential dwelling and a large shed on the summit of Redstone Hill and,
- a portion of Redstone Hill Road, which is a narrow and predominately unsealed road.

Activity Description

The proposed activity consists of the subdivision of 190 ha of land (out of a total 273 ha) at Redstone Hill, Sunbury. The proposed activity will involve a multi-lot residential subdivision, the resurfacing and widening of Redstone Hill Road to improve access to and from site and the construction of two intersections to Sunbury Road. The construction of these access points will extend across the southern road reserve of Sunbury Road at specified points acquired along the road corridor.

In addition to the multi-lot subdivision, other proposed facilities within the development footprint include education centres (specifically primary and secondary schools), activity centres and a drainage reserve. These facilities are planned for construction in the northern portion of the activity area (north of Redstone Hill), closest to Sunbury Road. The layout of the proposed works within the southern portion of the development footprint is yet to be finalised.

The remaining 83 ha within the activity area is planned open space and will not be impacted upon by the proposed residential subdivision. The precise future land manager of this open space is yet to be determined. WTLCCHC have expressed an interest in being involved in the management of this open space.

Activities that will occur during the course of development are:

- soil excavation for the construction of buildings;
- grading of soil during road construction;
- excavation for service trenches (e.g. gas, electricity, water and drainage); and
- landscaping activities (e.g. shared pedestrian bicycle path, revegetation and above ground irrigation system, public ovals) associated with the public reserves.

All of the above activities, excluding some aspects of the landscaping activities, will involve the removal of vegetation and topsoil. The depth of excavation will vary according to the ground conditions. The standard depth of excavation for pipes and services, to the top of the pipe are likely to be:

- 750 mm for water and gas;
- 600 mm for electricity and Telstra;
- 900 mm minimum for drainage;
- 500 mm for roads; and
- 1,300 mm for sewer.

The activity will impact on surface and subsurface deposits within the activity area. Aside from underlying sterile clay and basalt that occurs at c. 150 mm below surface, no buried land surfaces were identified in the activity area. Aboriginal cultural heritage may occur anywhere above the clay; therefore, the activity has the potential to impact on cultural deposits where any ground disturbance works occur \leq 150 mm.

Assessment Method

The assessment method for this CHMP involved background research, a field survey and a program of subsurface testing. Under the *Aboriginal Heritage Act 2006*, this assessment would be considered a Complex Assessment, although it was preceded by both Desktop and Standard Assessments.

The background research (Desktop Assessment) aimed to:

- Provide contextual information regarding Aboriginal cultural heritage in the region;
- Determine whether any registered Aboriginal places were present within the activity area; and
- Identify, if possible, the potential for Aboriginal cultural heritage to occur within the activity area.

The aims of the field assessment (Standard Assessment) were to determine the nature, distribution and significance of Aboriginal cultural heritage in locations to be impacted by the proposed activity. The Standard Assessment was undertaken to establish whether any Aboriginal cultural heritage was visible on the surface, and whether locations likely to contain Aboriginal cultural heritage were (or are) present. The Standard Assessment also sought to re-identify previously registered Aboriginal places in the activity area and assess their condition.

Subsurface testing (Complex Assessment) was carried out in this instance because the Desktop and Standard Assessment found that Aboriginal cultural heritage was present in the

activity area, but the nature and significance of this cultural heritage could not be fully assessed through a field survey alone. The Aboriginal Heritage Regulations 2007 (r.60) state that a Complex Assessment is required in circumstances where a Desktop Assessment or Standard Assessment show that Aboriginal cultural heritage is, or is likely to be, present in the activity area, and it is not possible to identify the extent, nature and significance of the Aboriginal cultural heritage in the activity area unless a Complex Assessment is carried out.

Desktop Assessment Results

The Desktop Assessment determined that there have been two stone artefact scatters and six LDADs recorded within the activity area:

- Two artefact scatters – VAHR 7822-3784 and 7822-3786; and
- Six LDADs – VAHR 7822-3785, 7822-3787, 7822-3788, 7822-3789, 7822-3790 and 7822-3794.

Four of these are located within 50 m of Jacksons Creek (two artefact scatters and two LDADs), while the remaining four LDADs are located on the slopes of Redstone Hill.

The results of the Desktop Assessment have determined that there is a moderate to high potential for Aboriginal cultural heritage, specifically in the form of stone artefacts, within both a surface and subsurface context to occur within the activity area. There is also the potential for silcrete quarries to occur, particularly in the escarpments located adjacent to Jacksons Creek. Waterways are known to have been used extensively by Aboriginal people for potable water and raw material acquisition and have influenced Aboriginal subsistence patterns in the region, and movement through the landscape. Consequently, Jacksons Creek is a focal point for a majority of previously registered Aboriginal places, with most being recorded within 200 m of the creek line, particularly when associated with spurs or slopes overlooking the creek, or within the alluvial floodplain of the creek itself.

While the floodplains of Jacksons Creek contain medium to large registered stone artefact scatters, isolated stone artefacts and low density artefact scatters are more common along the hill slopes overlooking Jacksons Creek. Surface stone artefact scatters have been located on exposures in areas of good ground visibility. Silcrete is the dominant raw material type, while quartz and quartzite artefacts are also present, but in significantly lower quantities and relatively diffuse across landforms.

Additional stone artefact scatters and LDADs are anticipated to occur in the development footprint of the activity area which comprises the hill slopes and the summit of Redstone Hill. Stone artefact scatters may occur in higher densities along the alluvial terraces of Jacksons Creek and the southern escarpment.

Standard Assessment Results

Re-identification of Previously Registered Aboriginal Places

An attempt was made to identify eight previously registered Aboriginal places within the activity area¹.

- **VAHR 7822-3789**(an isolated artefact) was unable to be re-identified. It is considered likely that the cultural material associated with VAHR 7822-3789 may have been relocated (possibly as the result of vehicle traffic and/or erosion) into an area of lowered ground surface visibility surrounding the exposure provided by the vehicle track, thus making it difficult to re-identify;
- The cultural material associated with **VAHR 7822-3788**(an LDAD) was able to be identified;
- **VAHR 7822-3790**(an LDAD) was able to be identified;
- a single artefact associated with **VAHR 7822-3794**was able to be re-identified;
- **VAHR 7822-3784** (an artefact scatter) was able to be re-identified during the survey;
- A single artefact associated with **VAHR 7822-3785** (an LDAD) was able to be re-identified;
- **VAHR 7822-3786** (an artefact scatter) was able to be re-identified during the survey; and
- A single artefact associated with **VAHR 7822-3787** (an LDAD) was able to be re-identified during the survey.

Field Survey Results

A total of 100% of the development footprint was surveyed by pedestrian transects, and due to high overall ground surface visibility across much of the area (frequently between 60 – 100%), a relatively high proportion of the development footprint was effectively surveyed (55.96% or 106.45 ha out of a total 190.21 ha). The high visibility was due to extensive cropping that had recently taken place across much of the development footprint.

Cultural heritage in the form of 203 stone artefacts were identified in the activity area during the Standard Assessment²at a density of one artefact per 5,243.95 m². The spur landform (located in the south eastern extent of the development footprint) contained the highest density of artefacts at one artefact per 503.78 m², while the slopes of Redstone Hill had a lower artefact density of one artefact per 8,888.23 m².

¹ A more thorough description of these previously registered Aboriginal places is provided in Section 5.2.2

² This cultural heritage was not associated with previously registered Aboriginal places.

The stone artefacts were predominately manufactured on silcrete and quartz, with smaller quantities of quartzite also recorded. No other cultural heritage material was identified during the survey.

Based on the results of the Standard Assessment, the following observations were made in relation to the condition and context of Aboriginal cultural heritage in the development footprint:

- a clustering of surface artefacts is evident within the spur landform, the western slopes of Redstone Hill and the slopes of Redstone Hill immediately adjacent to the escarpment;
- the remainder of the development footprint (which includes the upper and mid slopes of Redstone Hill) contains a highly diffuse scatter of stone artefacts across the mid and upper slopes; and
- all landforms within the development footprint (with the exception of the spur and slopes of Redstone Hill immediately adjacent to the escarpment) have been subjected to regular ploughing, cropping and/or grazing activities and therefore the visible cultural heritage occurs within ploughed soils.

Complex Assessment Results

A total of 15 m² (6 m³) was excavated during the Complex Assessment testing program. Subsurface soil depths were found to be very shallow, between 100 – 150 mm deep, across all landforms within the development footprint.

A total of two subsurface artefacts were recorded – one in the upper 100 mm of EP9, located on a spur within 200 m of Jacksons Creek, and one within the upper 100 mm of STP8, located on the lower northern slope of Redstone Hill. Based on the subsurface testing results, the spur within 200 m of Jacksons Creek was found to contain an average subsurface artefact density of 0.33 artefacts per m² (1.56 per m³), and a maximum artefact density of 4 artefacts per m² (8.33 per m³). The lower northern slope of Redstone Hill contained an average subsurface artefact density of 0.22 artefacts per m² (1.75 m³), and a maximum artefact density of 4 artefacts per m² (26.67 m³). The Complex Assessment did not locate any subsurface stone artefacts within any of the four remaining landforms.

The average subsurface artefact density for the activity area as determined by the Complex Assessment is 0.13 artefacts per m² (or 0.33 per m³).

Description of Aboriginal Cultural Heritage

A total of 12 Aboriginal places are located in the activity area: eight previously registered Aboriginal places (two artefact scatters – VAHR 7822-3784 and 7822-3786, and six LDADs – VAHR 7822-3785, 7822-3787, 7822-3788, 7822-3789, 7822-3790 and 7822-3794); and four

recorded during the preparation of this CHMP (two artefact scatters - VAHR 7822-3881 and 7822-3882, and two LDADs - VAHR 7822-3876 and 7822-3875³).

These newly recorded Aboriginal places are composed of:

- **VAHR 7822-3789** (an isolated surface artefact) located on the upper slope of Redstone Hill and is not located within the development footprint;
- **VAHR 7822-3788** (an LDAD) which contains ten surface artefacts located on the lower southern slopes of Redstone Hill c. 500 m north of Jacksons Creek. This LDAD is located partly outside of the development footprint with one surface artefact located within the southern reserve;
- **VAHR 7822-3790** (an LDAD) which contains 12 surface artefacts located on the lower southern slopes of Redstone Hill c. 500 m north of Jacksons Creek, and 500 m east of VAHR 7822-3788. Six out of twelve of these stone artefacts are located outside of the development footprint within the southern reserve;
- **VAHR 7822-3794** (an isolated surface artefact) located on the lower northern slopes of Redstone Hill (greater than 1 km north of Jacksons Creek). This Aboriginal place is located within the development footprint;
- **VAHR 7822-3784** (an artefact scatter) located on a flat to gently sloping terrace 200 m north of the floodplains of Jacksons Creek and is located outside of the development footprint. This Aboriginal place is composed of 150 surface stone artefacts at a density of one artefact per 8.8 m²;
- **VAHR 7822-3785** (an isolated surface artefact) located c. 50 - 100 m south of VAHR 7822-3784 on a flat to gently sloping terrace within 50 m to Jacksons Creek. This Aboriginal place is located outside of the development footprint;
- **VAHR 7822-3786** (an artefact scatter) is also located outside of the development footprint, on a flat to gently sloping terrace 100 m north of Jacksons Creek. The Aboriginal place is composed of 150 surface stone artefacts at a density of 1 artefact per 23.33 m². The scatter measures 10,500 m².
- **VAHR 7822-3787** (an isolated artefact) situated on a flat to gently sloping terrace 25 m north of the floodplains of Jacksons Creek. This isolated surface stone artefact is situated c. 150 m south west of VAHR 7822-3786. This Aboriginal place is located outside of the development footprint;
- **VAHR 7822-3876** (an LDAD) contains 99 stone artefacts (97 surface and two subsurface) dispersed across the slopes of Redstone Hill. A majority of this LDAD is

³ Due to administrative restrictions with the VAHR, the dispersed LDAD across the activity area was split into two LDADs, VAHR 7822-3876 and 7822-3875 (Redstone Hill 9 and Redstone Hill 9 Part 2, respectively).

located in close proximity (c. 200 m) to Jacksons Creek, specifically the slopes immediately south west of the Redstone Hill summit;

- **VAHR 7822-3875** (an LDAD and secondary component of VAHR 7822-3876) contains 79 surface artefacts dispersed across the slopes of Redstone Hill. A majority of this LDAD is located in close proximity (c. 200 m) to Jacksons Creek, specifically within the spur in the south eastern extent of the development footprint;
- **VAHR 7822-3881** (an artefact scatter) contains 10 surface artefacts on the mid to upper slopes west of Redstone Hill. The artefact scatter is located in close proximity (c. 200 m) to Jacksons Creek and is located outside of the development footprint; and
- **VAHR 7822-3882** (an artefact scatter) contains 17 surface artefacts on the spur located south east of the summit of Redstone Hill. The artefact scatter is located in close proximity (c. 200 m) to Jacksons Creek near an escarpment overlooking the terraces of Jacksons Creek. This Aboriginal place is located outside of the development footprint.

Cultural Heritage Management Recommendations

This section presents measures for managing Aboriginal cultural heritage, prior to, during and after the proposed activity. A total of 15 management requirements (MR) are presented here, and these must be adhered to in order to ensure compliance with the *Aboriginal Heritage Act* 2006. Specific management recommendations are presented below.

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

MR1: Fencing Requirements for VAHR 7822-3876, 7822-3875, 7822-3788, 7822-3790, 7822-3881, 7822-3882 and 7822-3789

Part of VAHR 7822-3876, 7822-3875, 7822-3788, 7822-3790 and all of VAHR 7822-3881, 7822-3882 and 7822-3789 must be protected from harm.

The following management recommendations must be followed in order to minimise harm:

- 1) temporary fencing (a minimum of star pickets and fluorescent webbing) must be erected around part of VAHR 7822-3876, 7822-3875, 7822-3788, 7822-3790 located outside of the development footprint and all of VAHR 7822-3881, 7822-3882 and VAHR 7822-3789 as specified in Figure 26 and provided to the Sponsor as spatial data, once works commence within 100 m of any of these Aboriginal places (unless the areas are otherwise inaccessible, to the satisfaction of the WTLCHC);
- 2) a CHA and RAP representative must supervise the placement of fencing;
- 3) during the course of the activity, no machine/vehicle access or ground disturbing works are allowed within the fenced areas;
- 4) at the completion of the activity, the fencing may be removed; and
- 5) ongoing management specifications for works within the protected areas after the completion of the activity are outlined in MR3.

MR2: Salvage Program for part of VAHR 7822-3788, 7822-3790, 7822-3876, 7822-3875 and all of 7822-3794

This CHMP allows harm to the following Aboriginal places by the activity:

- part of VAHR 7822-3788;
- part of VAHR 7822-3790;
- part of VAHR 7822-3876;
- part of VAHR 7822-3875; and
- all of VAHR 7822-3794.

The following salvage program must take place for those components of these Aboriginal places that will be impacted by the activity.

Salvage Program

- i. Prior to the commencement of the activity, a qualified archaeologist and two RAP representatives must undertake an archaeological salvage program in the form of a surface artefact collection of visible surface artefacts associated with those components of the above Aboriginal places that will be impacted by the activity. Note that artefacts identified in a subsurface context at VAHR 7822-3786 have already been collected.
- ii. The program must utilise the following methodology:
 - The location of the surface artefacts must be re-visited using a dGPS and, if the artefacts can be re-identified, they must be collected;
 - If the artefacts cannot be re-identified at their recorded location, a search must be made within a 10 m radius of that location, in case they have been displaced by agricultural activities undertaken since their identification;
 - If the artefacts are unable to be re-identified within a 10 m radius of the recorded dGPS location *and* ground surface visibility is less than 80% during the salvage, then an area measuring 2 x 2 m from the dGPS co-ordinate for that Aboriginal place must be de-turfed and 100% of soils sieved⁴; and
 - The salvaged surface artefacts must be bagged at a minimum of a single bag for each Aboriginal place.
- iii. The salvaged artefacts must be relocated to the nearest reserve within the activity area following salvage. Stone artefacts will be placed in an appropriately labelled container

⁴ Should the surface stone artefacts not be relocated following de-turfment and sieving of associated soils, then it is presumed that the stone artefact is no longer at this location, and no further salvage works are required.

(as determined by the RAP), and reburied within areas greater than 50 m outside of the development footprint as indicated in Figure 25. If immediate reburial is not possible, these salvaged stone artefacts will be managed as outlined in MR8 and reburied at a later stage as advised by the Sponsor. It is the Sponsor's responsibility to contact the RAP to advise when reburial can occur.

- iv. The CHA must notify OAAV in relation to the location of any salvaged cultural material.

MR3: Ongoing Management Specifications for VAHR 7822-3876, 7822-3875, 7822-3881, 7822-3882, 7822-3794, 7822-3789, 7822-3788, 7822-3790, 7822-3784, 7822-3785, 7822-3787 and 7822-3786

After the completion of the activity and when the Sponsor no longer has management responsibility for the areas outside of the development footprint, the Sponsor must provide the new manager/owner with this list of ongoing management recommendations:

- no harm is permitted to any registered Aboriginal places without a Cultural Heritage Permit or CHMP;
- a CHMP will be required for any High Impact Activities (as defined under the Aboriginal Heritage Regulations 2007, Division 5) in areas of Cultural Heritage Sensitivity (as defined under Division 3);
- it is recommended that a risk assessment be undertaken for any proposed ground disturbing works; and
- the involvement of WTLCCHC in the future management of open space outside of the development footprint is strongly recommended.

MR4: Cultural Heritage Induction

The principal contractors involved in undertaking ground disturbing works in the activity area must participate in a cultural heritage induction prior to the initiation of the activity. This must be conducted by representatives of the RAP, at the cost of the Sponsor. This may be undertaken on the day that site works commence and can take the form of a toolbox meeting. The RAP must be contacted directly to organise the timing, content and duration of this induction, and must be given a minimum of 2 weeks' notice. RAP contact details are provided in MR12. In the event that the principal contractors are changed, additional cultural heritage inductions must be undertaken.

MR5: Status and Distribution of CHMP

This approved CHMP is a legally binding document. Copies of the approved CHMP must be distributed to the following parties:

- Secretary, Department of Premier and Cabinet (DPC) (s.64(1)(b));

- RAP;
- All owners/managers of land encompassed by the activity area; and
- A copy of the CHMP must be kept on site during the construction activity.

MR6: Discovery of Unexpected Aboriginal Cultural Heritage

If suspected Aboriginal cultural heritage is identified the following process applies:

Isolation to Protect Cultural Heritage

- a) Relevant works within 5 m of the discovery must be suspended immediately and the place extent must be isolated from further disturbance by safety webbing or other suitable above ground barriers/temporary fencing (i.e. no subsurface component). The cultural material must not be removed.

Notification and Inspection

- b) The Site Supervisor must be notified immediately and a Cultural Heritage Advisor (CHA) and the RAP must be notified within two working days of the discovery.
- c) A CHA and RAP representative will inspect the site within an agreed timeframe of being notified.
- d) During this inspection an appropriate course of action for the investigation and management of any Aboriginal cultural heritage will be discussed and agreed to.
- e) Agreement regarding the process to be followed to manage the Aboriginal cultural heritage and how to proceed with works must be made in writing within a period not exceeding three working days from the on-site meeting by a RAP representative, the CHA and the Sponsor.

Investigation of Unexpected Cultural Heritage

- f) The CHA, in consultation with the RAP and Sponsor, shall determine the most appropriate course of action to investigate the nature of the cultural heritage. This should include establishing the nature and extent of the cultural heritage through the application of minimally intrusive archaeological techniques such as surface survey, cleaning back exposed sections and auguring.
- g) If, during the initial inspection and investigation, the Aboriginal cultural heritage is determined to be:
 - 1) Not part of a previously identified and recorded Aboriginal place where existing management recommendations apply;

- 2) Of archaeological/scientific significance (e.g. it is an intact cultural deposit); and/or,
- 3) Of cultural significance to the RAP;

Then *protection*, *impact mitigation* or *salvage* measures may be required.

- h) Options for the implementation of *protection*, *impact mitigation* or *salvage* measures must:
 - 1) Be explored by the CHA in consultation with the RAP and the Sponsor; and,
 - 2) Consider the application of the General Principles outlined below.

General Principals to apply upon discovery of unexpected significant cultural heritage:

- a) **Investigation of cultural heritage** - further investigation may be required to confirm the nature and extent of the cultural heritage.
- b) **Protection of cultural heritage** - all attempts must be made to protect the significant cultural heritage from being disturbed further by the activity. This must include written agreement on:
 - 1) Management of the cultural heritage during the activity (e.g. with the installation of fencing to prevent disturbance);
 - 2) Management of the cultural heritage during the site remediation works at the end of the activity.
- c) **Impact mitigation** - If protection of the cultural heritage place is not possible then consideration must be given to reducing the impact of the activity through the introduction of harm mitigation measures e.g. limiting impact on the cultural heritage so that a portion remains unaffected by the activity.
- d) **Salvage of cultural material and information** - If the cultural heritage cannot be protected then salvage of all or part of the Aboriginal place may be required prior to the activity resuming and the impact to cultural heritage proceeding. The following parameters must be considered during the salvage process:

For Surface Cultural Heritage

- a) Recording spatial characteristics (e.g. Differential GPS records of artefact locations, mapping the place boundary, drawing detailed plans of place extent and features);
- b) Documenting fabric/raw materials (e.g. earth feature, silcrete quarry; shell types in shell midden);
- c) Creating a photographic record;

- d) Collecting cultural heritage.

For Subsurface Cultural Heritage

- a) Controlled excavation of cultural deposits; and,
- b) Salvage excavation must be carried out in accordance with proper archaeological practice and standards, and an archaeological report detailing the methods, analysis and results of the excavation must be prepared.

If appropriate material suitable for radiometric dating or residue and use wear analysis is retrieved (i.e. *in situ* organic material associated with cultural material and *in situ* cultural material respectively) then this material will be subject to these procedures. The cost of this process will be borne by the Sponsor.

Works Proceeding

- a) The CHA (with the approval of the RAP) will advise the Sponsor's representative when suspended construction works can proceed.
- b) In general, works may recommence:
 - 1) When the appropriate protective measures have been taken;
 - 2) Where the relevant Aboriginal cultural heritage records have been updated and/or completed;
 - 3) Where all parties agree there is no prudent or feasible course of action; or
 - 4) Once any existing dispute has been resolved.

Notification to OAAV

The Office of Aboriginal Affairs Victoria (OAAV) will be notified about the Aboriginal place via the submission of the appropriate Victorian Aboriginal Heritage Registry forms;

If a salvage excavation has been conducted, the report must be submitted to OAAV.

MR7: Unexpected Discovery of Human Remains

If any suspected human remains are found during any activity, works must cease. The Victoria Police and the State Coroner's Office must be notified immediately.

If there are reasonable grounds to believe that the remains are Aboriginal, the State Control Centre must be contacted immediately on 1300 888 544.

This advice has been developed by the OAAV and is described in the following five step contingency plan. Any such discovery at the activity area must follow these steps.

- 1. Discovery:

- If suspected human remains are discovered, all activity in the vicinity must stop to ensure minimal damage is caused to the remains; and,
- The remains must be left in place, and protected from harm or damage.

2. Notification:

- Once suspected human skeletal remains have been found, the Coroner's Office and the Victoria Police must be notified immediately;
- If there are reasonable grounds to believe that the remains could be Aboriginal, the State Control Centre must be immediately notified on 1300 888 544;
- All details of the location and nature of the human remains must be provided to the relevant authorities; and,
- If it is confirmed by these authorities that the discovered remains are Aboriginal skeletal remains, the person responsible for the activity must report the existence of the human remains to the Secretary, DPC in accordance with s.17 of the *Aboriginal Heritage Act* 2006.

3. Impact Mitigation or Salvage:

- The Secretary, after taking reasonable steps to consult with any Aboriginal person or body with an interest in the Aboriginal human remains, will determine the appropriate course of action as required by s.18(2)(b) of the Act; and,
- An appropriate impact mitigation or salvage strategy as determined by the Secretary must be implemented (this will depend on the circumstances in which the remains were found, the number of burials found and the type of burials and the outcome of consultation with any Aboriginal person or body).

4. Curation and further analysis:

- The treatment of salvaged Aboriginal human remains must be in accordance with the direction of the Secretary.

5. Reburial:

- Any reburial place(s) must be fully documented by an experienced and qualified archaeologist, clearly marked and all details provided to OAAV;
- Appropriate management measures must be implemented to ensure that the remains are not disturbed in the future.

MR8: Custody and Management of Aboriginal Cultural Material

It is the responsibility of the CHA to ensure that all Aboriginal cultural heritage recovered from the activity area is documented, bagged and labelled. The OAAV will be advised of this through completion and submission of relevant VAHR forms to the Heritage Registrar, OAAV, by the CHA.

The RAP will be the caretaker of this material and require all collected Aboriginal cultural heritage to be relocated into areas outside of the development footprint (see MR2).

MR9: Safety

RAPs, the CHA or any other personnel involved in inspecting, recovering and documenting Aboriginal cultural heritage shall abide by the Site Supervisor's OH&S procedures and Victorian WorkSafe practice at all times. In addition:

- In any matters relating to OH&S, the Site Supervisor shall have the right to require any party to vacate the construction area and, if applicable, the area managed by the Sponsor.
- The Sponsor will at all times provide a safe working environment for RAP representatives, the CHA and any other personnel engaged in cultural heritage activities within the activity area.
- It is the responsibility of the RAP, the CHA or any other cultural heritage personnel to ensure they comply with Personal Protective Equipment requirements required by the Site Supervisor.

MR10: Future Changes to the Activity

Future changes to the activity can be made so long as they are

- confined to the development footprint assessed by this CHMP;
- are for the same activity; and
- do not result in greater harm to Aboriginal places as allowed by this CHMP.

If changes fall outside of these requirements then a new CHMP may be required.

MR11: Handling of Sensitive Information

Outside of publically available information and information presented in this CHMP, no Aboriginal cultural heritage information will be distributed without the approval of the RAP.

All Aboriginal place GPS co-ordinates must be removed from this CHMP prior to its distribution to all parties other than those listed in MR4.

MR12: Communication Between Parties

Notification of the following parties to the CHMP by the means as indicated is deemed to comply with the requirements for notice to be given under this CHMP.

Each party is to ensure that there is an electronic means of confirmation of notification. Telephone notification is to be confirmed by either fax or email within 12 hours of the telephone conversation.

The CHA will notify all parties of any change in RAP status that occurs prior to the completion of construction works.

Party to Agreement	Name of Delegate	Phone	Fax	Email
RAP	Alex Parmington/RAP Representative	(03) 8673 0901	(03) 9416 3095	rapofficer@wurundjeri.com.au
The Sponsor	Adam Davidson / Villawood Properties	(03) 9695 3000	(03) 9695 3001	adam@villawoodproperties.com
Site Supervisor	TBA	TBA	TBA	TBA
CHA	TBA	TBA	TBA	TBA

MR13: Dispute Resolution

Clause 13(1) Schedule 2 of the Regulations requires that the CHMP must contain a contingency plan for the resolution of any disputes between the Sponsor and relevant RAPs in relation to the implementation of an approved CHMP or the conduct of the activity. Disputes may occur at various stages during the activity. Procedures for dispute resolution aim to ensure that all parties are fully aware of their rights and obligations, that full and open communication between parties occurs, and those parties conduct themselves in good faith.

If a dispute arises that may affect the conduct of the activity, resolution between parties using the following Informal Dispute Resolution guidelines is recommended.

Informal Dispute Resolution

The following steps have been designed to guide the dispute resolution process:

- The party raising the dispute will complete a Dispute Notification Form (included below) and email or fax a copy to all parties listed in MR12.
- Project delegates (as listed in MR12) of each party (RAP and Sponsor) will attempt to negotiate a resolution to any dispute related to cultural heritage management of the activity area within two working days of written notice being received that a dispute between parties is deemed to exist.
- If the project delegates cannot reach an agreement, representatives of both parties will negotiate a resolution to an agreed schedule.
- If representatives of the relevant parties fail to reach an agreement, an independent mediator should be initially sought to assist in resolving the dispute.
- Both parties must agree upon a timeframe for the independent mediator.
- If an independent mediator cannot be agreed on, or fails to resolve the dispute within the allowed timeframe, the Victorian Aboriginal Heritage Council may be approached for their willingness to act in resolving the dispute.
- All disputes will be jointly investigated.
- Where a breach of a CHMP recommendation has been found to occur, the RAP and the Sponsor will agree to the best method of correction or remediation.
- Any correction or remedial activities required (e.g. repairing damage to an Aboriginal place) will be overseen by a RAP representative and will take place in accordance with their instruction and at the cost of the Sponsor.
- The RAP will use their best endeavours to minimise delays to work schedules while not compromising cultural places or values.
- Only issues directly relating to cultural heritage management will be handled through the dispute resolution mechanism.
- If it is deemed that a cultural heritage audit is the most appropriate method of addressing a breach, the CHA will contact OAAV regarding this process.
- If ordered by the Minister responsible for administering the *Aboriginal Heritage Act* 2006 a cultural heritage audit will be undertaken as per the requirements for such audits outlined in s.83-86 of the *Aboriginal Heritage Act* 2006.
- These arrangements do not preclude any legal recourse open to the parties being taken but the parties agree that the above avenues will be exhausted before such recourse is made.

DISPUTE RESOLUTION NOTIFICATION FORM**Cultural Heritage Plan No 13370****Relevant Party Raising the Dispute:**

Contact Person:

Date:

Nature of the dispute:**Proposed Meeting Time/Date and Place:****Relevant parties who have been sent (email or fax) this notification (tick box):**

Party to Agreement	Name of Delegate	Fax	Email	Contacted (✓)
RAP	RAP Representative	(03) 9416 3095	rapofficer@wurundjeri.com.au	
The Sponsor	Villawood Properties	(03) 9695 3001	adam@villawoodproperties.com	
Site Supervisor	TBA	TBA	TBA	
CHA	TBA	TBA	TBA	

MR14: Provision for Review – Compliance Checks

Compliance checks must be undertaken by the CHA, on behalf of the Sponsor, three times during the construction phase of the activity. These compliance checks will be initiated by the Sponsor, at the cost to the Sponsor. Two RAP representatives must be invited to participate in these compliance checks. The RAP must be given a minimum of 2 weeks' notice. Their contact details are provided in MR12.

The checklist provided below will be used to review compliance with the CHMP. The CHA will submit a completed checklist to both the RAP and the Sponsor within 7 working days of the compliance check being undertaken.

CHMP Compliance Checklist

Management Measure	Yes/No	If No – Proposed Action to Remedy Non-Compliance
Has temporary fencing around VAHR 7822-3789, 7822-3881, 7822-3882 and the components of VAHR 7822-3876, 7822-3875, 7822-3788, 7822-3790 located outside of the development footprint been installed prior to the activity commencing in accordance with MR1?		
Has a surface salvage of the required components of VAHR 7822-3876, 7822-3875, VAHR 7822-3788, 7822-3790 and all of 7822-3794 been undertaken (MR2)?		
Are the ongoing management recommendations as per MR3 being followed?		
Has a Cultural Heritage Induction been undertaken in accordance with MR4?		
Is a copy of this CHMP being kept onsite (MR5)?		
Have copies of the approved CHMP been distributed according to MR5?		
Are Cultural Heritage Contingencies being adhered to (MR6 and MR7)?		
Do the custody arrangements of any Aboriginal cultural heritage follow the requirements of the CHMP (MR8)?		
Are the safety requirements being met (MR9)?		
If there are any changes to the layout or conduct of the activity do they occur within the area assessed during this CHMP (MR10)?		
Has the RAP been consulted prior to the distribution of any cultural heritage information as per MR11?		
Is communication between parties being undertaken as per MR12?		

Management Measure	Yes/No	If No – Proposed Action to Remedy Non-Compliance
In the event of a dispute has the dispute resolution process outlined in MR13 been followed?		
Have three compliance checks been undertaken (MR14)?		
If the review has identified any areas of non-compliance has a meeting taken place between the RAP, CHA and Sponsor to establish actions to address non-compliance (MR14)?		

If the Project Delegate identifies any areas of non-compliance with the CHMP:

- A meeting will be required between the CHA, Sponsor and the RAP to establish actions to address non-compliance.
- This should be undertaken within 7 working days, or as soon as is practical, from the completion of the 'CHMP Compliance Checklist'.

It is noted that under Part 6 of the *Aboriginal Heritage Act* 2006 the Minister may order a cultural heritage audit if:

- The Sponsor of an approved CHMP has contravened, or is likely to contravene, the recommendations in the plans (s.81a); or,
- The impact on Aboriginal cultural heritage of an activity to which an approved CHMP applies will be greater than that determined at the time the plan was approved (s.81c).

Maximum penalties for breaching the *Aboriginal Heritage Act* 2006 are more than \$265,000 for an individual or more than \$1.4 million for a company.

MR15: Tendering for Salvage Works

The Sponsor is required to notify the RAP when / if salvage works go out to tender and the Sponsor will consider any fee proposal provided by the RAP.

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ABBREVIATIONS / ACRONYMS

AHA (2006) – *Aboriginal Heritage Act 2006*

AHR (2007) - Aboriginal Heritage Regulations 2007

ASTT – Australian Small Tool Tradition

BP – Before Present (i.e. 1950)

CHA – Cultural Heritage Advisor

CHMP – Cultural Heritage Management Plan

CHP – Cultural Heritage Permit

EES – Environment Effects Statement

EP – Excavation Pit

EVC – Ecological Vegetation Class

LDAD – Low Density Artefact Distribution

NOI – Notice of Intent to Prepare a CHMP

OAAV – Office of Aboriginal Affairs Victoria

RAP – Registered Aboriginal Party

STP – Shovel Test Probe

VAHR – Victorian Aboriginal Heritage Register

WTLCCHC–Wurundjeri Tribe and Land Compensation Cultural Heritage Council

PART 1 – ASSESSMENT

1 INTRODUCTION

1.1. BACKGROUND

This Cultural Heritage Management Plan (CHMP) has been prepared for a proposed residential subdivision across three properties at Redstone Hill, Sunbury. These properties are owned by Sunbury Pastoral Pty Ltd, Viewgrange Farming Pty Ltd and Kstone Partners.

The CHMP was commissioned by Villawood Properties (the Sponsor). This mandatory CHMP was prepared in accordance with the requirements of the *Aboriginal Heritage Act 2006* (the Act).

The aims of the CHMP were to:

- Identify the location, nature and significance of Aboriginal places within the activity area;
- Assess whether harm to Aboriginal places can be avoided by the proposed activity; and,
- Develop a framework for managing Aboriginal places, prior to, during and subsequent to the activity taking place.

Petra Schell acted as the Cultural Heritage Advisor for this CHMP. Petra meets the requirements for a Cultural Heritage Advisor under Section 189 of the *Aboriginal Heritage Act 2006* in that she has a Bachelor of Arts (Honours) gained from the School of Archaeology at La Trobe University in 1993. In addition to this, Petra is a full member of the Australian Association of Consulting Archaeologists Inc. and draws on over 15 years of consulting experience in the assessment and management of Aboriginal cultural heritage.

Claire St George (Project Management Archaeologist, Ochre Imprints) authored the CHMP. Claire holds a Bachelor of Archaeology 2009 (Honours) from the School of Archaeology at Flinders University and also meets the requirements for a Cultural Heritage Advisor under the

Terminology

Aboriginal cultural heritage and Aboriginal places are terms used throughout this report and their meanings are taken as follows from the *Aboriginal Heritage Act 2006*:

Aboriginal cultural heritage means 'Aboriginal places, Aboriginal objects and Aboriginal human remains' (s.4).

An Aboriginal place is 'an area in Victoria or the coastal waters of Victoria that is of cultural heritage significance to the Aboriginal people of Victoria' (s.5).

All known Aboriginal places in Victoria are recorded on the Victorian Aboriginal Heritage Register (s.145).

Aboriginal Heritage Act 2006. Claire is a full member of the Australian Association of Consulting Archaeologists and has more than five years experience in the management of Aboriginal cultural heritage.

1.2. LEGISLATIVE CONTEXT

1.2.1. *Aboriginal Heritage Act* 2006

The *Aboriginal Heritage Act* 2006 provides blanket protection for Aboriginal cultural heritage in Victoria. This means that Aboriginal cultural heritage is protected from harm and it is illegal to carry out an activity that can disturb Aboriginal places without the appropriate authorities under the Act (and its associated Aboriginal Heritage Regulations 2007). There are two principal mechanisms under the Act that remove the risk of illegal harm to Aboriginal cultural heritage, namely via a:

- Cultural Heritage Management Plan; or
- Cultural Heritage Permit.

These are briefly discussed below.

Cultural Heritage Management Plan

A CHMP is a report recommending measures to be taken to protect Aboriginal cultural heritage affected by a development or use of land. It must include recommendations for measures to be taken before, during and after a relevant activity. The underlying philosophy of the CHMP is to minimise harm to Aboriginal cultural heritage, however it is the document through which provisions can be made to harm Aboriginal places legally. A CHMP must be approved by the appropriate registered Aboriginal party or where no party exists for the area, the Secretary of the Department of Premier and Cabinet (DPC) before the activity may commence.⁵

A CHMP usually involves a staged investigation of the risk posed by a proposed activity to Aboriginal cultural heritage. The Act and associated Regulations set out the requirements for different levels of investigation:

- Desktop Assessment;
- Standard Assessment (Field Survey);
- Complex Assessment (Subsurface Testing; Controlled Excavation).

⁵ The DPC replaced the Department of Victorian Communities, as referred to in the *Aboriginal Heritage Act* 2006. The Office of Aboriginal Affairs Victoria (OAAV) carries out the day-to-day administrative functions on behalf of the Secretary.

The Sponsor (usually the proponent) of a CHMP must ensure that the plan is prepared in accordance with the prescribed standards outlined in the Act, their associated regulations, and approved forms. The CHMP must consider the following matters:

- a) Whether the activity will be conducted in a way that avoids harm to Aboriginal cultural heritage;
- b) If it does not appear to be possible to conduct the activity in a way that avoids harm to Aboriginal cultural heritage, whether the activity will be conducted in a way that minimises harm to Aboriginal cultural heritage;
- c) Any specific measures required for the management of Aboriginal cultural heritage likely to be affected by the activity, both during and after the activity;
- d) Any contingency plans required in relation to disputes, delays and other obstacles that may affect the conduct of the activity; and
- e) Requirements relating to the custody and management of Aboriginal cultural heritage during the course of the activity.

Section 46 of the Act specifies the circumstances in which preparation of a CHMP is mandatory:

- When required by the Regulations;
- When the Minister directs a CHMP to be prepared for an activity; or
- When an EES is required for an activity.

Clause 6 of the Regulations states that a CHMP is required when:

- All or part of the activity is a high impact activity; and,
- All or part of the activity area is in an area of cultural heritage sensitivity - which has not been subject to significant ground disturbance.

‘High impact activities’ and ‘areas of cultural heritage sensitivity’ are defined in the Regulations. For activities which trigger a CHMP, a statutory authorisation cannot be granted for the activity without an approved CHMP.

A CHMP may be prepared voluntarily even when not required by the Act (s.45).

Cultural Heritage Permit

A Cultural Heritage Permit (CHP) is issued by the Secretary of DPC to “carry out an activity that will, or is likely to harm Aboriginal cultural heritage”. A CHP application is made to the

Secretary of DPC and, where a Registered Aboriginal Party exists for the area, must be supported by that organisation before it can be issued.

A CHP is sought for those instances where there is a known Aboriginal place that will be harmed by an activity. The permit outlines the measures that must be taken in order to disturb that place lawfully. Archaeological investigations are often required to inform a CHP application.

Other key features of the *Aboriginal Heritage Act 2006* are:

- The creation of the Victorian Aboriginal Heritage Council to provide a state-wide voice for Aboriginal people and to advise the Minister for Aboriginal Affairs on issues relating to the management of Aboriginal cultural heritage.
- A system of Registered Aboriginal Parties – approved by the Victorian Aboriginal Heritage Council – to be involved in cultural heritage decision making processes, and in particular CHMPs.
- Aboriginal Cultural Heritage Agreements to support the development of partnerships around the protection and management of Aboriginal cultural heritage.
- Provisions relating to enforcement including: cultural heritage audits, protection declarations and stop orders, inspection arrangements and penalties. Maximum penalties for breaching the Act are more than \$265,000 for an individual or more than \$1.4 million for a company.

1.2.2. Other Relevant Legislation

Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* is intended to provide additional protection from injury or desecration of artefacts and areas which are of particular significance to Aboriginal peoples and traditions.

The Act provides for emergency declarations to be made for the protection of significant Aboriginal areas or objects which are under 'serious or immediate threat of injury or desecration'.

The Act protects 'significant Aboriginal areas' and 'significant Aboriginal objects'. A 'significant' area or object is one of particular significance to Aboriginal people in accordance with Aboriginal or Torres Strait Islander tradition.

An application for protection of a specified area or object under threat can be made orally or in writing by an Aboriginal or Torres Strait Islander person.

The Minister for Sustainability, Environment, Water, Population and Community can make declarations to protect areas and objects if the area or object is under threat of injury or desecration (used, treated or affected in a manner inconsistent with Aboriginal tradition) and State law does not effectively protect the area.

The Minister may make emergency declarations or long-term declarations. Emergency declarations last for thirty days, but may be extended for a further thirty days. The Minister may not make a declaration in relation to an area or object located in a State, the Northern Territory or Norfolk Island unless he or she has consulted with the appropriate Minister of that State or Territory. These declarations may "contain provisions for and in relation to the protection and preservation of the area from injury or desecration".

Officers authorised by the Minister under the Act may also make emergency declarations, lasting up to 48 hours in relation to Indigenous heritage areas and objects.

Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* provides protection for the following types of heritage places and items:

- World Heritage;
- National Heritage; and
- Commonwealth Heritage.

Any action that is likely to have a significant impact on heritage properties and places must be referred to the Minister for the Environment and undergo an environmental assessment and approval process.

There are provisions for emergency listing of the national heritage values of a place if the Minister believes that those heritage values are under threat. The Minister can list the place before referring it to the Heritage Council and must take reasonable steps to advise any owners or occupiers of the place. Any person may request that a place be included on the National Heritage List under the emergency listing provision, and, if the Minister does not list the place within ten business days after receiving the request, the Minister must:

- Publish notice of that on the internet; and
- Provide to the person who made the nomination and anyone else who requests them, reasons why the Minister has not listed the place.

1.2.3. Why Was a CHMP Undertaken for the Activity?

The proposed activity triggered the requirement for a mandatory CHMP as the activity is defined as high impact (under r.46) under the *Aboriginal Heritage Act* 2006, and the activity is being undertaken in an area of Cultural Heritage Sensitivity (under r.22 and r.23). The regulations that apply are described below:

- *r.46(1) The subdivision of land into three or more lots is a high impact activity if (a) the planning scheme that applies to the activity area in which the land to be subdivided is located provides that at least three of the lots may be used for a dwelling or may be used for a dwelling subject to the grant of a permit; and (b) the area of each of at least three of the lots is less than eight hectares;*
- *r.22(1) A registered cultural heritage place is an area of cultural sensitivity;*
- *r.22(2) Subject to subregulation (3), land within 50 metres of a registered cultural heritage place is an area of cultural heritage sensitivity; and*
- *r.23(1) Subject to sub regulation (2), a waterway or land within 200 metres of a waterway is an area of cultural heritage sensitivity.*

The Sponsor, Villawood Properties, submitted a Notice of Intent to Prepare a CHMP (NOI) to WTLCCHC, the Deputy Director of the Office of Aboriginal Affairs Victoria (OAAV) and the landowners associated with the activity area on the 16 December 2014. The landowners are Sunbury Pastoral Pty Ltd, Viewgrange Farming Pty Ltd and Kstone Partners. CHMP number 13370 has been registered by the Office of Aboriginal Affairs Victoria for this assessment. Copies of these notifications are provided in Appendix 1, as is a response from WTLCCHC, electing to evaluate the CHMP.

This CHMP was prepared in accordance with the requirements of the *Aboriginal Heritage Act* 2006.

Other documentation that has been provided separately to the Office of Aboriginal Affairs Victoria includes:

- Spatial data generated as part of the CHMP showing the activity area, ground survey areas (if any), subsurface testing or excavation pits or transects (if any);
- An archaeological survey and excavation attributes form (where relevant);
- VAHR forms, including site inspection forms and representative photographs of every Aboriginal place (where relevant).

1.3. LOCATION AND EXTENT OF ACTIVITY AREA

The activity area covers c. 273 ha and is bordered to the south by Jacksons Creek, to the north by Sunbury Road and by private properties to the north and south (see Figure 2). The activity area incorporates much of the summit of Redstone Hill and many of the surrounding private properties. In addition, the activity area includes:

- Redstone Hill Road and its road reserves; and
- two planned intersections onto Sunbury road located c. 625 m and 1.2 km south east of the Redstone Hill and Sunbury Road intersection.

The activity area is dominated by Redstone Hill, which is a dormant volcano that rises 300 m above the surrounding volcanic plains. In the south Jacksons Creek deeply dissects the plain with moderate to steep slopes, including escarpments between Redstone Hill and Jacksons Creek. In contrast slopes north towards Sunbury Road are not as steep and level out along the north eastern part of the activity area forming part of the surrounding gently undulating plain.

A majority of private land within the activity area is utilised for agricultural and/or grazing purposes (as shown in Figure 2). This land has in many cases been cleared of basalt floaters with cairn like piles of cleared rock particularly prevalent around the upper slopes and summit of Redstone Hill. The uncultivated land located at the southern extent of the activity area contains steep escarpments, spurs, lower valley slopes, terraces and the Jacksons Creek floodplain which contains remnant and regenerated vegetation. This land does not appear to be utilised for any agricultural activities though it appears to have been subject to localised mining and other industry in the historical period (as discussed in Section 2.3).

Infrastructure in the activity area is largely limited to:

- informal vehicle tracks;
- fences,
- a large dam in the south eastern corner of the activity area, and a smaller one immediately to the south west of the larger one;
- two residential dwellings in the portion of the activity area north of Redstone Hill Road;
- a residential dwelling and a large shed on the Summit of Redstone Hill and,
- a portion of Redstone Hill Road, which is a narrow and predominately unsealed road.

The location, extent and existing conditions of features within the activity area are shown in Figure 2 and Figure 3. Cadastral details are provided in Table 1.

A check of the Victorian Aboriginal Heritage Register undertaken during the Desktop Assessment (see Section 2.5) revealed that 17 registered Aboriginal places have been

registered within 200m from the activity area of which eight are situated within the activity area itself. This result is visually depicted in Figure 2.

Parish	Bulla Bulla
County	Bourke
Local Government Area	Hume
Map Sheet (1:100,000)	7822 Melbourne
Property Identifiers	Lot 2 \ PS423080 (owned by Kstone Partners)
	Lot 5 \ LP95031 (Viewgrange Farming Pty Ltd)
	CP157019 (Sunbury Pastoral Pty Ltd)

Table 1: Cadastral information for the activity area

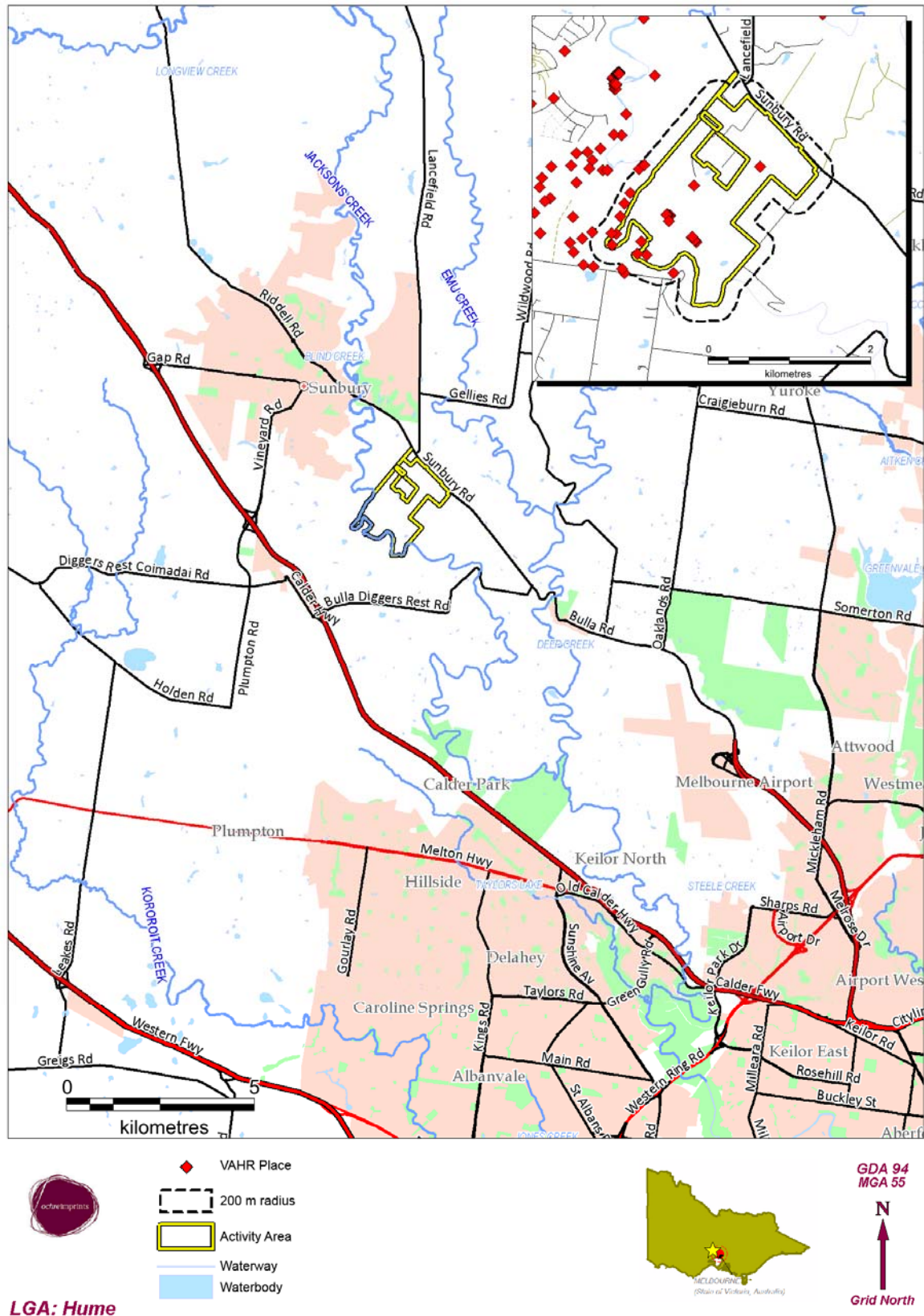


Figure 1: Location of the activity area

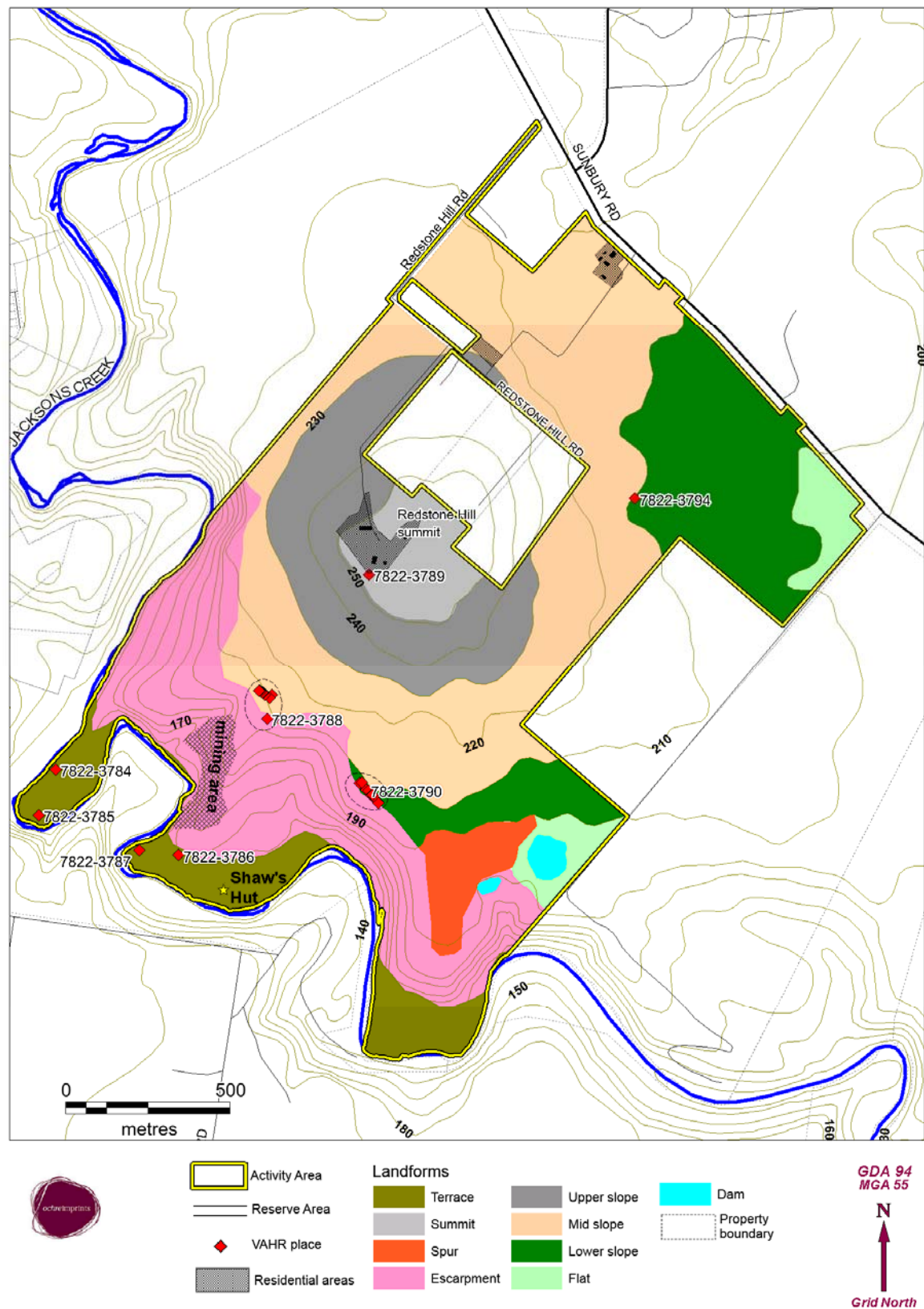


Figure 2: Existing conditions within the activity area highlighting landforms

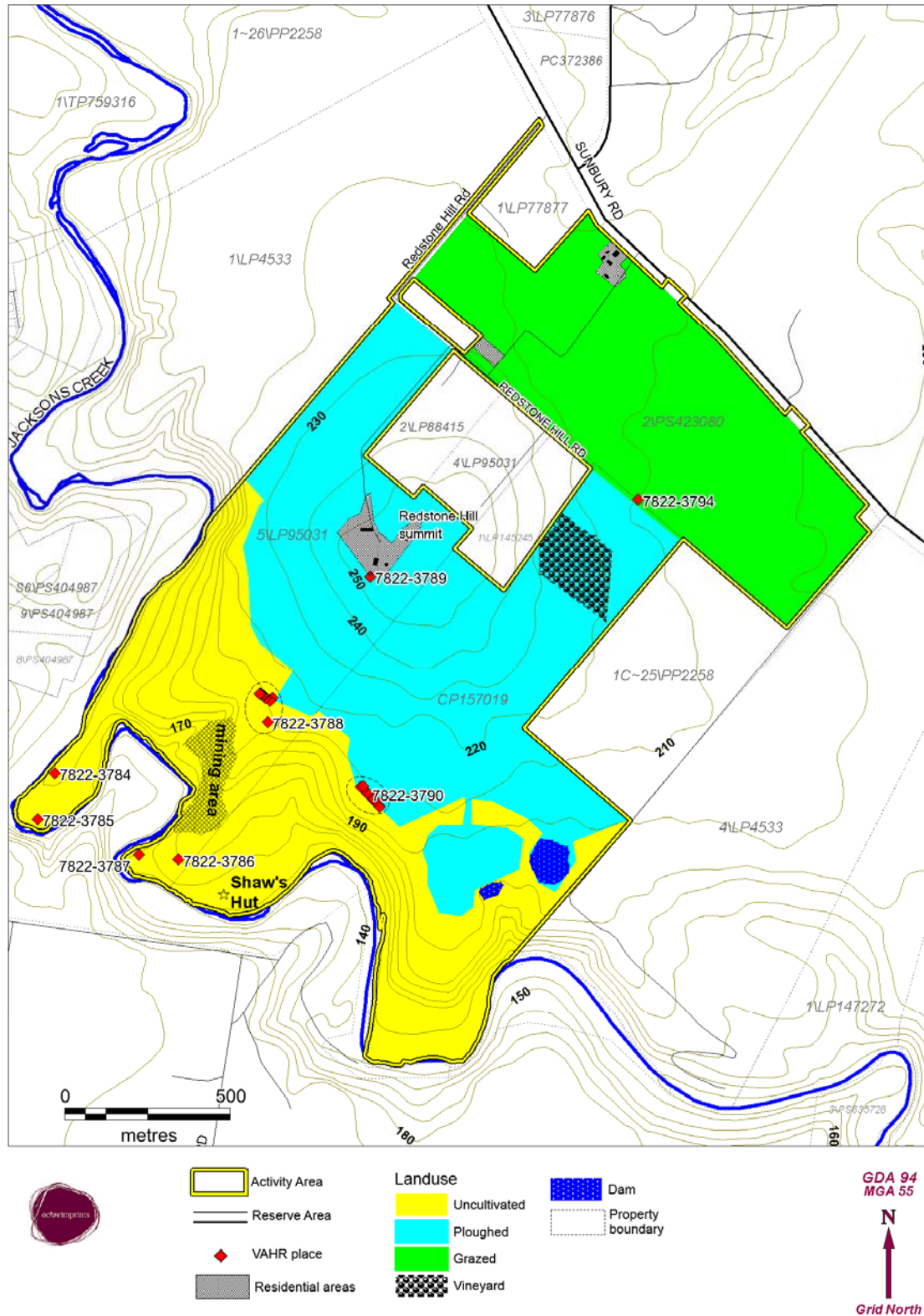


Figure 3: Existing conditions within the activity area highlighting land use

1.4. DESCRIPTION OF PROPOSED ACTIVITY

The proposed activity consists of the subdivision of 190 ha of land (out of a total 273 ha) at Redstone Hill, Sunbury. The proposed activity will involve a multi-lot residential subdivision, the resurfacing and widening of Redstone Hill Road to improve access to and from site and the construction of two intersections to Sunbury Road. The construction of these access points will extend across the southern road reserve of Sunbury Road at specified points acquired along the road corridor (as shown in Figure 2 and Figure 4).

In addition to the multi-lot subdivision, other proposed facilities within the development footprint include education centres (specifically primary and secondary schools), activity centres and a drainage reserve. These facilities are planned for construction in the northern portion of the activity area (north of Redstone Hill), closest to Sunbury Road. The layout of the proposed works within the southern portion of the development footprint is yet to be finalised.

The remaining 83 ha within the activity area is planned open space and will not be impacted upon by the proposed residential subdivision. The precise future land manager of this open space is yet to be determined. WTLCCHC have expressed an interest in being involved in the management of this open space, particularly in the areas of higher archaeological sensitivity associated with the escarpment and terrace landforms near Jacksons Creek.

Activities that will occur during the course of development are:

- soil excavation for the construction of buildings;
- grading of soil during road construction;
- excavation for service trenches (e.g. gas, electricity, water and drainage); and
- landscaping activities (e.g. shared pedestrian bicycle path, revegetation and above ground irrigation system, public ovals) associated with the public reserves.

All of the above activities, excluding some aspects of the landscaping activities, will involve the removal of vegetation and topsoil. The depth of excavation will vary according to the ground conditions. The standard depth of excavation for pipes and services, to the top of the pipe are likely to be:

- 750 mm for water and gas;
- 600 mm for electricity and Telstra;
- 900 mm minimum for drainage;
- 500 mm for roads; and
- 1,300 mm for sewer.

The activity will impact on surface and subsurface deposits within the activity area. Aside from underlying sterile clay and basalt that occurs at c. 150 mm below surface, no buried land

surfaces were identified in the development footprint. Aboriginal cultural heritage may occur anywhere above the clay; therefore, the activity has the potential to impact on cultural deposits where any ground disturbance works occur ≤ 150 mm.

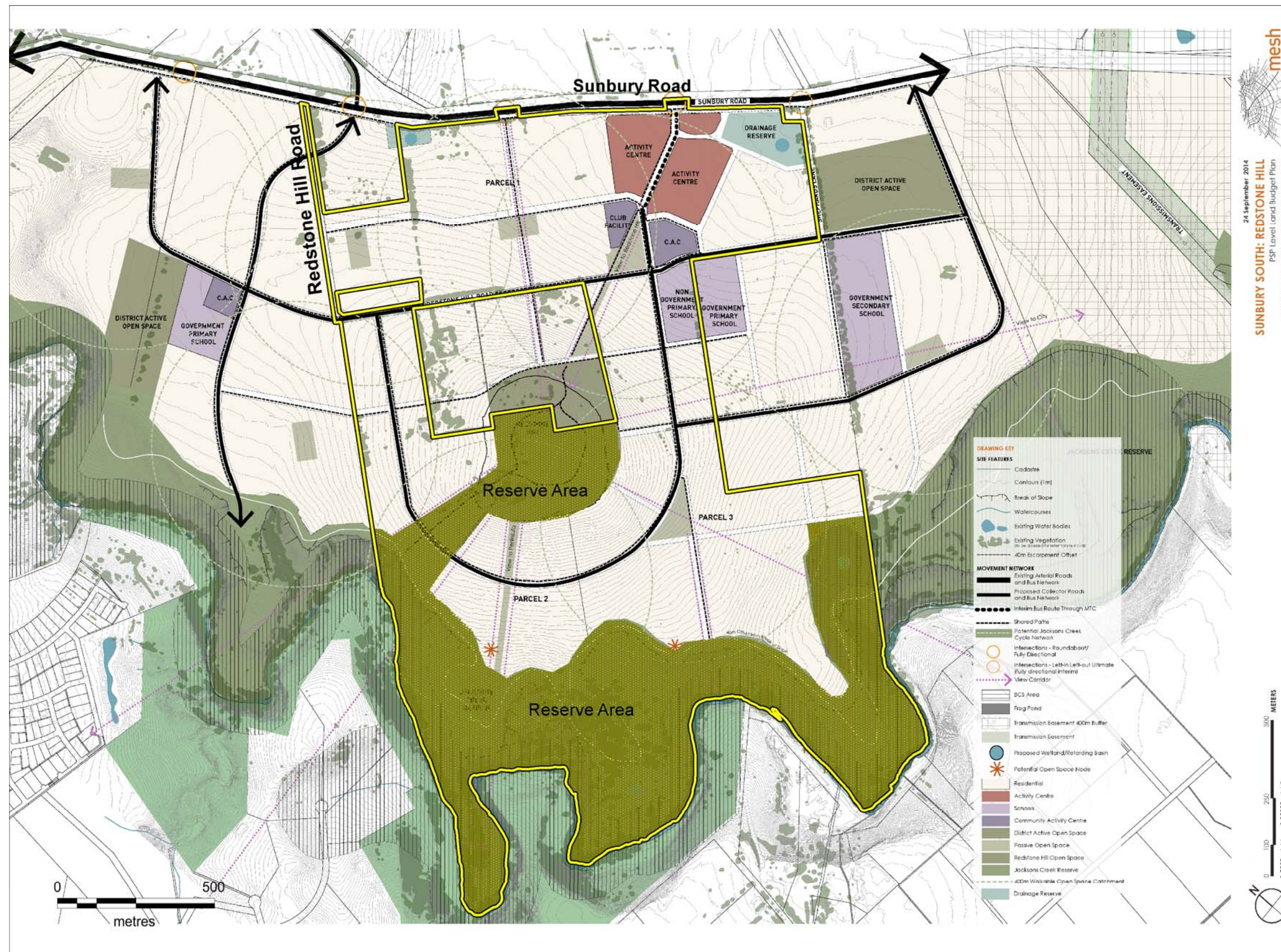


Figure 4: Development plan indicating the proposed activity area

1.5. REGISTERED ABORIGINAL PARTY (RAP)

1.5.1. Communication with the RAP

The Wurundjeri Tribe Land Compensation and Cultural Heritage Council (WTLCCHC) are the Registered Aboriginal Party (RAP) for the activity area. WTLCCHC were consulted throughout the preparation of this CHMP.

Communication with WTLCCHC is summarised in Table 2, and details and outcomes regarding each meeting held with the WTLCCHC is provided on the following page.

Date	Groups Responsible	Nature of Contact	Reason
16 December 14	WTLCCHC, Villawood Properties and Ochre Imprints	Meeting	Inception meeting for CHMP
16 December 14	Ochre Imprints	Email	Submitted NOI to WTLCCHC
18 December 14	WTLCCHC	Email / Letter	Formally agreed to evaluate CHMP
17 April 2015	WTLCCHC, Villawood Properties and Ochre Imprints	Meeting	Post Standard Assessment meeting
29 May 2015	WTLCCHC, Villawood Properties and Ochre Imprints	Meeting	Post Complex Assessment meeting
07 October 2015	Ochre Imprints	Email	Draft Management Recommendations forwarded to WTLCCHC for review.
08 October 2015	WTLCCHC	Email	Comments provided to Ochre Imprints on draft Management Recommendations
10 November 2015	Ochre Imprints	Email and Australia Post	Submitted CHMP to WTLCCHC for evaluation

Table 2: Communication regarding the involvement of Aboriginal stakeholders in the CHMP

Summary of Meetings Held

Inception meeting held on the **16 December 2014**:

Attendees: Petra Schell, Claire St George (Ochre Imprints), Delta Freedman, Ron Jones, Allan Wandin, Bobby Mullins (WTLCHC), Adam Davidson and Guy Thomson (Villawood Properties).

Meeting Record:

It was agreed upon between WTLCHC and Ochre Imprints that the survey of the activity area would focus on inspecting all VAHR places previously recorded within the activity area. It was also decided that the survey would occur post-ploughing sometime during February or March 2015 to ensure maximum ground surface visibility during the survey. The areas outside of the development footprint (specifically the land within the southern extent of the activity area and c. 500 m to Jacksons Creek as well as the Summit of the property, see Figure 4) would not be surveyed or subject to further cultural heritage assessment under this CHMP as these areas will not be impacted upon by the development (with the exception of re-identifying any previously registered Aboriginal places within this area).

A discussion was held between WTLCHC and Villawood Properties around land management regarding the cultural and historical values of the open space areas of the activity area. Delta proposed formalising an open space agreement for collaborative land management and delivery of services. Possible activities include re-vegetation, weed control and fencing. A meeting would be required between the WTLCHC Heritage Elders, Green Team and WTLCHC CEO. These discussions will be held separately to this CHMP process; however WTLCHC requested that the CHMP include contingencies for low impact activities associated with land management within these open spaces located outside of the development footprint.

A meeting will be held post-survey to discuss the methodology for the Complex Assessment.

Post-Standard Assessment meeting held on the **17 April 2015**:

Attendees: Petra Schell, Claire St George (Ochre Imprints), Alex Parmington, Ron Jones, Bobby Mullins and Allan Wandin (WTLCCHC), Adam Davidson and Guy Thomson (Villawood Properties).

Meeting Record:

Ground surface visibility was very high across much of the development footprint (c. 60-80%) during the Standard Assessment, and a total of 203 surface artefacts were recorded, dispersed across the activity area, with some clusters evident within the spur landform and the western slopes of Redstone Hill.

WTLCCHC and Ochre Imprints determined that the Complex Assessment should focus on determining whether any landforms had potential to contain *in situ* cultural heritage below the plough zone, which would also tell us whether cultural heritage was likely to extend outside the known extent of surface artefacts. It was agreed that the Complex Assessment would test each landform within the development footprint, particularly in areas where surface artefact density is higher. Higher densities have been recorded on the spur in the south-eastern extent of the development footprint and again at the western extent of the development footprint.

A minimum of eight excavation pits sampling each landform was requested. Due to the nature of the landforms (very shallow volcanic rock) it is not anticipated that there will be a significant amount of subsurface cultural heritage. Additional testing may be required should testing suggest that there is the potential for subsurface cultural heritage to be present.

Shovel test probes will be excavated in areas of low ground surface visibility within the northern portion of the property (land closest to Sunbury Road), as requested by Allan Wandin.

A meeting will be held post-Complex Assessment to discuss findings and formulate Management Recommendations.

Post-Complex Assessment meeting held on the **29 May 2015**:

Attendees: Petra Schell, Claire St George (Ochre Imprints), Alex Parmington, Ron Jones, Bobby Mullins and Perry Wandin (WTLCHC), Adam Davidson and Guy Thomson (Villawood Properties).

Meeting Record:

A total of nine 1x1 m excavation pits were dug across the activity area.

A total of 16 shovel test probes were also excavated in areas of low ground surface visibility; and an additional eight STPs were radials (total = 24 STPs).

Subsurface depths were very shallow (less than 150mm as expected, with the exception of one EP on the mid slope at 250 mm). One artefact was identified in EP9, and the associated radials around this EP were negative. A second artefact was identified in STP8, and the surrounding radials were negative.

Two areas were determined to have a density of greater than 10 artefacts in 10 square metres; one area near the dam (and associated with the spur landform) contained 17 surface artefacts, and the other within the western slopes of Redstone Hill, which contained a total of ten surface artefacts. Both of these higher density areas will be registered as artefact scatters, and are located within areas that will be protected from development. The remaining 176 surface artefacts and two subsurface artefacts will form an overarching LDAD across the slopes of Redstone Hill.

Wurundjeri requested that all surface artefacts be collected (as analysis has already been completed and does not need to be undertaken again) and relocated within the nearest most appropriate reserve.

Wurundjeri also requested that a Cultural Heritage Induction be undertaken prior to any works commencing, and that the Management Recommendations incorporate the requirement for three compliance inspections throughout the development process.

Ochre will provide Wurundjeri with draft Management Recommendations to comment on prior to the formal submission of the CHMP. Ochre will also forward maps of the two artefact scatter locations and proposed development to confirm where artefacts will be salvaged from and relocated to.

1.5.2. Outcomes of Consultation with RAP Applicants

The views of WTLCHC regarding the CHMP were sought during the meetings that were held throughout the preparation of the CHMP, the outcomes of which are discussed in Section 1.5.1 above.

2 DESKTOP ASSESSMENT

2.1. INTRODUCTION

This section fulfils the CHMP requirements for a Desktop Assessment. It provides contextual geographical, environmental, historical and archaeological information for the activity area and the region surrounding it. The focus of the Desktop Assessment is on placing the activity area in a regional context to inform the expected nature of Aboriginal places in the activity area. This allows a comparative analysis and significance assessment to be undertaken if Aboriginal places are present or within close proximity to activity area.

2.2. ENVIRONMENTAL CONTEXT

2.2.1. Geographic Region

The *Aboriginal Heritage Act* 2006 requires a Desktop Assessment to include ‘an identification and determination of the geographic region of which the activity area forms a part that is relevant to the Aboriginal cultural heritage that may be present in the activity area’ (Section 57).

The southern boundary of the activity area is defined by Jacksons Creek. The geographic region chosen for this CHMP encompasses a 1 km radius around the boundary of the activity area and is depicted in Figure 5. This region reflects the geomorphological context within which the activity area sits and provides an indication of the distribution of local freshwater sources, flora and fauna. The review of the known archaeology of the geographic region will provide an indication of Indigenous land use and occupation within the region and assist in forming a predictive model for the archaeology of the activity area.

The following sections provide background information of relevance to the geographic region. Where information is limited on a given topic (i.e. climate, land use history, ethno history), data has been drawn from a broader region.

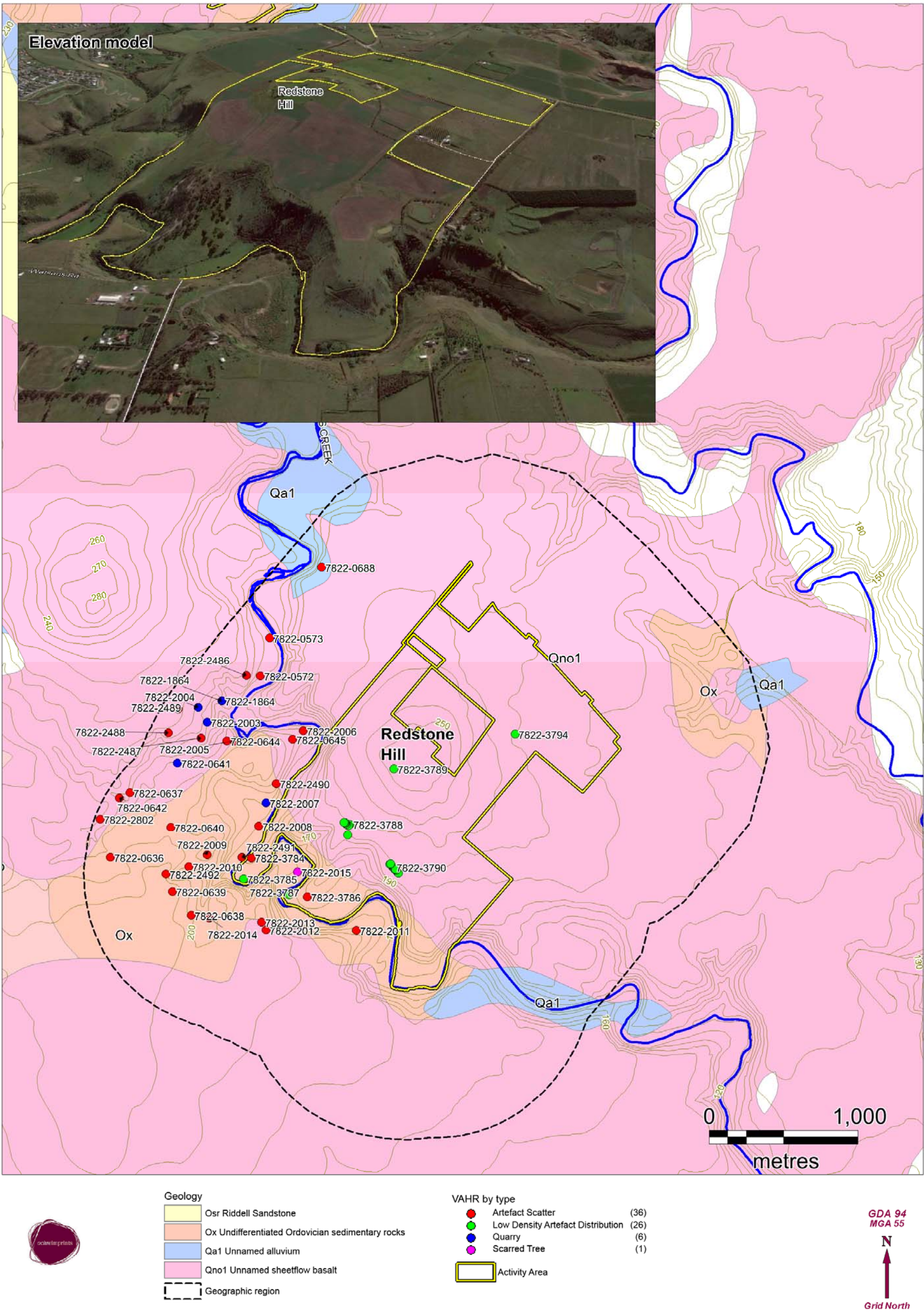


Figure 5: Geographic region showing geology, activity area and VAHR places located in the geographic region

2.2.2. Landforms and Underlying Geology and Geomorphology

The activity area is broadly located within the western volcanic plains region within a landscape formed of gently undulating terrain incised by winding creek valleys and punctuated by low hills and depressions (LCC 1985:4). The volcanic plains are known geologically as the Newer Volcanics which were formed by sporadic volcanic eruptions over a period of about 5 million years. Much of the plains were formed from lava which flowed from eruption points, overlapping to form a veneer of basalt lava flows. The basalt flows are interleaved in places with pyroclastic deposits (scoria and tuff) and discontinuous buried palaeosoils of variable thickness. The activity area itself is topographically defined by Redstone Hill, a lava hill of fairly low relief (c. 257 m above sea level; DEPI 2015).

Two geological units occur within the activity area - Qn01: undifferentiated sheet flow basalt (which underlies the development footprint) and Ox: undifferentiated Ordovician sedimentary rocks (associated with Jacksons Creek) as shown in Figure 5. These sedimentary layers underlie the basalt, but have been exposed as Jacksons Creek has dissected the volcanic plain. The Qn01 sheet flow basalt is usually associated with thin clay loam soil profiles overlaying heavy clay B horizon subsoils formed from decomposing basalt parent material. While the alluvials associated with Jacksons Creek are not mapped to extend into the activity area, alluvial deposits were observed in the Jacksons Creek corridor during the field assessment.

The geomorphology of the activity area has been categorised as Stony Rises (Mt Eccles, Pomboineit, Mt Rouse; 6.1.2), however this category doesn't provide any relevant information for the activity area, which does not appear to contain 'stony rises' (as defined by 6.1.2; DEPI 2015). The overlying geomorphology at Redstone Hill, and as recorded during the Standard Assessment phase of this CHMP, provides a more detailed description of the nature of the landscape associated with the activity area. The following landforms were identified as occurring within the activity area (as shown in Figure 2):

- Summit of Redstone Hill;
- Upper, mid and lower slopes of Redstone Hill;
- Spur in the south-eastern corner of the development footprint overlooking Jacksons Creek;
- Steep escarpment located south of the southern slopes of Redstone Hill; and
- Terraces of Jacksons Creek.

Suitable stone for the manufacture of stone artefacts was abundant in the near vicinity, with six silcrete quarries registered along Jacksons Creek within 1 km of the activity area (specifically VAHR 7822-0641, 7822-1864, 7822-2003, 7822-2004, 7822-2007 and 7822-

2015; see Section 2.5). Quartz pebbles are also prevalent along the banks of Jacksons Creek, which is accessible at a number of points from the activity area.

2.2.3. Climate

In its c. 40-60,000 years of human habitation, Australia's climate has undergone a series of fluctuations, and at times quite dramatic changes. Throughout much of the Pleistocene period, for example, the south of Australia looked very different than it does today. Lower sea levels meant that the coast extended much further southward, and that Tasmania was joined to the mainland as part of one larger landmass (Cosgrove 1999: 362-363). A major change occurred during the terminal Pleistocene (from about 12,000 years BP) when sea levels began to rise, flooding much of Australia's landmass (and thus large portions of territory and resource-bases for local Indigenous peoples) in the process. The coastline receded, and Tasmania became separated from the mainland. Sea levels in Victoria stabilised around 1.0-1.5 m above today's levels between 7,700-7,400 BP, before reaching current levels approximately 2,000 years BP (Lewis et al. 2012: 14).

The climatic conditions experienced by Aboriginal people over the course of their extensive occupation of the region would have varied markedly from those experienced today. During the Pleistocene period, at the time of the last glacial maximum (approximately 21,000-15,000 years BP), temperatures would have been an average of 6-10°C lower than presently experienced (Mulvaney and Kamminga 1999:115-116). Conditions were notably drier around this time, with less than half of today's annual rainfall falling across the region. This reduced rainfall meant that forested areas were scant across southern Victoria, with the region dominated by grasses (Kershaw 1995: 664). Between 12,000 and 9,000 years BP, warmer temperatures and increased precipitation encouraged the expansion of eucalypts, and forested areas became more common with the grasses surviving 'as the dominant understorey' (Kershaw 1995: 666). The climatic and vegetation descriptions in this Desktop Assessment most accurately describe the region in the Holocene period, which encompasses approximately the last 10,000 years.

The current climate of the region is generally described as temperate with warm, dry summers with a mean maximum temperature of 26.6°C, and cool winters with a mean minimum temperature of 5.4°C. Average annual rainfall is 537.7 mm; autumn receives the highest seasonal rainfall with an average of 62.6 mm per month (BOM 2015).

2.2.4. Flora and Fauna

Prior to European occupation and land clearance, the vegetation communities within the activity area included the following Ecological Vegetation Class (EVC):

- Plains Grassy Woodland (EVC 55). Described as '*open, grassy eucalypt woodland in low rainfall areas occurring on fertile soils on flats and gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer*' (DSE 2015).
- Escarpment Shrubland (EVC 895) '*occurs in lower rainfall areas or where effective rainfall is low, and is particularly prevalent along steep west-facing escarpments. Incorporates shrubland or shrub on rocky escarpments in steep valleys or gorges Sites have moderate to high fertility, are well-drained but subject to regular summer drought due to shallow soils. Lichen-covered rock outcrops are common. Species present varies depending on soil and water availability, however cover is often sparse. Common shrubs include Tree Violet Hymenanthera dentata, Varnish Wattle Acacia verniciflua, Lightwood A. implexa, Hedge Wattle, A. paradoxa, Sweet Bursaria Bursariaspina and Sticky Hop-Bush Dodonea viscosa. Turkey-bush Eremophiladeserti and Fragrant Saltbush Rhagodia parabolica can be locally common* (www.agriculture.gov.au2015).

The grasslands and associated woodlands would have once been home to a diverse range of native flora and fauna once important to the Indigenous population; mammals in the area would have included the Eastern Grey Kangaroo (*Macropus giganteus*), Wombat (*Vombatus ursinus*) and the Fat Tailed Dunnart (*Sminthopsis crassicaudata*) as well as a variety of snakes and lizards (such as the Striped Legless Lizard (*Delma impar*) and Earless Dragon (*Tympanocryptis lineata*; LCC 1985: 77, 82) these would have been an integral component to diet in the region, while skin, bones, and feathers would have been resourced for shelter, tools, decoration and clothing (Zola and Gott 1992).

Jacksons Creek would have supported high numbers of water fowl, such as species of snipe, plover and quail (Presland 1983: 34), as well as fish (such as the *Galaxias*, Australian Smelt, Southern Pigmy Perch, Flat Headed Grudgeon and Eel (*Anguilla spp.*)(LCC 1985: 78) and fresh water mussel (*Vesunioambigua*) (du Cros 1989: 28). Other faunal resources attracted to the fresh water of Jacksons Creek would have included the Water Rat (*Hydromys christogaster*), Possum (*Tricosurus vulpecula* or *Pseudocheirus perigrinus*), Black Wallaby (*Wallabia bicolor*), frogs, Adder (*Acanthophis antarcticus*) and Whip Snake (*Demonisia spp.*) (Morcombe 1974; Ride 1970).

A number of floral species had multiple uses, such as the wood from the *Acacia melanoxylon* which was used for spear throwers, shields, medicinal purposes and shelter (Gott and Conran 1991:50), while native tussock grass fibres were also used for string, nets, baskets and bags (Zola and Gott 1990: 58: 12).

2.3. EUROPEAN LAND USE HISTORY

The first European exploration to the north of Port Phillip Bay occurred in 1824 and was led by Hume and Hovell who described the panoramic views across the volcanic plains to the location of present day Melbourne. Following these favourable reports John Batman explored the area in 1835 and ascended a hill he called Mt Iramoo to view the extensive grasslands surrounding the area. The precise location of Mt Iramoo has not been established, however, it has been suggested that Batman's Mt Iramoo corresponds to Redstone Hill (Moloney and Johnson 1998: CL9-3). From the summit of this hill, Batman described the "view all round, I think I may say 40 miles or so each way, of beautiful plains of the best description of grass" (Moloney and Johnson 1998: CL9-3).

The Jacksons Creek waterway (along with Maribyrnong River and Deep Creek waterways) between Keilor and Sunbury were among the first settled by people migrating from Tasmania in 1836.

The Jacksons Creek waterway near Sunbury – with its rich flats, good water, grasslands, woodlands, and sheltered topography – was probably an especially attractive area to pioneer European settlers. The plateau on the western side of Jacksons Creek is drained by tributary streams which have helped formed alluvial flats near their junctions with the main watercourse. ... The sites which provided shelter, plenty, and ceremony for Aboriginal people were also preferred sites for the homesteads and sheep stations of the European occupiers (Moloney and Johnson 1998 vol. 2: 14).

Pastoralists and Early Settlement

According to Moloney and Johnson (1998: CL9-4) the earliest documented occupation of the study area dates to 1836 when John Brock established a pastoral run in the area. The run appears to have included land from Emu Creek in the northeast to Jacksons Creek in the southwest (Spreadborough and Anderson 1983: 164). Isaac Batey, son of Martin Batey, the last leaseholder of Redstone Hill and the eventual owner of the 640 acre Redstone Hill pre-emptive right, recorded that Brock's first huts were located on the Redstone Hill run. According to Batey:

Mr John Brock temporarily settled in a beautiful circular depression known to us under the designation of Brock's Bottom...Mr Martin Batey said Mr Brock informed him that he built his huts on the hill in order to observe the approach

of aboriginals [sic] from all points⁶ The only signs of occupation were mounds of two turf built huts...[Brock later moved] up Emu Creek [and] formed Bolinda Vale Station (Batey SLV MS 14397, p 69).

Billis and Kenyon (1974: 269) agree that Redstone Hill was taken up in 1836, but list Henry Howey as the first pastoralist, followed by Edward Dunn (1840-41), J. and R. Bakewell and Shaw (1841-46) and Flintoff and Batey⁷ (1846-74) as the subsequent proprietors of the run. Batey took sole possession of it in the late 1840s (Context 2014: 17). A plan dated to 1842 shows the location of what appears to be a building/ hut in the activity area marked as 'Shaw' adjacent to Jacksons Creek⁸ – this accords with the Billis and Kenyon dates for the occupation of the run by Bakewell and Shaw (1841-46) (Figure 6).

⁶It appears unlikely that the location referred to here is inside the current activity area. Elsewhere Isaac Batey described the ploughing of the turf mounds by employees of the then landholder Martin Dillon (Batey SLV MS 14397, p 3). Martin Dillon held property at lot 2, section 27 in the Bulla Bulla Parish – this block is immediately adjacent to property purchased by Martin Batey east of the Redstone Hill pre-emptive right (Fanning family history website, accessed 29/8/15)

⁷According to Isaac Batey, when he and his family first arrived in Victoria, Martin Batey worked as an overseer on Edward Flintoff's property on the Plenty River and the partnership between Batey and Flintoff was not formed until after the initial occupation of Red Stone Hill by Flintoff. He also asserts that Flintoff purchased the leasehold from William Postlethwaite, who acquired it from Shaw and Bakewell (Batey SLV MS14397), which doesn't entirely accord with information in Billis and Kenyon (1974).

⁸Across the creek is a building marked 'Page'. Presumably this is the hut/ house of the Page brothers whose station Glencoe was on the opposite side of Jacksons Creek. Isaac Batey recalled in later years that 'Jackson's Creek was the boundary between our holding and Glencoe, a run taken up by the Messrs. Page, as first pioneers in 1836. Being so near us, it may be said that we were in constant touch with the two brothers (Batey 1910). Elsewhere Batey recalls the story of how Glencoe was so named: 'Mr Edward Page happening to be in town some person said "Page what do you call your place?" whereupon the questioner answered "it has no name yet," then the other remarked "call it Glencoe and I'll stand you a bottle of rum". This proposition was fallen in with, so the bottle came in and this is how the station was christened Glencoe, that designation is yet retained by Mr John Duncan' (Isaac Batey SLV MS H7913).



Figure 6: Historical Map of activity area showing the Shaw Hut in southern extent of Activity Area on the banks of Jacksons Creek

Settlement by pastoralists preceded the establishment of the town of Sunbury by several years – it wasn't until September of 1851 that a proclamation in the Government Gazette announced the creation of the village reserve, set out by surveyors Foot and Urquhart, 'at Jackson's Ford on the Mt Macedon Road' (in Symonds 1985: 77), and it wasn't until the early 1850s that the pastoral runs were divided up and sold off in Crown Land sales.

Early Bulla Bulla parish plans show that a large portion of the activity area formed part of the Redstone Hill 640 acre pre-emptive right (originally lot 1, section 25), purchased by Martin Batey⁹, the last leaseholder of the run (Figure 7). Batey also purchased just over 273 acres of land to the immediate east of the pre-emptive block in the 1854 sales. W. Craig and J. O'Grady became joint owners of the northern portion of the activity area (lot 2, section 25) at the same time.

⁹Several plans show this property labeled as 'MrBatty's pre-emptive right' (eg. See Figure #) and show the adjacent (eastern) property (lot 1 of section 27) as having been purchased by M. Batey. Plans in Public Records Office land files (VPRS 5714/P/P000/1440, file 4864/86.6) show 'M. Batty' as the original holder of both properties, suggesting that Martin Batey likely held both properties. This accords with Batey's status as the, or one of the, final leaseholder(s) of the Redstone Hill pastoral lease.

A plan from the same year indicates the location of some structures then existing on the adjacent pre-emptive right. These structures are in roughly the same location as the 'Shaw' hut shown in Figure 6, and appear to consist of two buildings with a fenced enclosure around one (Figure 7). Isaac Batey later recalled that 'Old Dare' (who he implies held the Redstone Hill run prior to Shaw and Bakewell) 'had located where our home was' (Batey SLV MS 14397, p4), suggesting that the house initially occupied by the Bateys was probably that occupied also by the previous occupants of the run. This inference is supported by Isaac Batey's statement that in 1849, the Batey family's residence was 'in a deep valley, close to the creek' (Batey SLV MSM 506:215).

The only structure listed on the pre-emptive right property in Martin Batey's 1874 probate papers is 'a small wooden cottage' (VPRS 28/P2, unit 29) which later papers describe as 'an old dilapidated wooden cottage of little or no value' (VPRS 28/P0, unit 142). A more substantial 'four-roomed stone house, barn and stables' existed on lot 2, section 26 which, though originally purchased by J. Rankin in 1854, was owned by Martin Batey by 1874 (VPRS 28/P2, unit 29) and it would appear likely that it was, by that time, the Bateys' residence¹⁰ (VPRS 28/P2, unit 142).

¹⁰This house is likely the stone ruin known as the Rankin Farmhouse which appears on the heritage overlay as (HO344) (Context 2014: 44-45). The Context report suggests that this ruin is also listed by the National Trust (Vic) as 'Cottage on Redstone Hill Road' under number NT B3971 (Context 2014: Table 8.1). It is located outside the activity area.



Figure 7: Part of an 1854 plan of the Parish of Bulla Bulla. Note the structures shown in the southern portion of the activity area, adjacent to Jacksons Creek.

Lot 1, Section 25 (Batey's Pre-Emptive Right, southern part of the activity area)

Gold Mining

It was during the Batey's ownership of the southern part of the activity area that gold was initially discovered there. According to Symons:

In 1865 the Batey brothers assisted by J.F. Rankin, discovered a rock river of gold running a few inches below the surface, on their Redstone Hill property. A Sunbury resident for many years, Miss Alice Eadie recorded:

'The Batey boys never seemed to have to work very hard. They could always go into the mine on Redstone Hill and very easily take out enough gold to keep them going'(in Symons 1985: 87-88).

Isaac Batey places the discover of 'gold in quartz' on the Batey property by John Robson, Seaborn Batey, Thomas Batey and James Rankin in May of 1864 (Batey SLV MS 14397: 42). The Geological Survey of Victoria *Monthly Progress Report* from June 1899 provides some

more detail in regards to the character and working of the subsequent mine. In it is quoted an 1867 report which stated that:

The quartz vein is situated on allotment XXV, parish of Bulla near the summit of a ridge on the eastern bank of the [Jacksons Creek] and on a patch of the Silurian formation which lies exposed at that place. A shaft has been sunk from which quartz has been mined from the surface downwards; and there is a shaft 70 feet deep...About 20 chains southward from the shafts, on the bank of the river, Mr Beattie [sic] has erected an 8 horse-power portable engine, with a set of four rotary stamps (in Stirling 1899: 11-12).

In the report of the 1899 inspection of the mine it was noted that five shafts or between 40 feet (12m) and 180 feet (55m) in depth had then been sunk over a distance of about 8 chains (about 160m). The lease for the mine, covering 18 acres, 2 roods and 7 perches (a bit over 7ha) was then held by J. Batey, who informed the inspector that 'not less than £8,000 worth of gold has been won from this line of reef, besides a considerable quantity of antimony' (Stirling 1899: 12).

According to Symons, the mine continued to operate in to the early years of the twentieth century:

In 1906 the Metropol Gold Mining Co. (B. Frey) and the Redstone Hill Mining Co. (J. Wilson Hoelin) were vieing [sic] with each other for the mineral rights. Felix O'Conner, of Queenstown Tasmania, came to work at the mine in 1910, but when the vein ran under Jacksons Creek, the shafts became flooded and interest waned, although various attempts were made in later years to find the metal (Symons 1985: 87-88).

Soldier Settlement

By 1919 the majority of the activity area (lot 1 of section 25, or the former pre-emptive right) was purchased from the then owners, the Frith Brothers, by the Closer Settlement Board for the purpose of providing land, on the basis of conditional purchase leases, to three returned soldiers – Arthur Cliff, William Douglas and Robert Hancock. Cliff has served as a battalion stretcher-bearer in France, being discharged after six months on the front suffering from gas poisoning. Douglas had been in the 4th Light Horse Regiment and suffered from 'shell shock, enteric fever and gas [poisoning]' after serving in Egypt, Gallipoli and France, and Hancock had been wounded while with the 5th Field Company Engineers in France.

Part of the purchase process involved the Closer Settlement Board sending five valuers to assess the Frith property both for its suitability as soldier settlement land, and to determine a price to offer the Frith brothers¹¹. As a result of these assessments a reasonable amount of information is available concerning the land use of the property in 1919. Table 3 provides three

¹¹Two of the valuers deemed the property unsuitable to soldier settlement/ subdivision on account of it being too exposed to the wind and too rough for subdivision, while three provided favourable reports. The mean value per acre of the five assessments was £10.6.6, or £6,566.14/- for the 636 acres. The Board offered the Friths £6,996. (VPRS 5714/P000/1440, file 4846/866)

sketch plans derived from these and other reports in the Board's file. Together these indicate the locations of the mine site, buildings, stonewalls, tracks and the extent of clearing and cultivation.

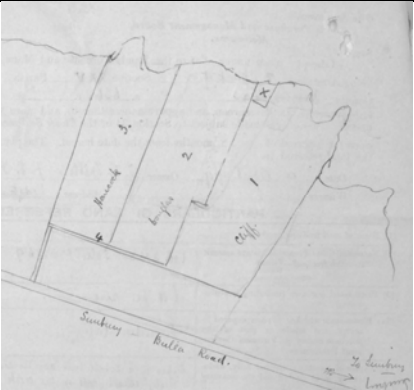
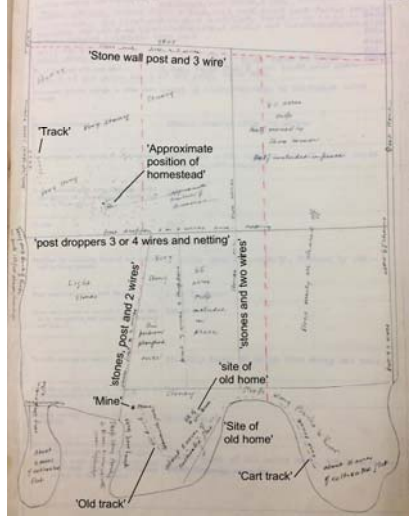
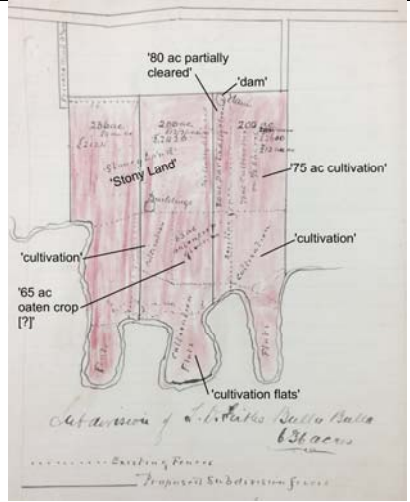
	<p>1919 sketch plan of the activity area, showing the three then proposed soldier settlement lots. Notations accompanying the plan note that the 'X' in the area shown as lot 1 consists of 'About 12 acres of an old mine being barren land'. Plan dated 4/4/19.</p> <p>Note that plan is oriented with south towards top.</p> <p>(VPRS 5714/P000/1440, file 4846/866)</p>
	<p>1919 sketch plan of the activity area by valuer A. C. Harrison's report (dated 4/6/19). Plan shows a number of structures then present in the southern portion of the activity area including the location of the earlier house, the mine, tracks, stonewalls and the then existing homestead.</p> <p>(VPRS 5714/P000/1440, file 4846/866)</p>
	<p>1919 sketch plan by valuer Andrew Rowan, showing land use in the southern portion of the activity area at that time.</p> <p>Plan dated 23/5/19.</p> <p>(VPRS 5714/P000/1440, file 4846/866)</p>

Table 3: Plans of the activity area from land files dated to 1919, showing structures then present as well as the extent of land clearing and cultivation. Note that these are historical sketch plans and are therefore not to scale.

At the time of the assessments a single homestead existed on the property on the tops of Redstone Hill. While the valuers' descriptions differ slightly, this consisted of a weatherboard house consisting of:

9 rms, pantry, bathroom, veranda front and side, iron roof, front part fairly new, back portion old, all lined and in good condition (Harrison 4/6/1919 in VPRS 5714/P000/1440, file 4846/866).

Harrison noted that the back (older) portion of the house 'was removed to its present position from near one of the river flats a few years ago. The buildings are now on the highest portion of the property'. The original and 1919 positions of the homestead are shown in Harrison's sketch plan (Table 3) – interestingly, the position of the old building is near, but does not completely accord with the position of earlier (mid-nineteenth century) buildings shown in Figure 6 and Figure 7 so it is unclear whether this structure is the dilapidated cottage, known to have been present in 1874, or whether a later structure was built on the river flat and then moved up to the top highest point on the property. Other buildings or structures listed by Harrison include a galvanised iron shed containing stabling, a six-bail cowshed, a small dairy and sheep yards (Harrison 4/6/1919 in VPRS 5714/P000/1440, file 4846/866). Notes in the Board files suggest that the house and other buildings should be split up and divided amongst the three new landholders.

Figure 8 shows the original subdivision of the property for the three soldier settlers. From west to east the lots were initially occupied by Cliff, Douglas and Hancock, respectively. Although the plans do not make it clear, notes in the files suggest that the weatherboard house and buildings that existed in 1919 were located in the central lot. They also indicate that the house was likely divided into two parts and split between Douglas and Hancock, as 'Mr Cliff does not require a house¹²' (VPRS 5714/P000/1440, unit 4846/866).

¹² A weatherboard house appears to have been present on Cliff's property (lot 1A) by 1919, so it is unclear whether he did take part of the divided homestead, or whether he built or brought another to the property (VPRS 5714/P000/0743, file 178/12).

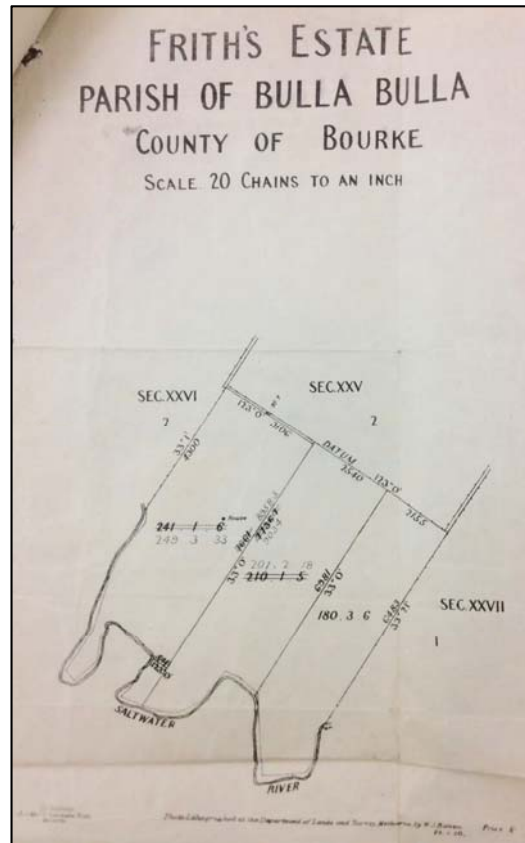


Figure 8: 1920 plan of the southern portion of the activity area as originally divided for soldier settlement (VPRS 5714/P000/0773, file 178/12).

Hancock relinquished his lease in the late 1920s, resulting in the division of his land between the two remaining soldier settlers, Cliff and Douglas. The southern portion of Hancock's lot was added to Douglas' lease (as part of existing lot 1B), while the northern portion went to Cliff's (as separate lot 1C). An easement was created along the northern boundary of Douglas' lot in order to provide Cliff access between his two lots.

File notes from the time of the division indicate that relatively little building had been undertaken by Hancock. Improvements are listed as 'part house', 'men's hut' and 'tool shed'. The house was described as being of 'second hand materials [and] out of repair'. The house was to be disposed of 'by the Architect's Branch' (VPRS 5714/P000/0743, file 178/12).

Information on the Bulla Bulla parish plan reveals that Douglas was granted freehold of lot 1B in 1938, and Cliff obtained it for lots 1A and 1C in 1945 (Figure 9). Structures present on Cliff's land in the late 1930s included a dwelling (with additions), a hut, workshop and smithy, a storeroom, a garage, fowl pen and house and a bore. Thirty-three acres had been 'cleared for plough' and a further 110 acres were partly cleared for grazing (VPRS 5714/P000/0743, file 178/12).

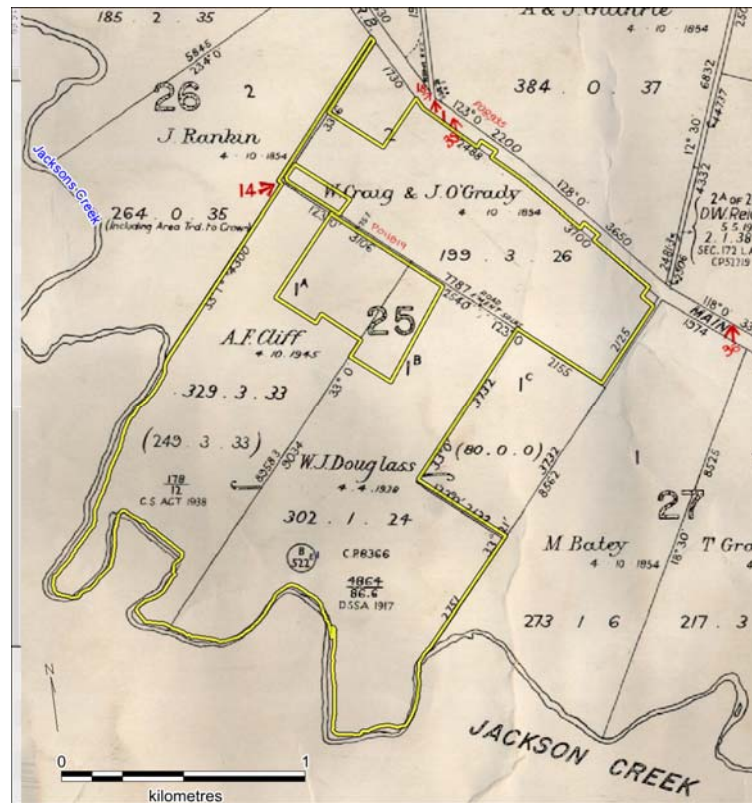


Figure 9: Historical Parish of Bulla Bulla showing activity area (B 522(6) Department of Crown Lands and Survey 1972).

Douglass and Cliff appear to have continued to use their respective lots for grazing and cropping. There have been some slight alterations to the lots, with three small parcels, each of 8ha or less, being formed at 50, 60 and 70 Redstone Hill Road, along the north eastern edge of the lots 1A and 1B. These lots are not included in the activity area.

At the time of the preparation of this CHMP the southern slopes of Redstone Hill (up to the escarpment) continue to be cropped, with the exception of one small paddock located immediately east of the Summit of Redstone Hill where a small vineyard, less than one acre in size, has been established. The southern extent of the activity area (which sits outside the development footprint for this CHMP) is not currently utilised for any specific purpose, and access to this land is predominantly limited to carrying out land maintenance.

Lot 2, Section 25 (northern part of the activity area)

The northern portion of the activity area was purchased by W. Craig and J. O'Grady in 1854. By the early 1860s the Constitution Hotel was present on the property. It was built by Daniel Cooper, who had purchased the property from Craig and O'Grady and erected a pre-fabricated hotel building there that he had imported from England. The hotel was situated to the south of the original intersection of the Lancefield Road/ Sunbury Road (Figure 10). According to Context (2014: 87-88) the hotel passed through several hands, and continued to operate until

at least 1892, while the surrounding property functioned as a small farm. The 2014 Context report notes that the Constitution Hotel is on the Shire heritage overlay (HO 358) but that the existing buildings on the site do not appear to accord with early descriptions of the hotel and may be later constructions.

The Context report notes that a 1917 Department of Defence map of the region indicates that at that time, a building existed on this property to the southeast of the location of the Constitution Hotel (Figure 10). The purpose of this building is unknown, but the map key appears to suggest that it was a house.

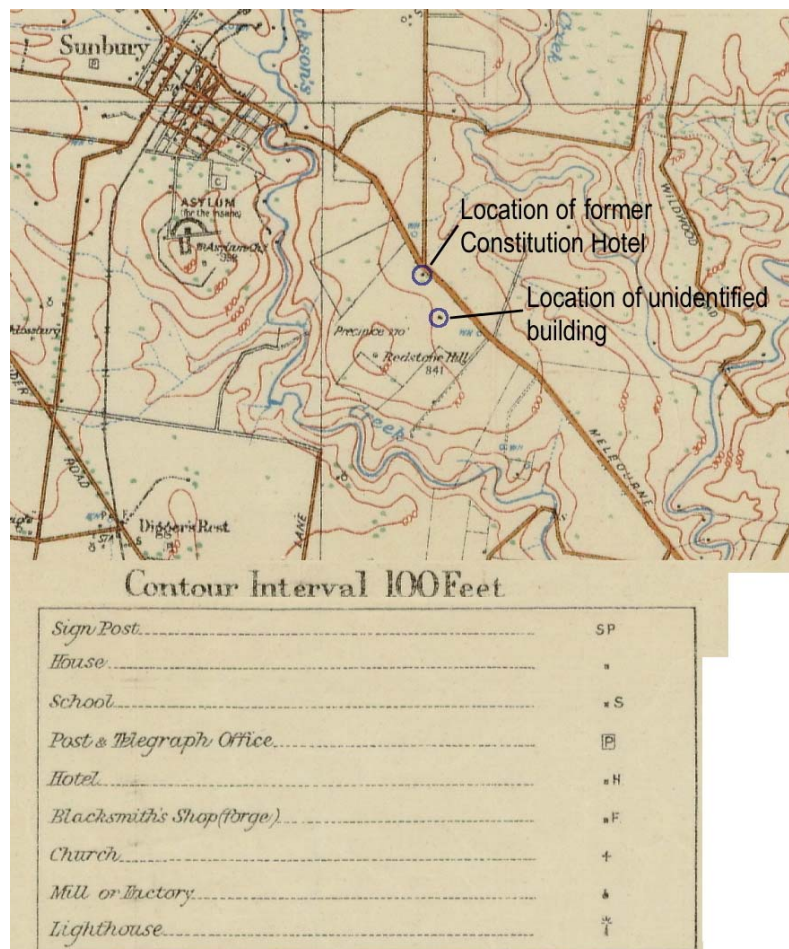


Figure 10: Department of Defence plan of the west and north of Melbourne, showing buildings at the location of the former Constitution Hotel, and an unidentified building located to its southeast

In 1967 the original lot 2 was subdivided with a 20 acre (just over 8 ha) parcel of land located at its northern corner removed (Certificate of Title vol 7524 fol 034), and a smaller 2acre parcel had been subdivided from the western corner by 1986 (Certificate of Title vol 9677 fol 741). These parcels are not included in the activity area.

The properties which incorporate the northern slopes of Redstone Hill are currently utilised for grazing purposes.

2.4. ETHNOHISTORY

2.4.1. Introduction

The following section reviews the available ethnohistorical data relevant to the Aboriginal people who occupied the wider region at the time of European contact. This type of review aims to identify ways in which Aboriginal people interacted with, and may have left archaeologically detectable traces on, their environment. Although the ethnohistorical record has the potential to provide useful information about Aboriginal society at contact, it should be noted that the information it does provide is, of necessity, incomplete, has no significant time-depth, and describes a society that even in the earliest observations had already undergone an unknown degree of social change.

It should also be noted that not all sources of information are equal, that information has been gathered from both trained and untrained observers, and that all documentation consulted here has been subject to a degree of bias. The ethnohistorical record presents a European perspective of Aboriginal society at a time when traditional lifestyles were being severely disrupted, and conclusions drawn from this record should be treated with the appropriate level of caution.

The main sources used in this section are listed below:

- The explorers H. Hume and W.H. Hovell who were the first Europeans to discover a route through the Great Dividing Range in Victoria on their exploration from Sydney to Geelong in 1824-25, traversing the region on 14 December near Mt Fraser, Beveridge. Both men kept diaries which are reproduced in Bland (1965) and Andrews (1981).
- Robert Brough Smyth (1830-1889), was an Honorary Secretary to the 'Board for the Protection of Aborigines'. Smyth's compilation, *The Aborigines of Victoria* (1878), arose from his efforts to gather information and artefacts relating to Victorian Aboriginal culture at a time during which Aboriginal people were dispossessed from their land. The work relied heavily upon sources such as A. Howitt and W. Thomas.
- Alfred William Howitt (1830-1908) was an explorer, natural scientist and pioneer authority on Aboriginal culture and social organisation in south east Australia. Howitt's papers written in the 1880s were praised as setting a new standard of ethnographic description and analysis. Howitt drew much of his information from over fifty correspondents around Victoria. He summarised much of his previous work in *The Native Tribes of South-East Australia* (Howitt 1904).
- Rev. G. Langhorne established the first Government Reserve near the Yarra River in 1837-39, providing early statistics and observations of Aboriginal people from the region. Many of these are reproduced in Cannon (1982).

- William Thomas (1793-1867) was one of four 'Assistant Protectors of Aborigines' under G.A. Robinson and was allocated the Port Phillip, Westernport and Gippsland districts. Thomas established a protectorate station at Narre Warren (1840-42) then later on the Merri Creek (1841-1851) at the confluence of the Yarra River. Thomas kept a detailed diary and records and his data and ethnographic collections were basic sources for Smyth (1878). When the Protectorate was abolished at the end of 1849 only Thomas remained in government service, his new position being 'Guardian of the Aborigines'. His official and unofficial body of work provide a valuable resource on Aboriginal people of the Merri Creek. The Public Record Office holds Thomas' official reports and monthly, quarterly and half-yearly returns. The Mitchell Library (NSW) holds his personal journals and diaries and a few official returns. Many of Thomas's drawings, letters and reports have been reproduced in Historical Records of Victoria, volumes 2A and 2B (Cannon 1982, 1983).

A number of useful secondary sources of information exist relating to Aboriginal people of the wider region. A small number of settlers' letters and recollections are reproduced in local histories and Bride (1969), providing a non-government perspective. Ellender and Christiansen (2001) examined many primary sources for references to Aboriginal people of the Merri Creek and summarised the results in *'People of the Merri Merri'* (2001).

Barwick (1984) and Clark (1990) constructed language boundaries and established geographic regions of Victorian Aboriginal clans. A wide variation exists in the nomenclature of Aboriginal clans. In this ethnography, quotes retain the original authors spelling; however, commonly used spelling is generally used throughout (with common variations included in brackets).

The lives of Aboriginal groups in the wider region were severely disrupted by European settlement and the gold rush that followed. As a result, very little information is available regarding the pre-contact lifestyle of Aboriginal people in the geographic region. A full ethnographic search was outside the scope of this assessment. The following section broadly summarises major synthesis previously undertaken on Aboriginal associations with the geographic region in the pre-contact and post-contact period. No Aboriginal oral history has been gathered during this research.

2.4.2. Pre-contact History

The basic unit of Aboriginal social organisation in Victoria was the clan, a group based on kinship through the male line with a shared historical, religious and genealogical identity. The clan was a land-owning unit whose territory was defined by ritual and economic responsibilities. Groups of neighbouring clans speaking the same dialect and sharing political

and economic interests identified themselves by a language name. In many cases this name used the suffix *(w)urrung*, meaning ‘mouth or way of speaking’ (Barwick 1984: 105-6).

The study area is located within the traditional language boundary of the *Woi wurrung* (*Wurundjeri*) people who occupied the watershed bounded on the north by the Great Dividing range from Baw Baw west to Mt Macedon and by the Werribee River (Clark 1990: 380). Numerous *Woe wurrung* (*Wurundjeri*) clans existed, the most relevant for the study area being the *Wurundjeri willam* clan. The name Yallambie is an Aboriginal word meaning ‘to rest or to remain’ (Banyule City Council: 2014). Evidence in Clark (1990: 384) infers that the *Marin bulag* had their headquarters on Jackson’s Creek close to and north of Sunbury.

The *Wurundjeri willam* (meaning ‘white gum tree dwellers’) were associated with the Yarra River, Plenty River, Merri Creek and their catchments (Clark 1990: 385). Alfred Howitt, documented a further three divisions within the *Wurundjeri willam*:

- The true ‘*Wurunjerri*’, under the headman, *Jakka-jakka*, occupied the Yarra flats and the upper part of that river to its source, including the northern slopes of the Dandenong Mountains, thence by Gardiner’s Creek to the Yarra River, and by it to the Darebin Creek.¹³
- The *Kurnsje-berreing*, in two subdivisions: (a) under the headman *Billi-billeri* (see text box for more information), lived at and held custody of the

Billibellary, an influential *Woi wurrung* elder and a headman or ‘ngurungaeta’ of the *Wurundjeri willam* clan, was one of the Aboriginal leaders who signed the treaty with John Batman for a large tract of land around Melbourne (including the study area). Billibellary was the custodian of the Mt William axe quarry. He endeavored to assist his people to accommodate to European culture and acted as a mediating influence. His children went to the Merri Creek mission school and when attendances dropped Billibellary was asked to persuade his people to attend. He also alerted William Thomas of the decline in the birth rate of the Kulin as he saw that ‘blackfellows all about say that no good them have piccaninnies now, no country for blackfellows like long time ago’. Billibellary became ill in 1846 with a severe respiratory infection. Aboriginal medicine men advised him that an Aboriginal person from far away had stolen some of his hair, causing Billibellary to slowly die. Billibellary died when he was about 55 years old. His legacy lived on in his son Simon Wonga, who succeeded him as leader, and who played a role in the formation of the Aboriginal Reserve known as Coranderrk, near Healesville, retained by the *Wurundjeri* community (Broome 2005).

Aboriginal stone quarry near Lancefield (Mt William), occupied the site of Melbourne and the country up the eastern side of the Saltwater River (Maribyrnong) and its western branch to Mount Macedon, also the western half of the country lying between the Saltwater and Plenty Rivers; (b) under the headman *Bebe-jan*, the country on the Darebin Creek, and on the Yarra River thence to about Warrandyte, and also the watershed of the Plenty River and Diamond Creek.

¹³Howitt (1904: 310), later in the text, also refers to the Boi-berri clan residing west of Saltwater Creek as the ‘real wurundjerri’.

- The *Boi-berrit*, under their headman *Bungerim*, lived on the western side of the Saltwater River, with their headquarters about Sunbury, and the western end of Mount Macedon (Howitt 1904: 71-2).

The *Woi wurrung* (Wurundjeri) were one of several language groups that made up the Kulin Nation. The *Woi wurrung* (Wurundjeri), and neighbouring groups, *Bun wurrung* (Bunurong), *Daung wurrung* (Taungurung), and *Ngurai-illam-wurrung* shared over 70% common language, while the neighbouring groups to the west, *Wada wurrung* (Wathaurung) and *DjaDja wurrung*, spoke language belonging to the Western Kulin language groups (Clark 1990: 19; Ellender and Christiansen 2001: 16, 36). In early references language groups were often referred to by geographic identifiers: *Woi wurrung* (Wurundjeri) were known as the Yarra people, *Bun wurrung* (Bunurong) the Western Port people, *Daung wurrung* (Taungurong) the Goulburn people and *Wada wurrung* (Wathaurung) were known as the Geelong or Barrabool people.

The Kulin groups intermarried and traded, allowing marriages to be of distant blood and 'safe travel' areas to be wide-spread (Barwick 1998: 13, 28). However, the relations between East and West Kulin clans were often hostile. According to William Buckley 'the contests between the 'Watourings of Geelong' (*Wada wurrung*) and the 'Wawarongs' (*Woi wurrung*) of the Yarra were fierce and bloody (Buckley cited in Cannon 1982: 182) and violence between the two clans was noted in 1839 at ceremonial gatherings on the Yarra (Cannon 1983: 454). Thomas noted in 1839 that the 'Goulburn' (*Daung wurrung*), 'Waverongs' (*Woi wurrung*) and 'Bunurongs' had a 'kind of confederacy' against the Geelong clans (Thomas cited in Cannon 1982: 612).

The Kulin people were closely bound to the land by religious beliefs expressed through the Dreaming through which all the land was sacred and were closely tied to the land by totemic relationships with other living beings and a shared life essence with birds, animals and plants. An extensive trading and communication network existed between the *Woi wurrung* and other clans through which marriages were arranged as well as the exchange of goods such as Mount William greenstone. Many references suggest strong ties between the *Daungwurrung* (Taungurung) and *Wurundjeri willam* (Ellender and Christiansen 2001: 71; Cannon 1982: 612).

The Mount William stone axe quarry was an important source of stone axe heads which were traded over a wide area of south-east Australia and would have passed along the waterways of the Merri Creek, Deep Creek and the Plenty River as the stone made its way to important ceremonies on the Yarra River (McBryde 1978). Although there are no first hand descriptions of the operations of Mount William, in 1882 and 1884 William Barak, a Wurundjeri man who witnessed the final operations of the quarry, described aspects of the custodial control over

this resource to Alfred Howitt (1904: 311) in the following way:

'There were places ... in which the whole tribe had a special interest. Such a place was the 'stone quarry' at Mount William... When neighbouring tribes wanted stone for tomahawks they usually sent a messenger for Billibellary [he acted as the quarry's guardian]. When they arrived they camped around about the place. Billibellary's father when he was alive split up the stones and gave it away for presents such as 'rugs, weapons, ornaments, belts, necklaces'.

Soon after European settlement, lyrebird tails became a valued export item. European traders gave guns to a number of Aboriginal people to enable them to shoot lyrebirds (Cannon 1983: 518). Thomas reports that in October 1839 *'Seven blacks (Yarra tribe) return from seeking bullen-bullen... They had no less than 17 pheasant tails and many white people were about till dark trying to get the tails from them'* (Cannon 1983: 550).

Accounts of *Woi wurrung* (Wurundjeri) Aboriginal people in the wider area are presented here as they provide insights into likely Aboriginal life in the region.

Harrison (1923), who resided at Yan Yean (c. 17 km north of the study area) during the period c. 1837–1844, provides some information on Aboriginal people living in the Plenty River area. His description of 'diet, housing and clothing' provides some information on subsistence strategies:

Aboriginal diet - chiefly of fish (caught by spearing) also: iguana, possum, kangaroo, grubs (from roots of wattle trees) and the bulb-like roots of yams and murnongs...

Housing 'nuamas' - strips of bark or long branches of trees, supported at an angle against a fallen log of a tree, away from the weather side...

Clothing - (in winter) opossum skins joined together by the sinews of kangaroos and other animals... Men carried spears, boomerangs; women, yam sticks...' (Harrison 1923: 20).

Personal adornments of the *Wurundjeri willam* noted by Thomas included impressive patterned scarring on the skin, tooth avulsion and nose piercing (Thomas cited in Cotter 2005: 9-10).

Other general observations of the *Wurundjeri willam* provided by Smyth and Howitt (cited in Ellender and Christiansen 2001: 40-50) reveals the resources utilised by Aboriginal people for a wide range of daily activities. Wooden drinking containers made from tree burls were common. Large containers were left at permanent campsites, filled with water and flowering plants placed in the water to form a sweet drink. Eucalyptus gum was collected in season, rolled into balls, wrapped in fibre bags and then hung in a tree. These balls could become very heavy, weighing up to 20 kilograms and were used as a medicine.



Plate 1: Aboriginal people fishing and camping on Merri Creek with Plenty Ranges in the distance.
Tinted Lithograph by Charles Troedel (1864)

The *Wurundjeri willam* used slow baking to cook both meat and roots. A hole was excavated in the ground, a fire was built up and stones were added. If no suitable stones were available near the campsite, lumps of clay were used. When hot, the stones were covered with green boughs stripped from trees. Meat and roots were placed on this mat and then covered with another layer of green branches followed by bark topped with some soil or sand. A number of observations from the 1830s about the plains north of Melbourne noted the abundance and popularity of 'rats' (presumably the kangaroo rat) and yams known as murnong (Gellibrand cited in Bride 1969: 31).

Smyth noted the remains of large murnong cooking mounds on the banks of the Plenty River, and the Darebin and Merri Creeks. He observed that their locations were generally in proximity to water – and that they were used repeatedly 'by generation after generation'. The Murnong mounds were also found near or within the margin of a forest, with the position nearly always well sheltered (Smyth 1878: 239).

Thomas noted that:

'once in about three months the whole tribe unite, generally at a full moon, when they have a few dances, and again separate into three or more bodies, as they cannot get food if they move en masse. They seldom camp more than three nights in one place, oftener but one, arriving at the camp about an hour before sundown. In their migratory move all are employed: children in getting gum, knocking down birds, &c; women in digging up roots, killing bandicoots, getting grubs, &c; the men in hunting kangaroos and scaling trees for opussums. There is a great harmony that exists among them when none of another tribe is in the group' (Thomas cited in

Bride 1969: 399).

Many Aboriginal stories relate how ancestor beings created the landscape. A *Woi wurrung* (Wurundjeri) creation story reveals how many landscape features within the wider region were formed and highlights the connection of Aboriginal people to waterways:

Once the water of the Yarra was locked in the mountains. This great expanse of water was called Moorool, or Great Water. It was so large that the 'Woiwurong' (Woi wurrung) had little hunting ground. This was in contrast with the 'Wothowurungs' (Wada wurrung) and the 'Bunurongs', whose hunting ground was the lovely flat which is now Port Phillip Bay. Mo-yarra, slow-and-fast-running, was the headman of the 'Woiwurong'. He decided to free the country of the water. So he cut a channel through the hills, in a southerly direction, and reached Western Port. However only a little water followed him and the path cut for it gradually closed up and the water again covered the land of the 'Woiwurrung'. At a later time the headman of the tribe was Bar-wool. He remembered Mo-yarra's attempt to free the land. He knew that Mo-yarra still lived on the swamps beside Western Port (Koo-wee-rup). Each winter he saw the hill tops covered with the feather down which Mo-yarra plucked from the water birds sheltering on the swamps. Bar-wool resolved to free the land. He cut a channel up the valley with his stone axe. But he was stopped by Baw-baw, the Mountain. He decided to go northwards, but was stopped by Donna Buang and his brothers. Then he went westwards and cut through the hills to Warr-andyte. There he met Yan-yan, another 'Woiwurong', who was busily engaged in cutting a channel for the Plenty River in order to drain Morang, the place where he lived. They joined forces, and the waters of Moorool and Morang became Moo-rool-bark, the Place-where-the-wide-waters-were. They continued their work and reached the Heidelberg-Templestowe Flats, or Warringal, Dingo-jump-up, and there they rested while the waters formed another Moorool. Bar-wool and Yan-yan again set to work, but this time they had to go much slower because the ground was much harder. They were also using up too many stone axes. Between the Darebin and the Merri Creeks they cut a narrow, twisting track, looking for softer ground. At last they reached Port Phillip and the waters of Moorool and Morang rushed out. The country of the Woiwurrung was freed from water but Port Phillip was inundated (Massola 1968).

Large ceremonies and group gatherings were called on a regular basis to facilitate certain unions. Marriage was sought from the Bunjil moieties of the *Bun wurrung* (Bunurong) to the south, the *Daung Wurrung* (Taungurong) to the north, and a clan near Mount Macedon and Lancefield (Barwick 1984: 104). Marriage was a means of promoting alliances and gaining access to food supplies and products of a neighbouring territory. *Wurundjeri willam* frequently married Kulin people from the upper Goulburn region (Ellender and Christiansen 2001: 36). Thomas noted that sacred corroborees were kept well hidden from European eyes (Ellender and Christiansen 2001: 57-58) so the gatherings discussed below are likely to represent a fraction of the ceremonial and other gatherings that took place.

Prior to European contact, the Yarra River, particularly at the confluence with the Merri Creek in the Melbourne area was said to have been a favoured location for large gatherings of clans from different Aboriginal language groups who met for social, ceremonial and trade purposes. According to Thomas neighbouring clans united once a year (cited in Bride 1969: 401) and it was not uncommon for large numbers of people to be seen camped beside the Yarra. In 1840 he noted that:

'By what I can learn, long ere the settlement was formed the spot where Melbourne now stands and the flats on which we are now camped [on the south bank of the Yarra] was the regular rendezvous for the tribes known as Warorangs, Boonurongs, Barrabools, Nilunguons, Gouldburns twice a year or as often as circumstances and emergencies required to settle their grievances, revenge deaths...' (Thomas in Ellender and Christiansen 2001: 101).

The confluence of the Merri Creek and the Yarra River was known to be an important ceremonial ground (Ellender 1997: 18). Many *Wurundjeri willam* customs have been recorded particularly by Smyth (1878), Howitt (1884; 1887, 1904) and Thomas although it is outside the scope of this report to describe them in detail. Thomas describes several ceremonies on the Merri Creek. These included male and female initiation ceremonies (Ellender and Christiansen 2001: 53-56). On Saturday March 22, 1843, at an encampment near the Merri Creek, nearly two hundred Kulin people came to join the *Wurundjeri willam* in the ceremony of Tanderrum which Thomas recorded. They had travelled from their own territories along the Delatite River, to make a special visit to the land of the *Wurundjeri willam*. Visiting country belonging to another group was dangerous and required strict precautions. Tanderrum established and strengthened bonds of friendship between different Aboriginal clans. The newcomers carried torches or burning boughs in their hands which they used to purify the air. Water was brought to the newcomers but the locals drank first to show that there was no danger. An observation documented the experience of a young man visiting the *Wurundjeri willam* for the first time who stopped to drink from the Yarra without observing any preliminary ritual; he immediately lost the use of his voice (Ellender and Christiansen 2001: 55).

The *Woi wurrung* believed that the *wirrap* (medicine man) could kill people, far or near, by means of Mung, or evil magic, through the agency of many substances including the Thundal, or quartz crystals, which was favoured (Howitt 1884: 445; 1887: 26).

The death of an Aboriginal person was treated with ceremony and superstition. Thomas noted several instances of Aboriginal burial in the ground close to the Yarra River and Merri Creek (Cannon 1983: 526,535).

Clark (1990: 381) mentions the existence of sacred sites near Gisborne as being important to many neighbouring clans but provides few details. Du Cros (1996: 75) suggests that Wooling / Bolobek Swamp and surrounding foothills may have been a gathering place.

Five earthen rings identified at Sunbury, some of which occur adjacent to Jackson's Creek, are believed to be associated with ceremonial activity, however there is very little information regarding their use in Victoria (Frankel 1982, Sutherland and Richards 1994).

The volcanic nature of the Sunbury region predisposes it to rich stone resources such as basalt, quartzite and silcrete that may have been suitable for the manufacture of stone tools. Local archaeological studies suggest that sources of silcrete close to water are most likely to have been quarried and that trade routes between Wooling / Bolobek Swamp and Mount William existed (du Cros 1996:72-76 and Murphy 1996: 31-32). It has also been suggested that Jackson's Creek may have been used as a travel route (du Cros 1996:75).

2.4.3. Post-contact History

Aboriginal life was severely disrupted by contact with settlers, sealers and whalers to the Port Phillip region. European diseases such as influenza and smallpox decimated local populations, who were often affected by these diseases before they ever encountered a European (Broome 2005: 7). In 1824-5, the European explorers Hume and Hovell with a party of convicts, bullock carts and horses crossed *Woi wurrung* territory. No contact was recorded between the Europeans and the *Woi wurrung* people, although the explorer observed fire-stick farming being carried out by Aboriginal people in the surrounding country. In 1835, John Batman arrived from Tasmania to survey and acquire land on behalf of the Port Phillip Association declaring land on the banks of the Yarra as 'the place for a village' (Barwick 1998:19-21).

By 1840, *Woi wurrung* land throughout the Port Phillip District began being settled by European colonists with settlement particularly concentrated in the 'settled district' encompassing the Melbourne region, including Sunbury, which was also settled at this time. From the 1840s Aboriginal people were camping in parts of Melbourne where there were still patches of remnant vegetation (Presland 1994: 47). However, Aboriginal resources were being rapidly depleted through grazing and clearing, and access to traditional lands was frequently prevented by settlers (Barwick 1998: 31). As settlement throughout Victoria severely disrupted Aboriginal lifestyles conflict was inevitable and the Government struggled with how to protect both Aboriginal people and European settlers.

The Government realised quite early the need for a safe refuge for Aboriginal people and the first attempt to provide assistance to Aboriginal people was initiated in 1837. A Government mission was built on an 895 acre site, south of the Yarra River (east of Melbourne Botanic

Gardens), with George Langhorne responsible for the running of the mission. The objective of the mission was to 'civilise' Aboriginal people and those who decided to live at the mission were provided with rations in exchange for agricultural endeavours. Children were also provided with rations for attending school classes. *Woi wurrung* (Wurundjeri) people were mainly associated with the mission although a few *Bun wurrung* (Bunurong) individuals and members of other language groups also attended the mission in 1838 (Clark and Heydon 1998: 27; Cannon 1982: 153-236).

In 1838, the Port Phillip Aboriginal Protectorate was established as a direct response to the pressures on Aboriginal people as a result of European settlement. George Augustus Robinson was appointed as Chief Protector along with four Assistant Protectors, James Dredge, Charles Sievwright, Edward Stone Parker and William Thomas. William Thomas was appointed Assistant Protector of the central district which included Melbourne, Westernport and Gippsland. Thomas believed that the best solution was to encourage Aboriginal people away from the township of Melbourne.

The closest Protectorate to the activity area was a short lived one at Jackson's Creek, near Gisborne. However, its precise location is unknown and there is very little information regarding this Protectorate (Historical Place Report 5:1-7, Aboriginal Affairs Victoria; Morrison 1971: 19-23).

2.5. SEARCH OF THE VICTORIAN ABORIGINAL HERITAGE REGISTER

A review of the Victorian Aboriginal Heritage Register (VAHR) maintained by OAAV was undertaken on 16 December 2014 and a secondary search was undertaken more recently on the 17 August 2015. A total of 42 previously registered Aboriginal places were found to occur within the geographic region. The distribution of these places is shown in Figure 5; 17 of these Aboriginal places are located within 200 m of the activity area, eight of which are within the activity area (Table 3). A total of six of these Aboriginal places consist of more than just one site type (e.g. an artefact scatter and a quarry, or an artefact scatter, a quarry and a Scarred Tree).

The frequency of Aboriginal place types within the geographic region is as follows:

- Artefact Scatters (n=37): Artefact scatters are locations where stone artefacts and other cultural material (such as hearth stones, ochre, charcoal and bone) are present on the ground surface and/or in subsurface deposits.
- Low Density Artefact Scatters (LDADs; n=6): LDADs are locations where stone artefact density is less than 10 artefacts per 10 square metres, and are present on the ground surface and/or in subsurface deposits. The LDADs in the geographic region, for example, comprise of stone artefacts identified across 10 discrete locations.
- Scarred Trees (n=1). A scar tree is a culturally modified tree where Aboriginal people have deliberately removed bark or wood for a wide variety of purposes including shelter, watercraft and containers.
- Quarries (n=6). A quarry is a site where Aboriginal people removed stone from rocky outcrops to make chipped or ground stone tools for many different purposes. Stone artefact scatters where quarried material is further worked are common around quarries

A summary of Aboriginal places recorded within the geographic region is provided in Table 4 below.

VAHR No	Place Type	Place Contents	Place Context
7822-0636	Artefact Scatter	Artefact scatter measures 75 x 100 m and contains silcrete flakes, cores and a backed blade. Total number of artefacts is unspecified.	Surface scatter disturbed by erection of fence and dam construction, on the top of a rise.
7822-0637	Artefact Scatter	Artefact scatter measures 200 x 150 m, contains silcrete and quartz hammerstones, flakes, cores, one scraper and two anvils. Total number of artefacts is unspecified.	Surface scatter recorded on the base of a hill.
7822-0638	Artefact Scatter	Artefact scatter measures 25 x 25 m, contains silcrete, quartzite and quartz hammerstones, cores and flakes. Total number of artefacts is unspecified.	Surface scatter recorded on the top of a hill overlooking Jacksons Creek
7822-0639	Artefact Scatter	Measures 100 x 5 m) and contains a hammerstone, pitted stones, cores, microliths, a burin and flakes. Total number unspecified.	Surface scatter recorded on the edge of a rise overlooking Jacksons Creek
7822-0640	Artefact Scatter	A single silcrete complete flake	Surface artefact. Landform unspecified.
7822-0641	Artefact Scatter Quarry	Measures 100 x 50 and contains hammerstones, cores, burin, flakes – flaking floor (all associated with silcrete quarry). Fine grained basalt flakes also present.	Surface scatter, located on the base of a hill associated with a silcrete quarry c. 20 from Jacksons Creek
7822-0642	Artefact Scatter	Less than 10 stone artefacts, including silcrete and quartz flakes and flaked pieces	Surface scatter located on an (unspecified) creek terrace. Thought to be Jacksons Creek.
7822-0644	Artefact Scatter	One hammerstone; a later place inspection also recorded flaked silcrete outcrop	Silcrete outcrop eroding down slope into gully.
7822-0645	Artefact Scatter	Less than 10 silcrete stone artefacts; including flakes and a scraper.	Surface scatter. Landform unspecified
7822-1864	Artefact Scatter Quarry	Scatter measures 350 x 55 m, contains a total of nine silcrete and quartzite cores, scrapers, blades and flakes Silcrete quarry measures 350 x 55 m	Surface scatter located c. 5 m from the intersection of Jacksons Creek and a minor tributary. Scatter is associated within a rocky outcrop which has been classified as a quarry.
7822-2802	Artefact Scatter	A single quartzite flake	Surface artefact located on the floodplain of Harpers Creek
7822-2008	Artefact Scatter	Scatter measures 200 x 10 m and estimated to contain hundreds of stone artefacts. A sample of eight were recorded which included chert, silcrete and quartzite flakes, cores and scrapers	Surface artefact scatter located on the levee bank 40 m west of Jacksons Creek within firm, dry silty soils.
7822-3784	Artefact Scatter	Scatter measures 220 x 20 m and consists of over 150 stone artefacts manufactured from silcrete and quartzite. Artefact types include cores, flakes and angular fragments.	Artefact scatter is located on a narrow terrace just above the floodplain of Jacksons Creek.
7822-3785	LDAD	LDAD consists of a single silcrete flake	Artefact is located on the low-lying floodplain of Jacksons Creek.
7822-3786	Artefact Scatter	Scatter measures 250 x 40 m and consists of over 150 stone artefacts manufactured on silcrete, quartzite and basalt.	Artefact scatter is located on the middle and lower slopes of a spur running between the Jacksons Creek floodplain and Redstone Hill.
7822-3787	LDAD	LDAD consists of an isolated silcrete flake	Artefact is located on the low-lying floodplain to the south of Redstone Hill.
7822-3788	LDAD	LDAD contains ten artefacts manufactured on either silcrete or quartzite. Artefact types include flakes (complete and broken) and angular fragments	Artefact scatter is located near the escarpment south of Redstone Hill overlooking Jacksons Creek.
7822-3789	LDAD	LDAD consists of a single quartzite flake	LDAD is located on the upper slopes of Redstone Hill overlooking Jacksons Creek.

VAHR No	Place Type	Place Contents	Place Context
7822-3790	LDAD	LDAD consists of twelve stone artefacts manufactured on silcrete and quartzite. Artefact types include flakes (broken and complete), and angular fragments	LDAD is located on the top of an escarpment overlooking Jacksons Creek.
7822-3794	LDAD	LDAD consists of a single quartz flake	Artefact is located on the upper slopes of Redstone Hill.
7822-0572	Artefact Scatter	A single silcrete flake	Surface artefact located on the floodplain of Jacksons Creek
7822-0573	Artefact Scatter	Less than 10 silcrete flaked pieces	Surface scatter located on the floodplain terrace of Jacksons Creek
7822-0688	Artefact Scatter	Scatter measures 300 x 20 m, predominately composed of silcrete flakes (n=10) and one quartz flake.	Surface artefacts located on an escarpment overlooking Jacksons Creek (c. 100 m away)
7822-2003	Artefact Scatter Quarry	Artefact scatter contains silcrete cores, flakes and an angular fragment. Scatter measures 25 x 10 m and estimated to contain hundreds of artefacts. Silcrete quarry measures 25 x 10 m in size (c. 0.60 m in height) and has evidence of battering, crushing and flake scars.	Silcrete quarry and associated surface scatter are both located on a narrow spur overlooking Jacksons Creek within dry soft sandy soils.
7822-2004	Artefact Scatter Quarry	Artefact scatter is associated with a silcrete quarry and contains cores and flakes. Ten artefacts sampled; scatter estimated to contain hundreds of artefacts Silcrete quarry outcrop measures 50 x 30 m in size (c. 0.45 m in height) and has evidence of battering, crushing and flake scars.	Surface scatter is associated with a silcrete quarry. Located on a spur overlooking Jacksons Creek (c. 100 m away).
7822-2005	Artefact Scatter	Artefact scatter measures 30 x 10 m and contains silcrete flakes, angular fragments, a geometric microlith and an end scraper	Surface scatter located on a plateau c. 80 m from Jacksons Creek.
7822-2006	Artefact Scatter	A single quartz flake	Surface artefact located in the bank of Jacksons Creek. Artefact has been exposed by burrowing animals.
7822-2007	Artefact Scatter Quarry	Artefact scatter is associated with a silcrete quarry and contains flakes, cores, blades and scrapers. Ten artefacts were recorded; scatter is estimated to contain hundreds of artefacts. A single chert core was also recorded within the scatter. Silcrete quarry measures 10 x 10 m in size (c. 0.40 m in height). Nodes show traces of flake scars.	Surface scatter is associated with a silcrete quarry. Located on a lower slope of a rise overlooking Jacksons Creek. Scatter and quarry are c. 75 m west of Jacksons Creek.
7822-2009	Artefact Scatter	Artefact scatter is a large low density scatter measuring 280 x 60 m. The scatter contains silcrete, quartzite, quartz and basalt flakes. A sample of five artefacts was recorded; the scatter is estimated to contain hundreds of artefacts.	Surface scatter is eroding down the upper slope of a hill c. 500 m from Jacksons Creek.
7822-2010	Artefact Scatter	Artefact scatters consists of silcrete flakes and angular fragments and measures 70 x 10 m in size. A sample of five artefacts were recorded, however the scatter is estimated to contain hundreds of artefacts.	Surface scatter is located on the supper slope of a rise 500 m from Jacksons Creek.
7822-2011	Artefact Scatter	Artefact scatter measures 240 x 80 m in size and contains silcrete, quartzite and chert flakes, cores, geometric microliths and scrapers. A sample of 10 artefacts was recorded; the scatter is estimated to contain hundreds of artefacts.	Surface artefacts scatter is located on the mid slope of a rise 200 m from Jacksons Creek.

VAHR No	Place Type	Place Contents	Place Context
7822-2012	Artefact Scatter	Artefact scatter measures 240 x 10 m in size and contains two silcrete, one chert and one quartz flake.	Surface artefact scatter located on the crest of a rise c. 600 m from Jacksons Creek.
7822-2013	Artefact Scatter	Artefact scatter measures 40 x 30 m in size and contains four flakes; one quartzite and three quartz artefacts.	Surface artefact scatter located on the crest of a rise c. 1 km from Jacksons Creek.
7822-2014	Artefact Scatter	Artefact scatter measures 38 x 2 m in size and contains four artefacts; one silcrete flake, two silcrete cores and one broken quartzite flake.	Surface artefact scatter is located on the upper slope of a plateau c. 50 m from Jacksons Creek.
7822-2015	Artefact Scatter Quarry Scarred Tree	Artefact scatter is associated with a silcrete quarry and measures 200 x 60 m in size and contains stone artefacts consisting of cores, blades, flakes and angular fragments manufactured on silcrete, chert and quartz. A sample of 50 artefacts was recorded; the scatter is estimated to contain over a thousand artefacts. Silcrete quarry measures 200 x 60 m and includes exfoliated and patinated nodules and exposed blocks. Battering, flake scars and crushing were evident. Scarred Tree has a single south eastern facing scar which measures 1.8 x 0.4 m. The scar is located 0.05 m above ground and is on the trunk of the tree. The species is uncertain.	The surface artefact scatter, silcrete quarry and scarred tree are all located on the lower slope of an escarpment c. 100 m from Jacksons Creek.
7822-2486	Artefact Scatter	Artefact scatter measures c. 42 m in size and contains five stone artefacts manufactured on silcrete. The place consists of flakes or flaked pieces	Surface artefact scatter is located c. 80 m from Jacksons Creek on a slope overlooking the creek.
7822-2487	Artefact Scatter	A single broken silcrete flake	Surface artefact is located on the edge of a ridge overlooking the tributary of Jacksons Creek (c. 80 m to the south east). Jacksons Creek lies 230 m to the north east. Artefact was recorded in the exposure along a vehicular track.
7822-2488	Artefact Scatter	Artefact scatter consists of one quartzite flake and one quartzite core.	Surface scatter is located on a steep slope overlooking a tributary of Jacksons Creek (c. 100 m to the north). Jacksons Creek lies 420 m to the east.
7822-2489	Artefact Scatter	A single silcrete flaked piece	Surface artefact located on gently sloping ground overlooking a tributary of Jacksons Creek (c. 360 m east).
7822-2490	Artefact Scatter	A single silcrete backed blade	Surface artefact is located on the edge of a vehicle track crossing a steep slope overlooking Jacksons Creek. Jacksons Creek is 80 m to the south east
7822-2491	Artefact Scatter	A single silcrete retouched flake	Surface artefact is located on the lower terrace of Jacksons Creek.
7822-2492	Artefact Scatter	A single silcrete core	Surface artefact is located on the edge of the escarpment at the head of a gully and tributary overlooking Jacksons Creek.

Table 4: Aboriginal places recorded within geographic region (entries highlighted in grey are located within the activity area).

The known distribution of registered Aboriginal places within the geographic region is not necessarily a complete representation of the actual distribution of Aboriginal places. Factors including the quantity and type of cultural heritage research undertaken to date can influence

the result. This is particularly evident here, as all stone artefact scatters have been recorded within a surface context only. This is due to the fact that no archaeological investigations with a subsurface testing component have been undertaken within the geographic region¹⁴.

Jacksons Creek is a focal point for a majority of the Aboriginal places recorded within the region: artefact scatters, scarred trees and silcrete quarries are commonly situated within 200 m of the creek line and frequently located on spurs or slopes overlooking the creek, or within the alluvial floodplain of the creek itself. The floodplains of Jacksons Creek are characterised by medium to large artefact scatters, while isolated stone artefacts and low density artefact scatters are more common along the hill slopes overlooking Jacksons Creek. Surface stone artefact scatters are located on exposures in areas of good ground visibility. Silcrete is the dominant raw material type, while quartz and quartzite artefacts are also present, but in significantly lower quantities. This is not surprising given the number of silcrete quarries (n=6) recorded within the region.

The single scarred tree occurs in association with an artefact scatter and a silcrete quarry and is situated on a lower slope of an escarpment within 100 m of Jacksons Creek.

2.6. PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

2.6.1. Introduction

An Aboriginal Heritage Impact Assessment (Chamberlain 2015) which has included a survey of the activity area is discussed in Section 2.6.2. Two regional studies by Murphy (1995 and 1996) and one by Sutherland and Richards (1994) are outlined in Section 2.6.3, while local archaeological assessments are detailed in Section 2.6.4.

Collectively these studies provide an indication of the nature and type of Aboriginal places likely to be present in the activity area and assist in determining a predictive model of archaeological potential.

2.6.2. Previous Archaeological Assessment of the Activity Area

Aboriginal Cultural Heritage Impact Assessment Sunbury South Precinct Structure Plan 1074 Sunbury, Victoria (Chamberlain 2015)

Chamberlain (2015) was commissioned by the MPA to undertake a Cultural Heritage Impact Assessment for the proposed Precinct Structure Plan (PSP 1074), located south of the township of Sunbury. The entire study covered an area of c. 1,800 ha and included the activity

¹⁴ It has been noted on a number of site card registrations that artefact scatters within the alluvial floodplains along Jacksons Creek are likely to contain a subsurface component.

area for this CHMP. The activity area is situated in the central southern portion of PSP 1074 (see Chamberlain 2015: 3).

The purpose of the study was to provide findings and advice in relation to the Aboriginal cultural heritage values of the PSP area and to produce a site prediction model to identify:

- The location of known Aboriginal places;
- Sites identified during the survey;
- Culturally important landscapes and features;
- Historical and cultural knowledge of Aboriginal places; and
- Places and areas of cultural heritage sensitivity (Chamberlain 2015:i).

All eight previously registered Aboriginal places (as outlined in Section 2.5) were recorded within the activity area during this assessment. This included the registration of -

- Two artefact scatters – VAHR 7822-3784 and 7822-3786; and
- Six LDADs – VAHR 7822-3785, 7822-3787, 7822-3788, 7822-3789, 7822-3790 and 7822-3794.

Following the Desktop Review and field survey, the following predicted areas of cultural sensitivity were developed for PSP 1074 (Chamberlain 2015: 50):

High Sensitivity

The zone of high sensitivity defined in this report is known to contain a high concentration of Aboriginal places, and is likely to contain additional, sites of a variety of types including ceremonial sites, high-density artefact scatters, scarred trees and quarries. These sites are likely to be larger, more intact and of greater scientific and cultural significance. These factors could have an impact on future urban development within the zone. As a result, recommendations are required that aim to manage the archaeological and cultural sensitivity of the area in terms of the legislative requirements for future developments and in terms of guiding the broader scale of development, including protection of some areas.

Moderate sensitivity

This zone is known to contain a small number of sites, limited to small low density artefact scatters or low density artefact distributions. It is likely to contain additional sites of a limited range in low concentrations. These sites are likely to be lower in density and more likely to be disturbed. This is not likely to have an impact on future urban development within this zone. Nevertheless, recommendations are required that aim to manage the area in terms of legislative requirements for future developments.

Low sensitivity:

This zone does not contain any known Aboriginal sites, but is likely to contain sites of a limited range in sparse concentrations. These sites are likely to be low in density and are more likely to be disturbed. This is not likely to have an impact on future urban development within this zone. Nevertheless, recommendations are required that aim to manage the area in terms of legislative requirements for future developments.

According to Chamberlin (2015), the activity area at Redstone Hill incorporates two zones of sensitivity– high sensitivity within the terraces and escarpment located in the southern extent of the property, and moderate sensitivity across the remainder of the activity area (with the exception of two registered VAHR places 7822-3789 and 7822-3794, where sensitivity has been rated as high).

This study concluded that:

- two-thirds of the known sites within the PSP area are located within 100 m of a waterway; and;
- higher density sites and a greater diversity of sites are frequently located within the corridor of Jacksons Creek.

2.6.3. Regional Archaeological Studies**Shire of Bulla Aboriginal Archaeological Study (Sutherland and Richards 1994, Report No 696)**

Sutherland and Richards were commissioned to undertake an archaeological study of the Shire of Bulla in 1994, following an increase in urban development with potential to impact on archaeological sites in and around Sunbury.

A total of 20 Aboriginal places were recorded during the survey, all of which were surface stone artefact scatters located within 500 m of Jacksons Creek or one of its tributaries. Half of these artefact scatters were very small (containing between one to four artefacts), while the other ten contained between five to 185 stone artefacts. A majority of the artefact scatters, particularly those with a higher density of stone artefacts, were recorded within the floodplains surrounding Jacksons Creek, with fewer on the hill slopes and surrounding plains (Sutherland and Richards 1994).

Based on the results of their survey, Sutherland and Richards (1994) classified the study area into two zones of archaeological sensitivity, but were keen to point out that neither was more archaeologically significant than the other –

- **Zone 1: High Archaeological Sensitivity:** This zone includes a 200 m area around Jacksons Creek and surrounding tributaries, where it was determined that large to very large stone artefact scatters were very likely to occur. Other site types within this zone include stone quarries, earth rings and scarred trees; average site density was estimated to be 25 sites per km²
- **Zone 2: Moderate Archaeological Sensitivity:** This zone incorporates the hill slopes and volcanic rises overlooking Jacksons Creek, where isolated artefacts, small artefact scatters and earth rings were very likely to occur. (1994: 68-69).

North Western Wurundjeri Area: A Regional Archaeological Survey Stage 1 (Murphy 1995, Report No 842); and North Western Wurundjeri Area Stage 2: Regional Aboriginal Archaeological Heritage Survey (Murphy 1995, Report No 925)

Murphy (1995, 1996) completed a two-staged study of a large regional area (Craigieburn, Broadford, Daylesford and Bacchus Marsh) that incorporated Jacksons Creek and the current activity area. The aim of the first stage of the study was to gain an overview of the cultural heritage sensitivity of the region, and to develop a more in depth survey methodology for the second stage, based on the results on the first stage. The first stage involved a targeted sampling strategy which focussed on areas of very high surface visibility (c. 80-100%) during a vehicular survey. Landform units were defined as including volcanic plains, hills and mountain ranges and all landforms were sampled stage (1995: 20-21).

During this initial study, a total of eight sites were recorded, including a scarred tree, three surface scatters and four isolated artefacts. These Aboriginal places were recorded within the volcanic plains and hills and no places were identified within the mountain ranges landform (1995: 22). Subsequently a series of provisional predictive statements were made for the region which suggested that the river and creek corridors (up to 200 m either side of the creek line) had high archaeological sensitivity, while floodplains and hills were thought to be of moderate archaeological sensitivity. In comparison, mountain ranges were provisionally assessed as being of low archaeological sensitivity (1995: 32-33).

The second stage of the study (1996) redefined the landscape units into two broader environmental units, specifically 'volcanic plains and low hills' and 'high hills and mountain ranges', which were then further subdivided to incorporate rivers, creeks and plains (1996: 21). Both environmental units were surveyed with a greater focus on the mountain ranges to ensure that the justified sampling methodology utilised in stage 1 had not biased the predictive sensitivity modelling for that landform (1995: 19). A total of 27 Aboriginal places were recorded during the second stage of the survey and consisted of surface stone artefact scatters, isolated surface artefacts and scarred trees; a majority of these sites (n=20) were located within the

hilly terrain associated with waterways found within the mountain ranges. Nine sites were recorded on swampy volcanic flats, while the remaining three were recorded in the mountain ranges away from water sources (1996:21).

Murphy (1996: ii) identified that landforms with the following characteristics should be regarded as potentially archaeologically sensitive: areas of level to gently sloping land in any landform, and level areas within 200 m of either an ephemeral or permanent water supply; areas where stands of mature native trees exist; outcrops or naturally occurring silcrete, greenstone or quartz; outcrops with sandstone or granite and areas which possess natural rock shelters or caves. Based on the results of both survey stages the following site prediction model was produced for the region (1996: 31-32):

- Stone artefact scatters, scarred trees and isolated artefact occurrences will be found on level to gentle gradient areas (less than 100) on top, upper and lower slopes, regardless of landform unit. The majority of these sites will be small scale (less than 30 artefacts);
- Stone artefact scatters, scarred trees and isolated artefact occurrences are most likely to be found within 100 m of either ephemeral or permanent water sources;
- Sources or outcrops of silcrete within the study area near a water source are most likely to have been utilised by Aboriginal people;
- The raw materials most likely to have been used in the manufacture of artefacts are silcrete (various colours), quartz and greenstone;
- Axe grinding grooves are likely to occur in association with granite and sandstone outcrops that are also in close proximity to a water source;
- Sub-surface archaeological deposits containing burials, hearths, faunal material and artefacts may be located within the study area in locations of least disturbance. Prime locations for such deposits include sections of the major creeks where material has been covered by successive deposits of alluvium or dense vegetation, and potentially caves or rock shelters where soil is preserved from surface erosion;
- Shell middens may possibly occur along the terraces of the major creeks and near swamps and lakes in places where little disturbance has occurred;
- Stone arrangements are a specific and rare site type which can only survive in areas which have suffered little post-settlement disturbance, and may be located within the study area; and
- Sites can occur at densities of up to 5 artefacts per kilometre in either the volcanic or mountain ranges environmental zone on any landform unit.

2.6.4 Localised Archaeological Studies¹⁵

Localised studies have identified quarries, artefact scatters and LDADs which are most commonly located in the Jacksons Creek corridor (cf Barker 2011; Croker et al. 2014; Green 2015, Noble et al. 2010 and Tucker et al. 2007). The stone quarries are all silcrete, which occur in exposed sections of Ordovician sediments which are located immediately beneath the overlying basalt flows. These studies have also resulted in Aboriginal places recorded in subsurface deposits, adjacent to creek lines (within alluvial soils) and consisting of stone artefacts at depths of up to 540 mm (Noble et al. 2010, CHMP 10759).

Specifically, Green (2014; CHMP 13033) determined that crests and slopes within 100 m of Jacksons Creek were of moderate archaeological sensitivity, but found that European activities had altered the sensitivity of these landforms to low. Similarly Noble et al. (2010, CHMP10759) argued that Aboriginal places (specifically LDADs) are most likely to occur where the study area intersects with Taylors Creek or a tributary of Taylors or Jacksons Creek. Tucker et al. (2007; CHMP 10056) determined that landforms located in close proximity to Jacksons Creek (distance unspecified) are considered to be of higher archaeological sensitivity than those landforms associated with tributaries and drainage lines.

Lastly, Croker et al.'s assessment (2014; CHMP 11818) contained similar landforms to the activity area (upper and lower slopes, crests/bluffs and alluvial flats and terraces) and determined that early stage reduction was primarily occurring on the alluvial landforms within the study area, while the bluffs were utilised for tool manufacture and maintenance (Table 5).

¹⁵ Due to the very low number of approved CHMPs within the geographic region for this activity area, the CHMPs discussed within this section and their associated Aboriginal places are located outside of the geographic region. The only exception to this is CHMP 13033 which is within a 1 km radius of the activity area.

The following table includes a summary of local CHMPs relevant to the activity area.

Author/s	Landforms	Type and Coverage of Assessment	Results	Archaeological Sensitivity / Interpretation
Barker 2011	Mid and upper slopes	Complex CHMP 11279	Two surface stone artefact scatters and one surface isolated artefact	All three Aboriginal places are located on a fire break access track where visibility was very high (>90%). Despite subsurface testing there was no subsurface component to the artefact scatters. It was argued that the soils associated with these access tracks had been brought into the study area and that therefore the artefacts were not in situ. During the subsurface testing program, clay was recorded c. 100 – 300 mm below surface.
Crocker et al. 2014	Hill crests / bluffs Slopes Alluvial flats	Complex CHMP 11818	One LDAD, four isolated artefacts and ten artefact scatters	Highest density of stone artefacts within 300 m of Emu Creek, followed by the alluvial flats of Emu Creek. Crocker et al. determined that early stages of stone reduction occurred on the alluvial flats and mid-slopes (possibly from source pebbles found in creek bars and creek bank cuttings), and that later stages of tool manufacture and reduction was occurring on the hill crests.
Noble et al. 2010	Alluvial terrace Slopes	Complex CHMP 10759	Six previously recorded surface artefact scatters, seven subsurface artefact scatters	Artefact scatters were all recorded adjacent to creek lines within alluvial soils and at depths of up to 540 mm.
Green 2015	Slopes Alluvial flats	Complex CHMP 13033	Two LDADs and one silcrete quarry	The silcrete quarry was located adjacent to Jacksons Creek, with the LDADs located within disturbed contexts and in association with landscaped gardens. Green determined that crests and slopes within 100 m of Jacksons Creek were of moderate archaeological sensitivity, but found that European activities had altered the sensitivity of these landforms to low.
Tucker et al. 2007	Steep slopes Alluvial flats	Complex CHMP 10056	Four artefact scatters	Tucker et al. determined that landforms located in close proximity to Jacksons Creek (distance unspecified) are considered to be of higher archaeological sensitivity than those landforms associated with tributaries and drainage lines.

Table 5: Summary of local CHMPs

2.7. SUMMARY

The Desktop Assessment determined that there have been two stone artefact scatters and six LDADs recorded within the activity area:

- Two artefact scatters – VAHR 7822-3784 and 7822-3786; and
- Six LDADs – VAHR 7822-3785, 7822-3787, 7822-3788, 7822-3789, 7822-3790 and 7822-3794.

Four of these are located within 50 m of Jacksons Creek (two artefact scatters and two LDADs), while the remaining four LDADs are located on the slopes of Redstone Hill.

The results of the Desktop Assessment have determined that there is a moderate to high potential for Aboriginal cultural heritage, specifically in the form of stone artefacts, within both a surface and subsurface context to occur within the activity area. There is also the potential for silcrete quarries to occur, particularly in the escarpments located adjacent to Jacksons Creek. Waterways are known to have been used extensively by Aboriginal people for potable water and raw material acquisition and have influenced Aboriginal subsistence patterns in the region, and movement through the landscape. Consequently, Jacksons Creek is a focal point for a majority of Aboriginal places, with most being recorded within 200 m of the creek line, particularly when associated with spurs or slopes overlooking the creek, or within the alluvial floodplain of the creek itself.

While the floodplains of Jacksons Creek contain medium to large stone artefact scatters, isolated stone artefacts and low density artefact scatters are more common along the hill slopes overlooking Jacksons Creek. Surface stone artefact scatters have been located on exposures in areas of good ground visibility. Silcrete is the dominant raw material type, while quartz and quartzite artefacts are also present, but in significantly lower quantities and relatively diffuse across landforms.

Additional stone artefact scatters and LDADs are anticipated to occur in the development footprint of the activity area which comprises the hill slopes and the summit of Redstone Hill. Stone artefact scatters may occur in higher densities along the alluvial terraces of Jacksons Creek and the southern escarpment.

2.8. IMPLICATIONS

What Type of Further Assessment is Required?

The Aboriginal Heritage Regulations 2007 (r.58) state that a Standard Assessment is required in circumstances where a Desktop Assessment concludes that it is reasonably possible for Aboriginal cultural heritage to be present in the activity area.

The Desktop Assessment demonstrated the Aboriginal cultural heritage is known to occur in the activity area and that further Aboriginal cultural heritage may occur in surface and subsurface deposits in the activity area. This necessitates a Standard Assessment for this CHMP which will require:

- Re-identifying all eight previously registered Aboriginal places and assessing their current condition; and
- A pedestrian survey of the development footprint¹⁶ to determine whether any Aboriginal cultural heritage is present in any surface exposures. If additional Aboriginal places are present they will most likely comprise of stone artefacts in surface or subsurface deposits, however other types of cultural heritage may be present also (i.e. quarries, stone arrangements).

How do the Desktop Results Influence the Field Assessment Method?

The Standard Assessment needs to consider the archaeological potential of different landforms in the activity area. The Standard Assessment should therefore involve the following components:

- Re-identifying previously registered Aboriginal places and recording their current condition;
- Undertaking a field survey targeting surface exposures in the development footprint and examining these areas of exposure for the presence of Aboriginal cultural heritage; and
- Identifying landforms and assessing their archaeological potential in light of the results of the Desktop and Standard Assessment.

¹⁶As discussed during the inception meeting for this CHMP with the WTLCCCHC (see Section 1.5), the Standard Assessment will occur post-ploughing to ensure maximum ground surface visibility during the survey. Additionally, the areas outside of the development footprint (the land within the southern extent of the activity area and c. 500 m to Jacksons Creek as well as the Summit of the property, see Figure 3) will not be surveyed or subject to further cultural heritage assessment under this CHMP.

3 STANDARD ASSESSMENT

3.1 INTRODUCTION

The Standard Assessment undertaken as part of the preparation of this CHMP involved a pedestrian archaeological field survey. The aims, method, coverage and results of the field survey are presented in this section.

The field survey was carried out on 11-13 March 2015, 30-31 March 2015 and the 09-10 April 2015. The archaeological field program was supervised by Claire St George (Project Manager Archaeologist, Ochre Imprints) with assistance from Jennifer Chandler, Caroline Spry, Henry Nichols (Ochre Imprints) and Jonathan Lushey (Consultant Archaeologist).

The following Aboriginal representatives from the WTLCCHC participated in the survey:

- Naomi Zukanovic: 30 – 31 March 2015 and the 09 – 10 April 2015
- Colin Hunter Jnr Jnr: 09 – 10 April 2015
- Robbie Jones: 30 – 31 March 2015
- Gary Galway: 11 and 13 March 2015
- Jason Tweedie: 12 March 2015
- Anne-Marie Chandler: 12 March 2015
- Perry Wandin: 11 March 2015

3.2 AIMS OF THE STANDARD ASSESSMENT

The aims of the Standard Assessment were to determine the nature, distribution and significance of Aboriginal cultural heritage in the activity area by:

- Re-identifying all previously registered Aboriginal places within the activity area and recording their current condition;
- Undertaking a systematic field survey of the development footprint to identify any exposed cultural heritage ; and
- Assessing the archaeological sensitivity of the landforms within the activity area.

3.3 METHOD AND COVERAGE

Survey Method

The survey involved an examination of the activity area by means of pedestrian transects. The survey team comprised between three to four people each day, and involved:

- A pedestrian survey of the development footprint in 5 m wide transects;

- The re-inspection of all previously registered Aboriginal places within the activity area in order to record their current condition (including two artefact scatters and six LDADs);
- The examination and recording of any non-registered Aboriginal cultural heritage at its identified location (no material was to be removed from the original find location); and
- The use of a differential GPS (Topcon GMS-2) to record the location of any identified Aboriginal cultural heritage.

Caves and rock shelter features were not present in the activity area, and were therefore not examined.

Survey Coverage

The activity area as a whole incorporates c. 273 ha, of which 82.7 ha sits outside of the development footprint. Areas outside of the development footprint include the summit of Redstone Hill, as well as the terraces and escarpment in the southern extent of the activity area (as shown in Figure 4). These areas were not included in the survey as per the survey methodology agreed upon with WTLCCCHC (refer Section 1.5).

An analysis of the survey coverage results as presented in Table 6 has revealed that 100% of the development footprint was surveyed and due to high overall ground surface visibility across much of the property (frequently between 60 – 100%), a reasonable proportion of the development footprint was effectively surveyed (55.96% or 106.45ha out of a total 190.21ha)¹⁷. The high visibility was due to extensive cropping that had recently taken place across much of the development footprint (see Section 3.4 and Plate 2 - Plate 17 below).

Overall survey coverage is depicted in Figure 11, with surface visibility conditions and coverage summarised in Table 6.

¹⁷ Following Witter (1990) effective survey coverage (ESC) is calculated by multiplying the surveyed area by the visibility rating by the erosion rating

Landform	Area Surveyed (a) (m ²)	Visibility (%)	Visibility Rating (v) (%)	Background Effect Rating (b)	Effective Survey Coverage (ESC) (m ²)	ESC % of Area Surveyed	Number of surface artefacts	Area (m ²) per artefact
Flat	6,339	0-10%	0.05	1	316.95	5%		
	45,970	90-100%	0.95	1	43,671.50	95%		
	52,309				43,988.45		<1	NA
Lower slope	169,219	0-10%	0.05	1	8,460.95	5%		
	77,508	60-80%	0.7	1	54,255.60	70%	2	27,127.80
	174,239	90-100%	0.95	1	165,527.05	95%		
	420,966				228,243.60		2	114,121.80
Mid slope	221,651	0-10%	0.05	1	11,082.55	5%	1	110,82.55
	538,952	60-80%	0.7	1	377,266.40	70%	41	9,201.62
	126,223	90-100%	0.95	1	119,911.85	95%	6	19,985.31
	886,826				508,260.80		48	10,588.77
Upper Slope	40,559	0-10%	0.05	1	2,027.95	5%	2	1,013.98
	305,978	60-80%	0.7	1	214,184.60	70%	54	3,966.38
	7,591	90-100%	0.95	1	7,211.56	95%	1	7,211.45
	354,128				241,675.55		57	4,239.92
Summit	106,121	0-10%	0.05	1	5,306.05	5%	1	5,306.95
	9,754	60-80%	0.7	1	6,827.80	70%		
	641	90-100%	0.95	1	608.95	95%		
	116,516				12,742.80		1	12,742.80
Spur	3,587	0-10%	0.05	1	179.35	5%		
	67,139	60-80%	0.7	1	46,997.30	70%	68	691.14
	719	90-100%	0.95	1	683.05	95%	27	25.30
	71,445				47,859.70		95	503.78
Total	1,902,190				1,064,519.35	55.96%	203	5,243.94

Table 6: Surface visibility, coverage and density of surface artefacts by landform within the development footprint¹⁸¹⁸ This table does not include the artefacts identified at previously recorded Aboriginal places

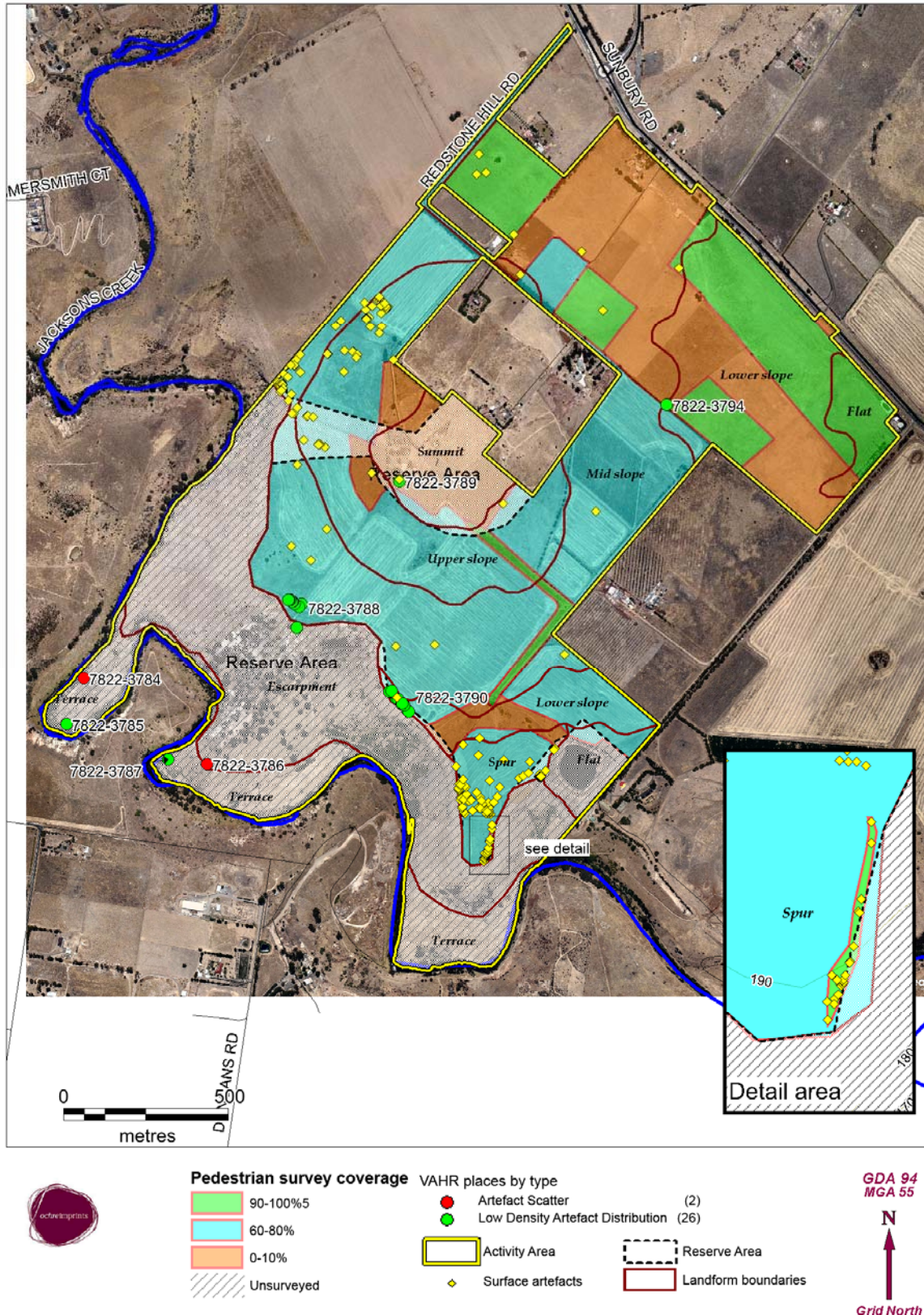


Figure 11: Effective survey coverage of the activity area showing ground surface visibility, previously registered Aboriginal places and surface artefacts recorded during Standard Assessment

3.4 ASSESSMENT RESULTS

3.4.1 Topography and Existing Conditions

The activity area is topographically defined by Redstone Hill. The landscape slopes steeply towards Jacksons Hill Creek to the south of the summit, with a comparably gentler slope to the north towards Sunbury Road. The southern and western slopes of Redstone Hill are characterised by cropped paddocks, which provided a reasonably high level of ground surface visibility (c. 60 – 80%; see Plates 2, 3 and 4 and Figure 11).



Plate 2: Mid slope of cropped paddocks south of Redstone Hill. Photo taken facing west.



Plate 3: Ground surface visibility within the cropped paddocks.

Disturbances across the southern and western slopes included land clearing and agricultural activities, specifically ploughing, cropping and the clearing of basalt floaters with cairn like piles of cleared rock particularly prevalent around the upper slopes and summit of Redstone Hill. Features throughout these slopes included informal vehicle tracks and post and wire fencing to delineate cropped paddocks. Due to the reasonably low ground surface cover across much of the southern and western slopes of Redstone Hill and the steep nature of these slopes, it is also considered likely that water and wind erosion is prevalent.

Other features further south of Redstone Hill include two dams - a small dam within a spur overlooking Jacksons Creek (Plates 4 and 6), a larger dam adjacent to the north west, and a small vineyard on the mid slopes to the east of Redstone Hill (Plate 5). Although neither of these areas were cropped or used for agricultural purposes, ground surface visibility continued to be reasonably high (c. 60-80%). The spur landform was used for pastoral purposes and contained sparse grass cover with an informal vehicle track through the centre, while the vineyard was characterised by post and wire trellises and also contained thin grass cover.



Plate 4: Small dam located within the spur landform. Photo taken facing west.

Plate 5: Small vineyard located within the mid slopes east of Redstone Hill. Photo taken facing west.



Plate 6: Panorama of the spur landform in south eastern extent of development footprint. Photo taken facing south east.

Other areas, such as the summit, portions of the upper slopes of Redstone Hill not cropped and components of the mid and lower slopes in the northern extent of the activity area provided significantly lower ground surface visibility, owing to extensive grass cover (as shown in Plates 7 - 10 and Figure 11), although areas along fence lines and under tree canopies provided occasional areas of exposure (Plate 8).

Sheep and alpacas grazed throughout the mid and lower slopes to the north east of Redstone Hill, and as with the cropped paddocks to the south and west of Redstone Hill, posts and wire fencing delineated paddocks used for pastoral grazing (shown in Plates 9 and 10).



Plate 7: Ground surface visibility within the summit landform.



Plate 8: Ground surface visibility along fence lines and under trees.



Plate 9: Sheep and alpacas within paddocks north of Redstone Hill. Post and wire fences delineate paddocks. Photo taken facing north west.



Plate 10: Unploughed paddocks in the lower slopes north east of Redstone Hill. The summit of Redstone Hill can be seen in the background of the image. Photo taken facing south west.

Owing to the overall low (c. 0-10%) ground surface visibility within the slopes north of Redstone Hill, a portion of these slopes (c. 40%) were ploughed prior to the survey being undertaken in order to significantly improve ground surface exposure (see areas of 90 - 100% GSV Figure 11).

Ground surface exposure within these ploughed areas increased from 0-10% to 90-100% (Plates 11 and 12).



Plate 11: Ploughed mid slope paddocks north east of Redstone Hill. Photo taken facing south east.



Plate 12: Ground surface visibility within ploughed paddocks.

Features within the slopes to the north of Redstone Hill included a residential dwelling and a cultivated vegetable garden immediately north of Redstone Hill Road (Plate 13). Ground surface visibility within proximity to these features was still reasonably high (60-80%), owing to sparse grass cover in the front and backyard of the property.



Plate 13: Residential dwelling in property north east of Redstone Hill. Photo taken facing north west.

The two proposed intersections to Sunbury Road from the activity area are characterised by the southern road reserve of Sunbury Road, and features include telegraph poles and disturbances associated with the construction of Sunbury Road. Ground surface visibility within the road reserve was 0 - 10% due to thick grass cover (see Plates 14 and 15).



Plate 14: North eastern boundary of activity area. Sunbury Road can be seen in the right of the image. Photo taken facing north west.

Location of proposed eastern Sunbury Road access point



Plate 15: Western Sunbury Road access point from activity area. Photo taken facing north east.

Redstone Hill Road was composed of a single lane of bitumen surface at the intersection with Sunbury Road (Plate 16), which became a single lane of compacted silts when Redstone Hill became south east in orientation (Plate 17 and Figure 8). Visibility within the development footprint for the widening of Redstone Hill Road varied from 100% to 60-80%, dependent on erosion (GSV = 100%) and sparse grass cover (60-80%).



Plate 16: Redstone Hill Road, highlighting bitumen surface at the intersection with Sunbury Road (south west orientation of road). Photo taken facing south west.



Plate 17: Redstone Hill Road, highlighting compacted surface once Redstone Hill Road turns sharply to south east orientation. Photo taken facing south east.

3.4.2 Previously Recorded Aboriginal Places in the Activity Area

An attempt was made to relocate and inspect all eight previously registered Aboriginal places within the activity area during the survey (see Figure 11)¹⁹. This included an inspection of:

- Two artefact scatters –VAHR 7822-3784 and 7822-3786; and
- Six LDADs – VAHR 7822-3785, 7822-3787, 7822-3788, 7822-3789, 7822-3790 and 7822-3794.

Place inspection forms have been completed for each previously registered place and lodged with OAAV. A summary of these inspections is provided below:

VAHR 7822-3784

VAHR 7822-3784 is an artefact scatter located outside of the development footprint (refer Figure) and the cultural material associated with this Aboriginal place was able to be re-identified during the survey. VAHR 7822-3784 extends along an informal vehicle track for approximately 200 m on a flat to gently sloping terrace adjacent to Jacksons Creek and south west of the slopes of Redstone Hill (see Plate 18 and Plate 19). Over 100 surface artefacts were counted, and there are multiple locations within the site boundary where more than 10 artefacts were counted in a 10 square metre area. Despite the association of VAHR 7822-3784 with an informal vehicle track, this Aboriginal place exhibited a high level of surface integrity. Based on the alluvial deposits within this landform, it is considered likely that this Aboriginal place extends into a subsurface context. No changes were noted to the condition of VAHR 7822-3784.



Plate 18: Location of VAHR 7822-3784. Photo facing south.



Plate 19: Area of exposure within VAHR 7822-3784. Photo taken facing north west.

¹⁹ Of these eight Aboriginal places, only four (VAHR 7822-3788, 7822-3790, 7822-3789 and 7822-3794) are located within the development footprint.

VAHR 7822-3785

VAHR 7822-3785 is an LDAD located outside of the development footprint (refer Figure), and the cultural material associated with this Aboriginal place was able to be re-identified during the survey. This Aboriginal place was found to be in excellent condition, which is evidenced by the fact that VAHR 7822-3785, which is composed of an isolated artefact, was able to be easily re-identified (see Plate 21).

This Aboriginal place is situated on a flat to gently sloping terrace adjacent to Jacksons Creek. The isolated silcrete flake associated with VAHR 7822-3785 is located in an area of exposure c. 100 m south of VAHR 7822-3784 (refer Plate 20). No changes were noted to the condition of this Aboriginal place. Based on the alluvial deposits within this landform, it is considered likely that this Aboriginal place extend into a subsurface context.



Plate 20: Location of VAHR 7822-3785. Photo taken facing south.



Plate 21: Isolated silcrete flake associated with VAHR 7822-3785.

VAHR 7822-3786

VAHR 7822-3786 is an artefact scatter located outside of the development footprint (refer Figure 11) and the cultural material associated with this Aboriginal place was able to be re-identified during the survey. An informal vehicle track moves through VAHR 7822-3786 and has exposed artefacts along a 200 m on section of track (see Plate 22). This Aboriginal place is located on a flat to gently sloping terrace adjacent to Jacksons Creek and south west of the slopes of Redstone Hill. Based on the alluvial deposits within this landform, it is considered likely that this Aboriginal place extends into a subsurface context. No changes were noted to the condition of VAHR 7822-3786.



Plate 22: Location of VAHR 7822-3786. Photo taken facing south.

VAHR 7822-3787

VAHR 7822-3787 is an LDAD located outside of the development footprint (see Figure 11), and the cultural material associated with this Aboriginal place was able to be re-identified during the survey. This Aboriginal place was found to be in excellent condition, which is evidenced by the fact that VAHR 7822-3787, which is composed of an isolated artefact, was able to be easily re-identified (see Plate 23 and Plate 24).

This Aboriginal place is situated on a flat to gently sloping terrace adjacent to Jacksons Creek. The isolated silcrete flake associated with VAHR 7822-3787 is located in an area of exposure under vegetation c. 100 m west of VAHR 7822-3786. No changes were noted to the condition of this Aboriginal place. Based on the alluvial deposits within this landform, it is considered likely that this Aboriginal place extend into a subsurface context.



Plate 23: Location of VAHR 7822-3787.
Photo taken facing west.



Plate 24: Isolated silcrete artefact associated with
VAHR 7822-3787

VAHR 7822-3788

VAHR 7822-3788 is an LDAD located within the development footprint (refer Figure 11) and the cultural material associated with this Aboriginal place was able to be re-identified during the survey. VAHR 7822-3788 contains ten surface stone artefacts situated on the lower slopes of Redstone Hill c. 500 m north of Jacksons Creek. The artefact scatter is located on the southern edge of the ploughed and cropped slopes of Redstone Hill, in association with an informal vehicle track. The LDAD is c. 100 m north of an escarpment overlooking Jacksons Creek.

VAHR 7822-3788 was found to be in good condition with some vehicular disturbance evident across the surface. As this Aboriginal place is situated within shallow (c. 150 mm) silty clay deposits it is considered unlikely that this Aboriginal place extends into subsurface deposits.



Plate 25: Location of VAHR 7822-3788. Artefacts are exposed along the informal vehicle track. Photo taken facing east.

VAHR 7822-3789

A previous stone artefact (an isolated quartz flake) recorded at VAHR 7822-3789 was unable to be re-identified. It was recorded as being on the upper slope of Redstone Hill on an informal vehicle track coming down from the summit (Plate 26) and is located within the development footprint for this CHMP (Figure 11). An additional isolated artefact (a silcrete angular fragment) was recorded within 20 m of VAHR 7822-3789. It is considered likely that the cultural material associated with VAHR 7822-3789 may have been relocated (possibly due to vehicle traffic and/or erosion) into an area of lowered ground surface visibility surrounding the exposure provided by the vehicle track, thus making it difficult to re-identify.



Plate 26: Location of VAHR 7822-3789 (from Chamberlain 2015: 34). Photo taken facing south east.

VAHR 7822-3790

VAHR 7822-3790 is a previously registered Aboriginal place recorded that contains twelve surface stone artefacts situated on the lower slopes of Redstone Hill c. 500 m north of Jacksons Creek. The Aboriginal place is spread over a 100 x 10 m area, and is located on the southern edge of the ploughed and cropped slopes of Redstone Hill, in association with an informal vehicle track (Plate 27). The LDAD is c. 100 m north of an escarpment overlooking Jacksons Creek, and is located within the development footprint (Figure 11).

The cultural material that forms this Aboriginal place was able to be re-identified during the Standard Assessment for this CHMP. VAHR 7822-3790 was found to be in a reasonable condition, with vehicular traffic and regular ploughing likely to be impacting upon the nature of this Aboriginal place.

As VAHR 7822-3790 is situated within shallow (c. 150 mm) silty clay deposits it is considered unlikely that this Aboriginal place extends into subsurface deposits.



Plate 27: Location of VAHR 7822-3790. Photo :
taken facing north east.

VAHR 7822-3794

VAHR 7822-3794 is a previously registered Aboriginal place that contains an isolated surface stone artefact situated on the lower northern slopes of Redstone Hill, along a fence line in an area of exposure. VAHR 7822-3794 is located within the development footprint (Figure 11).

The cultural material that forms this Aboriginal place was able to be re-identified during the Standard Assessment for this CHMP. The fact that this isolated artefact was able to be re-

identified suggests that minimal disturbance is occurring within close proximity to the Aboriginal place. Grazing stock and erosion are likely to be impacting upon the nature of this place (as shown in Plate 28).

As VAHR 7822-3790 is situated within shallow (c. 150 mm) silty clay deposits it is considered unlikely that this Aboriginal place extends into subsurface deposits.



Plate 28: Location of VAHR 7822-3794. Photo taken facing east



Plate 29: Silcrete core associated with VAHR 7822-3794

3.4.3 Newly Identified Aboriginal Cultural Heritage

A total of 203 surface artefacts were recorded during the Standard Assessment, at a density of one artefact per 5,243.95 m². The spur landform (located in the south eastern extent of the development footprint) contained the highest density of artefacts at one artefact per 503.78 m², while the slopes of Redstone Hill had a lower artefact density of one artefact per 8,888.23 m² (see Table 6).

The stone artefacts were predominately manufactured on silcrete and quartz, with smaller quantities of quartzite also recorded. No other cultural heritage material was identified during the survey.

Based on the results of the Standard Assessment, the following observations were made in relation to the condition and context of Aboriginal cultural heritage in the development footprint:

- a clustering of surface artefacts is evident within the spur landform, the western slopes of Redstone Hill and the slopes of Redstone Hill immediately adjacent to the escarpment;
- the remainder of the development footprint (which includes the upper and mid slopes of Redstone Hill) contains a highly diffuse scatter of stone artefacts across the mid and upper slopes; and

- all landforms within the development footprint (with the exception of the spur and slopes of Redstone Hill immediately adjacent to the escarpment) have been subjected to regular ploughing, cropping and/or grazing activities.

The clustering of surface stone artefacts within the lower slopes of Redstone Hill is possibly the result of post depositional processes, specifically the alluvial erosion of surface artefacts from the steep upper and mid slopes over an extended time period down onto the lower slopes of Redstone Hill. Long term ploughing and cropping activities may have also had an impact on the vertical movement of surface artefacts, encouraging their movement down slope over time. A number of studies have attempted to investigate the effect of ploughing upon the spatial distribution of artefact assemblages²⁰. Lewarch and O'Brien (1981) undertook an experimental study of 6000 artefacts and found that maximum displacement along the direction of ploughing after three episodes of ploughing was 16 metres. Odell and Cowan (1987) investigated the effects of ploughing on an assemblage of 1000 artefacts over two seasons and found that artefacts moved, on average, up to 3.56 metres. In addition, they found that over 12 ploughing episodes the size of their experimental 'site' had approximately doubled from 234 square metres to 471 square metres. Due to the steepness of the southern slopes of Redstone Hill, and the extensive ploughing over a long period of time, it is considered possible that the focus of stone artefacts towards the lower slopes may be a reflection of these post depositional process.

The clustering of surface stone artefacts within the western slopes of Redstone Hill could be considered anomalous to this pattering, however this landform is located in close proximity (c. 250 – 500 m) to an oxbow bend in Jacksons Creek and contains a gentler slope, both of which may explain the higher density of surface stone artefacts within this area.

The spur is a unique landform within the development footprint as it contains a gently sloping landform within close proximity (c. 100 - 200 m) to Jacksons Creek. Although cropping was not being undertaken within this landform at the time of this assessment, it is considered probable that it has been ploughed and cropped in the recent past.

A lithic analysis of these artefacts is provided in Section 5.3.

²⁰ For more general studies of plough-zone archaeology, see papers by Francovich et al. 2000, Haselgrove et al 1985, Schofield 1991 and Sullivan 1998.

3.4.4 Areas of Archaeological Sensitivity

During the Standard Assessment locations in the activity area were identified and their archaeological sensitivity were considered. These landforms are shown in Figure 2 and summarised below. A more detailed discussion of these zones is presented in Section 5.6:

- **Terrace landforms** contain flat to gently sloping terraces adjacent to Jacksons Creek and are composed of alluvial silts. This landform type is located in the southern extent of the activity area outside of the development footprint. Aboriginal places VAHR 7822-3784, 7822-3785, 7822-3786 and 7822-3787 are located within this landform, and a number of Aboriginal places within the wider region are recorded within similar landforms associated within Jacksons Creek. With the exception of some land clearance and post contact activities, the terrace landform is considered to be relatively undisturbed. This landform is classified as having **high archaeological sensitivity**.
- **Escarpment, spur and slopes of Redstone Hill immediately adjacent to the escarpment** are all within c. 500 m of Jacksons Creek. These landforms contain two artefact scatters clusters of stone artefacts recorded during the survey, along with two LDADs (VAHR 7822-3788 and 7822-3790) and a majority of the artefacts that appear to form an overarching low density artefact distribution across the activity area. In the wider region, most Aboriginal places are recorded within similar landforms, particularly when associated with spurs or slopes overlooking the creek. With the exception of the western slopes of Redstone Hill, these landforms have been subjected to minimal ploughing, cropping and agricultural activities when compared to the broader slopes of Redstone Hill and surrounds. These landforms are classified as having **moderate archaeological sensitivity**.
- **Summit of Redstone Hill** contains VAHR 7822-3789. A majority of this landform is located outside of the development footprint. It is anticipated that this prominent feature within the Sunbury landscape was of cultural significance to the Wurundjeri. This landform is classified as having **moderate archaeological sensitivity**.
- **Upper southern slopes, eastern slopes and northern slopes** of Redstone Hill contain VAHR 7822-3794 (an isolated artefact) and a small component (n=9) of an overarching low density artefact distribution across the activity area. These slopes are greater than 1 km from Jacksons Creek and are not known to be associated with Aboriginal places, aside from the occasional isolated artefact or LDAD. These landforms are classified as having **low archaeological sensitivity**.

3.5 SUMMARY

The following section summarises the results of the Standard Assessment, including the topography, conditions, Aboriginal places and areas of archaeological sensitivity within both the development footprint, as well as the escarpment and terraces of Jacksons Creek located outside of the proposed development area.

Re-identification of Previously Registered Aboriginal Places

An attempt was made to identify eight previously registered Aboriginal places within the activity area²¹.

- **VAHR 7822-3789**(an isolated artefact) was unable to be re-identified. It is considered likely that the cultural material associated with VAHR 7822-3789 may have been relocated (possibly as the result of vehicle traffic and/or erosion) into an area of lowered ground surface visibility surrounding the exposure provided by the vehicle track, thus making it difficult to re-identify;
- The cultural material associated with **VAHR 7822-3788**(an LDAD) was able to be identified;
- **VAHR 7822-3790** (an LDAD) was able to be identified;
- a single artefact associated with **VAHR 7822-3794**was able to be re-identified;
- **VAHR 7822-3784** (an artefact scatter) was able to be re-identified during the survey;
- A single artefact associated with **VAHR 7822-3785** (an LDAD) was able to be re-identified;
- **VAHR 7822-3786** (an artefact scatter) was able to be re-identified during the survey; and
- A single artefact associated with **VAHR 7822-3787** (an LDAD) was able to be re-identified during the survey.

Field Survey Results

A total of 100% of the development footprint was surveyed by pedestrian transects, and due to high overall ground surface visibility across much of the area (frequently between 60 – 100%), a relatively high proportion of the development footprint was effectively surveyed (55.96% or 106.45 ha out of a total 190.21 ha). The high visibility was due to extensive cropping that had recently taken place across much of the development footprint.

Cultural heritage in the form of 203 stone artefacts were identified in the activity area during the Standard Assessment²²at a density of one artefact per 5,243.95 m². The spur landform

²¹ A more thorough description of these previously registered Aboriginal places is provided in Section 5.2.2

²² This cultural heritage was not associated with previously registered Aboriginal places.

(located in the south eastern extent of the development footprint) contained the highest density of artefacts at one artefact per 503.78 m², while the slopes of Redstone Hill had a lower artefact density of one artefact per 8,888.23 m².

The stone artefacts were predominately manufactured on silcrete and quartz, with smaller quantities of quartzite also recorded. No other cultural heritage material was identified during the survey.

Based on the results of the Standard Assessment, the following observations were made in relation to the condition and context of Aboriginal cultural heritage in the development footprint:

- a clustering of surface artefacts is evident within the spur landform, the western slopes of Redstone Hill and the slopes of Redstone Hill immediately adjacent to the escarpment;
- the remainder of the development footprint (which includes the upper and mid slopes of Redstone Hill) contains a highly diffuse scatter of stone artefacts across the mid and upper slopes; and
- all landforms within the development footprint (with the exception of the spur and slopes of Redstone Hill immediately adjacent to the escarpment) have been subjected to regular ploughing, cropping and/or grazing activities and therefore the visible cultural heritage occurs within ploughed soils.

3.5.1 Discussion

The results of the Standard Assessment primarily concur with the results of the Desktop Assessment that determined there is a moderate potential for Aboriginal cultural heritage, specifically in the form of stone artefact deposits, to occur in the development footprint when associated with spurs or slopes overlooking Jacksons Creek. Although the Desktop Assessment predicted the potential for silcrete quarries to occur within the activity area, none were identified during the Standard Assessment. However if silcrete quarries are present, they are considered likely within the escarpment overlooking Jacksons Creek, which was not subject to survey (as this landform sits outside of the development footprint).

The presence of stone artefacts on surface exposures often has the potential to indicate additional subsurface cultural material, should there be any depth to subsurface soils. With the exception of the alluvial floodplains of Jacksons Creek (located outside of the development footprint) the underlying geology and geomorphology of the area suggests that subsurface soils within the development footprint are shallow (less than 150 mm). When coupled with regular ploughing and high ground surface visibility across much of the development footprint, the potential for identifying any *in situ* cultural material within a subsurface context is considered to be low. Aboriginal cultural heritage will be contained within the plough zone with a sample visible on the surface.

3.6 IMPLICATIONS

What Type of Further Assessment is Required?

The Aboriginal Heritage Regulations 2007 (r. 60) state that a Complex Assessment is required in circumstances where a Desktop and Standard Assessment determines that Aboriginal cultural heritage is, or is likely to be, present in the activity area; and it is not possible to identify the extent, nature and significance of the Aboriginal cultural heritage unless a Complex Assessment is carried out. The Standard Assessment was considered insufficient to determine the nature and significance of Aboriginal cultural heritage, and in particular whether Aboriginal cultural heritage extended into a subsurface context.

How do the Standard Results Influence the Field Assessment Method?

The aims of the Complex Assessment are to determine whether surface cultural material extends into subsurface deposits and the archaeological sensitivity of each landform in the development footprint. The Complex Assessment will therefore require testing of landforms where Aboriginal cultural heritage has been identified and will sample each landform within the development footprint.

4 COMPLEX ASSESSMENT

4.1 INTRODUCTION

A Complex Assessment was undertaken as part of the preparation of this CHMP because the Standard Assessment found that Aboriginal cultural heritage was present in the activity area, but the nature and significance of this cultural heritage could not be fully assessed through a field survey alone. The aims, method, coverage and results of the Complex Assessment are presented in this section.

The subsurface investigation was carried out 04 – 07 May 2015. The archaeological field program was supervised by Claire St George (Project Archaeologist, Ochre Imprints) with assistance from Jonathan Lushey (Ochre Imprints). The following WTLCCHC representatives provided field assistance:

- Colin Hunter Jnr (WTLCCHC) – 04 and 07 May 2015
- Jason Tweedy (WTLCCHC) – 04 May and 06 May 2015
- Nathan Xiberras (WTLCCHC) – 05 May 2015
- Naomi Zukanovic (WTLCCHC) – 06 May 2015
- Robbie Jones (WTLCCHC) – 05 and 07 May 2015

4.2 AIMS OF THE COMPLEX ASSESSMENT

The Aboriginal Heritage Regulations 2007 (r. 60) state that a Complex Assessment is required in circumstances where a Desktop Assessment or Standard Assessment show that Aboriginal cultural heritage is, or is likely to be, present in the activity area; and it is not possible to identify the extent, nature and significance of that Aboriginal cultural heritage unless a Complex Assessment is carried out.

In this instance, subsurface testing (Complex Assessment) was undertaken to determine the archaeological sensitivity of landforms and to determine whether cultural material associated with previously registered places and newly identified on the surface during the Standard Assessment extend into a subsurface context in the development footprint.

4.3 METHOD AND COVERAGE

Subsurface Testing Method

The subsurface testing method involved a combination of 1x1 m excavation pits (EPs) and shovel test pits (STPs). The EPs were excavated in order to determine the stratigraphy of each landform and therefore determine whether any landforms have the potential to contain *in situ* cultural heritage below the plough zone (which would also indicate whether cultural heritage was likely to extend outside the known extent of surface artefacts) and the archaeological sensitivity of subsurface deposits. The STPs were subsequently utilised to determine the extent of Aboriginal cultural heritage identified in EPs and to further examine the archaeological sensitivity of some locations (specifically the northern slopes of Redstone Hill where visibility was lower) at the request of WTLCCHC. The following methodology was applied to the subsurface testing program:

- EPs located on all landforms. The test pits are to be excavated by shovel to an underlying sterile clay deposit, proceeding in 100 mm spits until Aboriginal cultural heritage was located, thereafter (if present) proceed by trowel in 100 mm spits;
- 400 x 400 mm STPs excavated in 100 mm spits to an underlying sterile clay deposit;
- An automatic level to be used to assist in the excavation of EPs in horizontal spits of a uniform depth;
- All excavated sediments to be fully sieved through 5 mm mesh;
- Written and photographic documentation to be prepared for each EP and STP. This includes the taking of pH readings to test for the acidity of the deposits (the greater the acidity, the lower the chances of bone preservation) and Munsell chart readings of the deposits to standardize colour descriptions;
- The locations of all Aboriginal cultural heritage (if present) identified during manual excavation to be documented prior to removal for further analysis and cataloguing;
- A dGPS to be used to record STP and EP locations; and,
- All Aboriginal cultural heritage identified during subsurface testing (is present) to be individually catalogued and collected.

Testing Coverage

A total of nine EPs and 24STPs were excavated during the subsurface testing program. The precise location of the EPs and STPs were decided in consultation with the Aboriginal representatives in the field. The locations of the EPs and STPs are shown in Figure 12. A description of the results for EPs undertaken to investigate landforms and those with artefacts

is provided in Tables 6-12. The remainder of the EPs and STPs are described in Appendix 4. The grid co-ordinates for the EPs and STPs are listed in Tables 7-13 and Appendix 4.

4.4 ASSESSMENT RESULTS

4.4.1 Stratigraphy of Landforms

A total of nine EPs and 24 STPs, representing a volume of 6m³ (or an area of 15 m²) were excavated during the subsurface testing program. Collectively, these determined the stratigraphy of landforms within the activity area, as well as the nature and extent of subsurface archaeological deposits. The stratigraphy of each landform in the development footprint is presented below and the excavated sediment volume for each landform is provided in Table 14.

All soils above clay in all landforms within the development footprint have been cleared of native vegetation, ploughed, and/ or cropped

No subsurface testing was undertaken within the escarpment and terraces landforms, as they are both outside of the development footprint.

Summit

The summit incorporates the peak of Redstone Hill, the highest point in the activity area. One EP was excavated within this landform, representing the excavation of 1 m² (or 0.15 m³) of soil (refer Table 14). The stratigraphic profile within this landform consisted of a single shallow (c. 100 mm deep) sedimentary layer consisting of dark reddish brown compact, moist silt with volcanic rock inclusions (c. < 20 cm in size) overlying a mid-dark orange – brown compact, moist clay.

The shallow soil horizon indicates that it is unlikely for stone artefacts within this landform to be *in situ*. Due to the shallow nature of the sediments, surface and subsurface cultural material would be located within the plough zone, and will have been displaced following European land use practices.

The general stratigraphy and soil descriptions of the summit landform are presented in Table 7.

Upper Slope

The upper slope includes the second highest area of elevation within the activity area, the upper slopes immediately below the summit of Redstone Hill. One EP and three STPs were excavated in this landform, representing the excavation of 1.75 m² (or 0.35 m³) of soil. The stratigraphic profile within this landform includes a surface layer (up to 100 mm deep) of dark reddish brown, friable, clayey silt, which transitions into a dark reddish brown dry and firm silty clay at 150 mm. This silty clay becomes compact clay at a depth of 150 mm

The shallow soil horizon indicates that it is unlikely for stone artefacts within this landform to be *in situ*. Due to the shallow nature of the sediments, surface and subsurface cultural material would be located within the plough zone, and will have been displaced following European land use practices.

The general stratigraphy and soil descriptions of the summit landform are presented in Table 8.

Mid Slope

The mid slope incorporates the steepest sloped landform of the activity area. Two EPs and seven STPs were excavated in this landform representing the excavation of 3.75 m² (or 0.85 m³) of soil (refer Table 14). The stratigraphic profile within the mid slope is identical to the upper slope - a surface layer (up to 100 mm deep) of dark reddish brown, friable, clayey silt, which transitions into a dark reddish brown dry and firm silty clay up to 140 mm. This silty clay becomes compact clay at a depth of 140 mm.

The shallow soil horizon indicates that it is unlikely for stone artefacts within this landform to be *in situ*. Due to the shallow nature of the sediments, surface and subsurface cultural material would be located within the plough zone, and will have been displaced following European land use practices.

The general stratigraphy and soil descriptions of the summit landform are presented in Table.

Lower Slope

The lower slope landform includes the lower slopes of Redstone Hill. Two EPs and ten STPs were excavated in this landform representing the excavation of 4.5 m² (or 0.57 m³) of soil. The stratigraphic profile includes a shallow (20 mm deep) surface layer of dark brown dry and compact clayey silt, underlain by dark brown dry and compact silty clay which transitions at 120 mm into a dark brown compact, dry clay.

The shallow soil horizon indicates that it is unlikely for stone artefacts within this landform to be *in situ*. Due to the shallow nature of the sediments, surface and subsurface cultural material would be located within the plough zone, and will have been displaced following European land use practices.

The general stratigraphy and soil descriptions of the summit landform are presented in Table 10 and 10.

Flat

The flat landform includes the north eastern corner of the activity area which characterises the lowest and flattest portion of the development footprint. One EP was excavated in this landform representing the excavation of 1 m² (or 0.1 m³) of soil (refer Table 14).The

stratigraphic profile includes a single layer of very dark greyish brown, dry and friable silty clay overlying a dark grey, firm and dry clay at 100 mm below the surface.

The shallow soil horizon indicates that it is unlikely for stone artefacts within this landform to be *in situ*. Due to the shallow nature of the sediments, surface and subsurface cultural material would be located within the plough zone, and will have been displaced following European land use practices.

The general stratigraphy and soil descriptions of the summit landform are presented in Table 12.

Spur

The spur landform is situated in the south eastern extent of the development footprint within 200 m of Jacksons Creek. Two EPs and four STPs were excavated in this landform representing the excavation of 3 m² (or 0.64 m³) of soil (refer Table 14). The stratigraphic profile within this landform contains a surface layer of dark reddish brown, dry and friable silt (with frequent basalt inclusions c. 20 %, 100 mm in size) to a depth of 90 mm, underlain by a dark reddish brown, compact dry silty clay transitioning into a dark reddish brown, compact dry clay at 120 mm.

The shallow soil horizon indicates that it is unlikely for stone artefacts within this landform to be *in situ*. Although the spur landform is not currently cropped, it is considered likely that there has been some form of agricultural practices associated with this landform following the arrival of Europeans.

The general stratigraphy and soil descriptions of the summit landform are presented in Table 13.

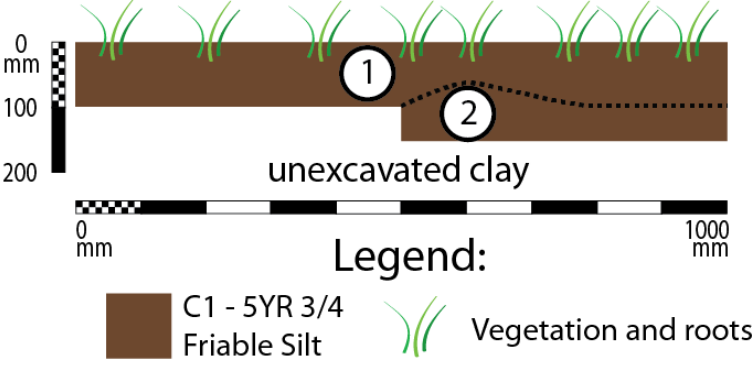
Excavation Pit EP1 (1x1 m) Landform: Summit	Grid Reference GDA 94 MGA Zone 55 E 301642.29 N 5835158.29
Soil Horizons <u>1. 0 - 100 mm:</u> Munsell 5YR 3/4 pH 5.5 Dark reddish-brown compact, moist silt with volcanic rock inclusions (<20cm > 2cm) <u>2. 100 – 150 mm:</u> Munsell 5YR 2.5 / 2 pH 5 Mid-dark orange – brown compact, moist clay.	Maximum Depth: North west 100 mm North east 100 mm South east 100 mm South west 150 mm Disturbance: Ploughing and associated agricultural activities Obstacles: None
Aboriginal Cultural Heritage: None	
 <p style="text-align: center;">EP1 North Section</p>	

Table 7: Stratigraphy and soils descriptions of EP1 located on the summit landform

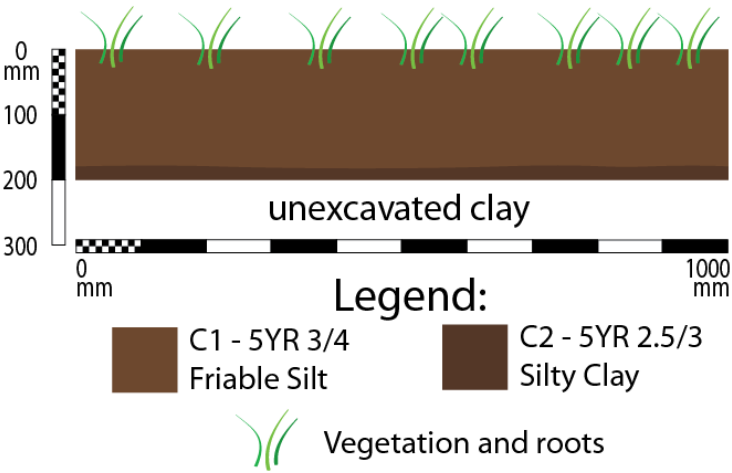
Excavation Pit EP5 (1x1 m) Landform: Upper Slope	Grid Reference GDA 94 MGA Zone 55 E 301450.24 N 5835704.62
Soil Horizons <u>1. 0 - 100 -mm:</u> Munsell 5YR 3/4 pH 5.5 Dark reddish brown, friable, clayey silt. <u>2. 100 – 150 mm:</u> Munsell 5YR 2.5/3 pH 5 Dark reddish brown, fry and firm silty clay. <u>3. 150 – 220 mm:</u> 5YR 2.5/2 pH 5 Dark reddish brown, dry and compact clay	Maximum Depth: North west 200 mm North east 210 mm South east 190 mm South west 220 mm Disturbance: Ploughing and associated agricultural activities Obstacles: None
Aboriginal Cultural Heritage: None	
 <p>The diagram shows a cross-section of the soil profile. The vertical axis on the left is labeled from 0 mm to 300 mm. The horizontal axis at the bottom is labeled from 0 mm to 1000 mm. The profile shows a layer of vegetation and roots at the surface, followed by a layer of unexcavated clay. The soil horizons are labeled as C1 - 5YR 3/4 Friable Silt and C2 - 5YR 2.5/3 Silty Clay. A legend identifies the colors and symbols used.</p> <p>Legend:</p> <ul style="list-style-type: none"> C1 - 5YR 3/4 Friable Silt C2 - 5YR 2.5/3 Silty Clay Vegetation and roots <p>EP5North Section</p>	

Table 8: Stratigraphy and soils descriptions of EP5 located in the upper slope landform

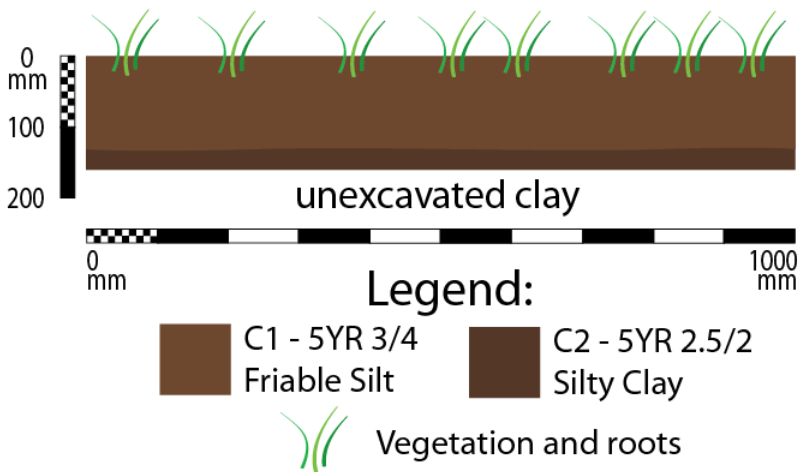
Excavation Pit EP4 (1x1 m) Landform: Mid Slope	Grid Reference GDA 94 MGA Zone 55 E 301213.12 N 5835584.21
Soil Horizons <u>1. 0 – 100 mm:</u> Munsell 5YR 3 / 4 pH 5.5 Dark reddish brown, dry and friable clayey silt <u>2. 100 -140:</u> Munsell 5YR 2.5 / 2 pH 5 Dark reddish brown, dry and friable silty clay <u>3. 140:</u> Munsell 5 YR 2.5/2 pH 5 Dark reddish brown, dry and compact clay	Maximum Depth: North west 140 mm North east 130 mm South east 120 mm South west 130 mm Disturbance: Ploughing and associated agricultural activities Obstacles: None
Aboriginal Cultural Heritage: None	
 <p>The diagram shows a cross-section of the soil profile. The top layer (0-100 mm) is labeled 'unexcavated clay' and contains green grass and roots. Below this is a darker layer (100-140 mm) and a bottom layer (140 mm). A vertical scale on the left marks 0, 100, and 200 mm. A horizontal scale at the bottom marks 0 and 1000 mm. A legend identifies the colors: light brown for C1 - 5YR 3/4 Friable Silt, dark brown for C2 - 5YR 2.5/2 Silty Clay, and green for Vegetation and roots.</p> <p style="text-align: center;">EP4North Section</p>	

Table 9: Stratigraphy and soils descriptions of EP4 located in the mid slope landform




Shovel Test Probe 8 (0.4 x 0.4 m) Landform: Lower Slope	Grid Reference GDA 94 MGA Zone 55 E 302717.81 N 5835314.01
Soil Horizons 1. <u>0 - 20 -mm:</u> 10 YR 2/2 pH 6 Dark brown dry and compact clayey silt with grass roots. 2. <u>20 – 120 mm:</u> 10 YR 3/2 pH 6.5 Dark brown dry and compact silty clay 3. <u>120 – 150 mm:</u> 10 YR 3/3 pH 7 Dark brown compact, dry clay	
Aboriginal Cultural Heritage: 0 – 100 mm: One complete silcrete flake.	
<div> <p>STP No: 8</p> </div> <div> <p>Soil Descriptions & Cultural Materials Key:</p> <ul style="list-style-type: none">  Dark brown, compact clayey silt  Dark brown, compact silty clay  Dark brown, compact clay </div> <p style="text-align: right;"><i>N.B. Width not to scale - all STPs were 0.5m by 0.5m</i></p> <p style="text-align: center;">STP 8North Section</p>	

Table 10: Stratigraphy and soils descriptions of STP8 located in the lower slope landform

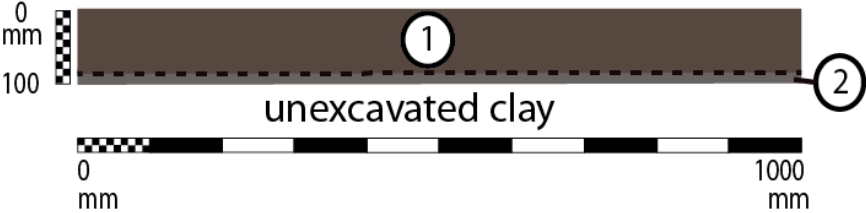
Excavation Pit EP6 (1x1 m) Landform: Lower Slope	Grid Reference GDA 94 MGA Zone 55 E 302609.37 N 5835787.70
Soil Horizons <u>1. 0 – 100 mm:</u> 10 YR 3/2 pH 6 Very dark greyish brown, dry and friable silty clay <u>2. 100:</u> 10 YR 3/1 pH 6 Dark grey, firm dry clay.	Maximum Depth: North west: 100 mm North east: 100 mm South east: 100 mm South west: 100 mm Disturbance: Ploughing and associated agricultural activities Obstacles: None
Aboriginal Cultural Heritage: None	
 <p>0 mm 100 mm</p> <p>unexcavated clay</p> <p>0 mm 1000 mm</p> <p>Legend: - - - - gradual transition</p> <p>EP6North Section</p>	

Table 11: Stratigraphy and soil descriptions of EP6 located in the lower slope landform

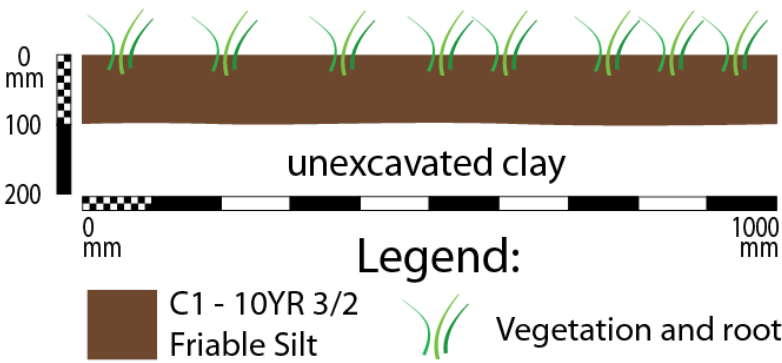
Excavation Pit EP7 (1x1 m) Landform: Flat	Grid Reference GDA 94 MGA Zone 55 E 302922.42 N 5835522.08
Soil Horizons <u>1. 0 – 100 mm:</u> 10 YR 3/2 pH 6 Very dark greyish brown, dry and friable silty clay <u>2. 100:</u> 10 YR 3/1 pH 6 Dark grey, firm dry clay.	Maximum Depth: North west: 100 mm North east: 100 mm South east: 100 mm South west: 100 mm Disturbance: Ploughing and associated agricultural activities Obstacles: None
Aboriginal Cultural Heritage: None	
 <p>0 mm 100 200</p> <p>0 mm 1000 mm</p> <p>unexcavated clay</p> <p>Legend:</p> <p>C1 - 10YR 3/2 Friable Silt</p> <p>Vegetation and roots</p> <p>EP7North Section</p>	

Table 12: Stratigraphy and soils descriptions of EP7 located in the flat landform

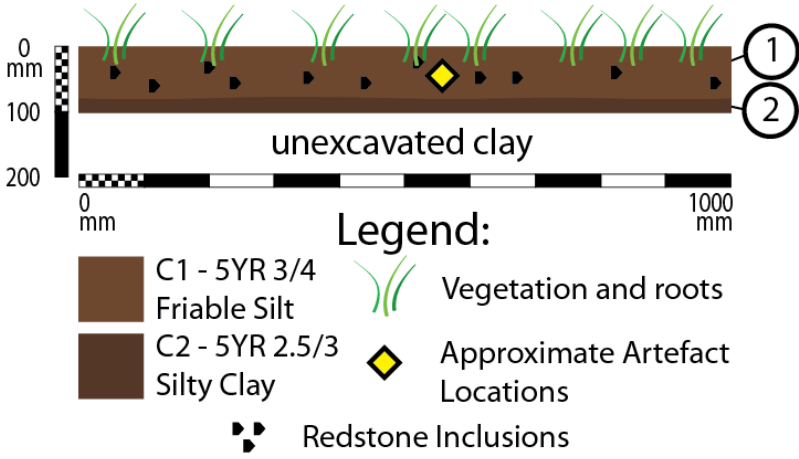
Excavation Pit EP9 (1x1 m) Landform: Spur	Grid Reference GDA 94 MGA Zone 55 E 301839.10 N 5834129.32
Soil Horizons <u>1. 0 - 90 mm:</u> 5 YR 3/4 pH 5.5 Dark reddish brown, dry and friable silt with frequent basalt inclusions c. 20 %, 100 mm in size. <u>2. 90 – 120 mm:</u> 5 YR 2.5/3 pH 5 Dark reddish brown, compact dry silty clay. <u>3. 120 mm:</u> 5 YR 2.5/3 pH 5 Dark reddish brown, compact dry clay	Maximum Depth: North west: 100 mm North east: 120 mm South east: 120 mm South west: 110 mm Disturbance: Ploughing and associated agricultural activities Obstacles: None
Aboriginal Cultural Heritage: 0 – 90 mm: one quartz flake	
 <p>The diagram shows a cross-section of the soil profile. The vertical axis on the left indicates depth in millimeters (0, 100, 200). The horizontal axis at the bottom indicates distance in millimeters (0 to 1000). The profile shows two distinct soil layers: a top layer of friable silt (C1) and a bottom layer of compact silty clay (C2). Vegetation and roots are shown at the surface. Redstone inclusions are represented by small black triangles. A yellow diamond indicates an approximate artefact location. The profile is labeled 'unexcavated clay' and 'EP9North Section'.</p> <p>Legend:</p> <ul style="list-style-type: none"> C1 - 5YR 3/4 Friable Silt C2 - 5YR 2.5/3 Silty Clay Vegetation and roots Approximate Artefact Locations Redstone Inclusions <p>EP9North Section</p>	

Table 13: Stratigraphy and soils descriptions of EP9 located in the spur landform

4.4.2 Aboriginal Cultural Heritage in the Activity Area

A total of two stone artefacts were recorded during the Complex Assessment within one EP (EP9, located on a spur within 200 m of Jacksons Creek) and one STP (STP8, located on the lower northern slope of Redstone Hill). The location of this EP and STP is shown in Figure 12.

A detailed description of the Aboriginal places recorded, including a significance assessment, analysis of the stone artefacts and a site plan are all provided in Section 5. An Aboriginal place gazetteer is provided in Appendix 3 and a stone artefact catalogue is provided in Appendix 5.

This section presents information on the density and distribution of subsurface stone artefacts by landform.

Artefact Density and Distribution

The density of stone artefacts for each landform is presented in Table 14. This information is presented as both m^2 and m^3 for future comparative purposes.

The average artefact density for the activity area as determined by the Complex Assessment is 0.13 artefacts per m^2 (or 0.33 per m^3). The spur within 200 m of Jacksons Creek contained an average artefact density of 0.33 artefacts per m^2 (or 1.56 per m^3), and a maximum artefact density of 4 artefacts per m^2 (or 8.33 per m^3) based on the identification of one stone artefact in EP9. The lower northern slope of Redstone Hill contained an average artefact density of 0.22 artefacts per m^2 (1.75 m^3), and a maximum artefact density of 4 artefacts per m^2 (26.67 m^3) based on the identification of one stone artefact in STP8²³. The Complex Assessment did not locate any subsurface stone artefacts within the remaining landforms.

The field investigations established that subsurface soils of the activity area are very shallow (<410 mm in depth, frequently < 100 mm deep) and that the nature and extent of the Aboriginal cultural heritage is characterised by low densities of subsurface cultural heritage.

Context

Stone artefacts within the development footprint are not considered to be *in situ*, with deposits having been disturbed over time through land clearance, cropping, stock grazing and trampling.

²³ It should be noted, however, that this maximum density could be considered an exaggerated outcome as a result of shallow soil horizons and the fact that only two artefacts were identified during subsurface testing.

Archaeological Sensitivity by Landform

The subsurface testing of the development footprint has demonstrated that no *in situ* cultural heritage is located within the development footprint. The Complex Assessment did indicate that the spur landform and the western lower slopes of Redstone Hill have subsurface artefacts at low densities. It is probable that other landforms within the development footprint do contain subsurface stone artefacts, but not at a high enough density to be able to identify during a subsurface testing program.

Landform	Excavated Sediment Volume (m ³)	Excavated Area m ²	Number of Artefacts	Average Artefact per m ² (m ³)	Maximum Artefact Number per m ² (m ³)
Summit	0.15	1	0	0	0
Upper Slope	0.35	1.75	0	0	0
Mid Slope	0.85	3.75	0	0	0
Lower Slope	0.57	4.5	1	0.22 (1.75)	4 (26.67)
Flat	0.1	1	0	0	0
Spur	0.64	3	1	0.33 (1.56)	4 (8.33)
Total Activity Area	6	15	2	0.13 (0.33)	4 (26.67)

Table 14: Average and maximum artefact densities by landform

4.5 DISCUSSION

A total of 15 m² (6 m³) was excavated during the Complex Assessment testing program. Subsurface soil depths were found to be very shallow, between 100 – 150 mm deep, across all landforms within the development footprint.

A total of two subsurface artefacts were recorded – one in the upper 100 mm of EP9, located on a spur within 200 m of Jacksons Creek, and one within the upper 100 mm of STP8, located on the lower northern slope of Redstone Hill. The spur within 200 m of Jacksons Creek contained an average artefact density of 0.33 artefacts per m² (1.56 per m³), and a maximum artefact density of 4 artefacts per m² (8.33 per m³). The lower northern slope of Redstone Hill contained an average artefact density of 0.22 artefacts per m² (1.75 m³), and a maximum artefact density of 4 artefacts per m² (26.67 m³). The Complex Assessment did not locate any subsurface stone artefacts within any of the four remaining landforms.

The average artefact density for the activity area as determined by the Complex Assessment is 0.13 artefacts per m² (or 0.33 per m³).

The Complex Assessment confirmed the findings of the Desktop and Standard Assessments which determined that the underlying geology and geomorphology of the area suggested that the potential for identifying *in situ* cultural material within a subsurface context on the upper and mid slopes would be low, contained to the plough zone with a sample visible on the surface.

The Complex Assessment did not change the sensitivity ratings as determined during the Standard Assessment.

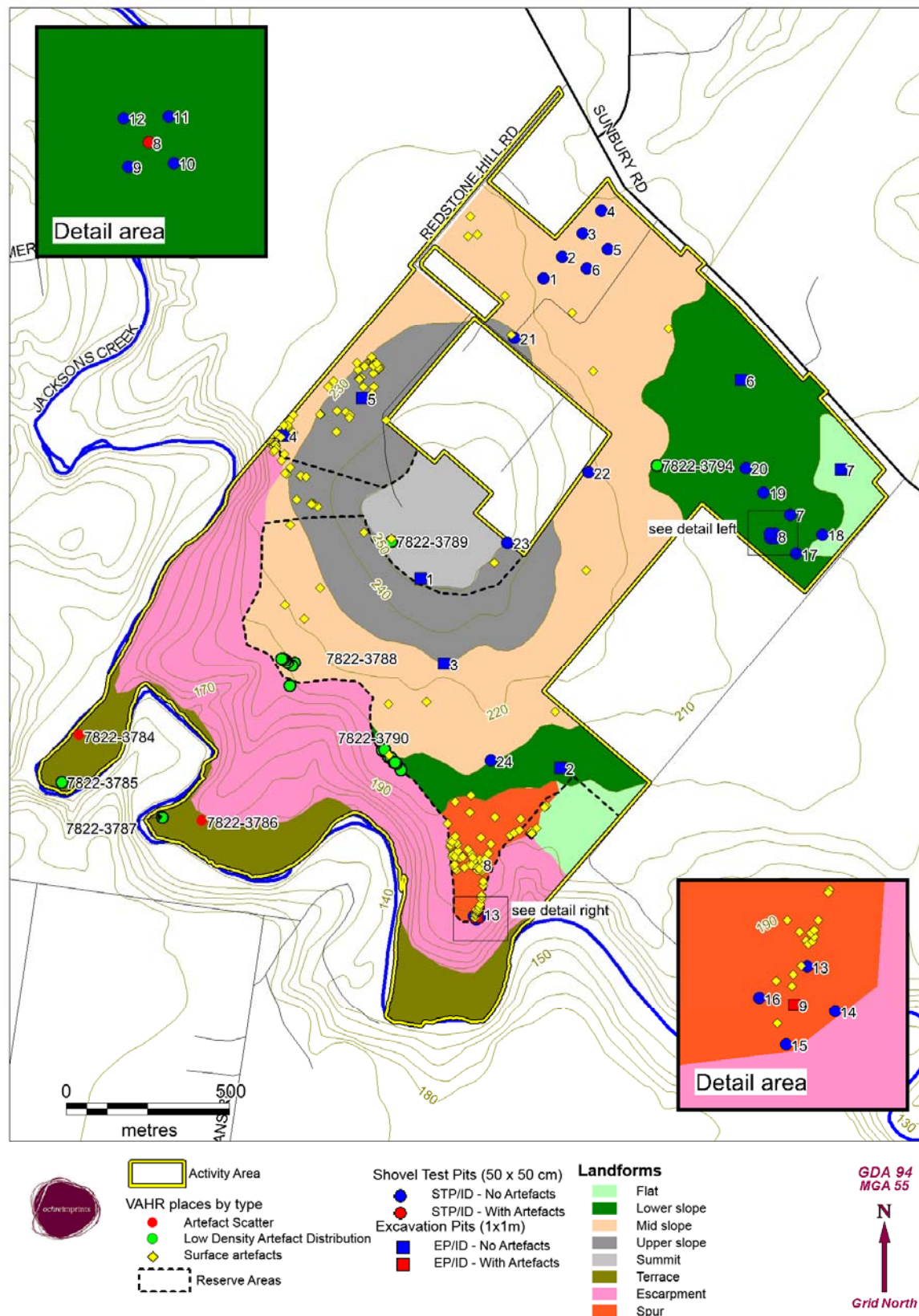


Figure 12: Location of subsurface testing in relation to landforms

5 ABORIGINAL CULTURAL HERITAGE

5.1 INTRODUCTION

This section provides a full description of the Aboriginal places in the activity area, including a significance assessment and an analysis of the lithic assemblage. The potential for Aboriginal cultural heritage to be present in areas that will not be disturbed by the activity is also discussed along with a review of the archaeological sensitivity of the activity area.

5.2 ABORIGINAL PLACES

5.2.1 Analysis of Aboriginal Cultural Heritage

The details of the assessment of the Aboriginal cultural heritage informed an analysis of the nature, extent and scientific significance of Aboriginal places in the activity area, including an analysis of site formation processes (provided in Sections 3.4, 3.5, 4.4 and 4.5). A full significance assessment is provided in Section 5.4. No radiometric or OSL dating has been undertaken as a part of this CHMP.

The lithic analysis was undertaken by Caroline Spry, and is provided in Section 5.3.

5.2.2 Description of Aboriginal Places

Twelve Aboriginal places are located within the activity area²⁴. They include -

- Four artefact scatters: VAHR 7822-3784, 7822-3786, 7822-3881, 7822-3882; and
- Eight LDADs: VAHR 7822-3785, 7822-3787, 7822-3788, 7822-3789, 7822-3790, 7822-3794, 7822-3876 and 7822-3875.

These Aboriginal places are described in further detail in Table 15 – 25, and Figure 23 shows the location of these places. A site gazetteer is provided in Appendix 3 and an artefact catalogue for the newly recorded Aboriginal places (VAHR 7822-3881, 7822-3882, 7822-3876 and 7822-3875) are provided in Appendix 5.

²⁴ Due to administrative restrictions with the VAHR, the newly recorded dispersed LDAD across the activity area was split into two LDADs, VAHR 7822-3876 and 7822-3875 (Redstone Hill 9 and Redstone Hill 9 Part 2, respectively).

VAHR No.	Cadastral Description:
7822-3784	Parish of Bulla Bulla, County of Bourke
Redstone Hill 1	Lot 5 \ LP95031
Type:	Context and Condition:
Surface	<p>VAHR 7822-3784 is a previously registered Aboriginal place that contains c. 150 surface artefacts situated on a flat to gently sloping terrace 200 m north of the floodplains of Jacksons Creek. This stone artefact scatter was recorded in 2014 as a part of the Heritage Impact Assessment undertaken by Chamberlain (2015).</p> <p>The site extent is defined by areas of exposure associated with a 220 m long informal vehicle track and areas of high ground surface visibility in the surrounding area (up to a 20 m radius).</p> <p>The cultural material that forms this artefact scatter was able to be re-identified during the Standard Assessment for this CHMP. Despite the location of VAHR 7822-3784 on an informal (rarely used) vehicle track, the stone artefact scatter exhibited a reasonably high level of surface integrity - it was found to be in good condition with minimal impacts to the nature and extent of the place.</p> <p>As VAHR 7822-3784 is situated within alluvial deposits, and in close proximity to Jacksons Creek, it is considered very likely that this Aboriginal place will contain a subsurface component. It is also anticipated that additional surface artefacts will be located where ground surface visibility is low.</p>
Artefact Scatter	
Size: 4,400 m ²	
Density:	
Estimated to be c. 1 artefact per 29.3 m ² (based on total number counted) or 1 artefact per 8.8 m ² (based on total number estimated ²⁵).	
Primary Grid Coordinate:	Contents/Stone Artefact Assemblage and Archaeological Significance:
MGA 55 GDA 94	<p>VAHR 7822-3784 has been assessed as being of moderate archaeological significance based on the medium density of stone artefacts and the high potential for <i>in situ</i> deposits within a subsurface context.</p> <p><u>Raw material:</u> Silcrete (n = 100) and Quartzite (n = 50)</p> <p><u>Artefact types:</u> Complete flakes, broken flakes (proximal, distal, medial flakes) and angular fragments.</p> <p>Raw material and stone artefact types are taken from the site card registration for this Aboriginal place, which counted 150 artefacts, but estimated up to 500 artefacts within the extent of this Aboriginal place.</p>
E 300606.704	
N 5834651.458	

²⁵ Densities are estimates only, and are based on the registered site card for this Aboriginal place.



View of VAHR 7822-3784 facing south



Area of exposure within VAHR 7822-3784 facing north west

Site Plan

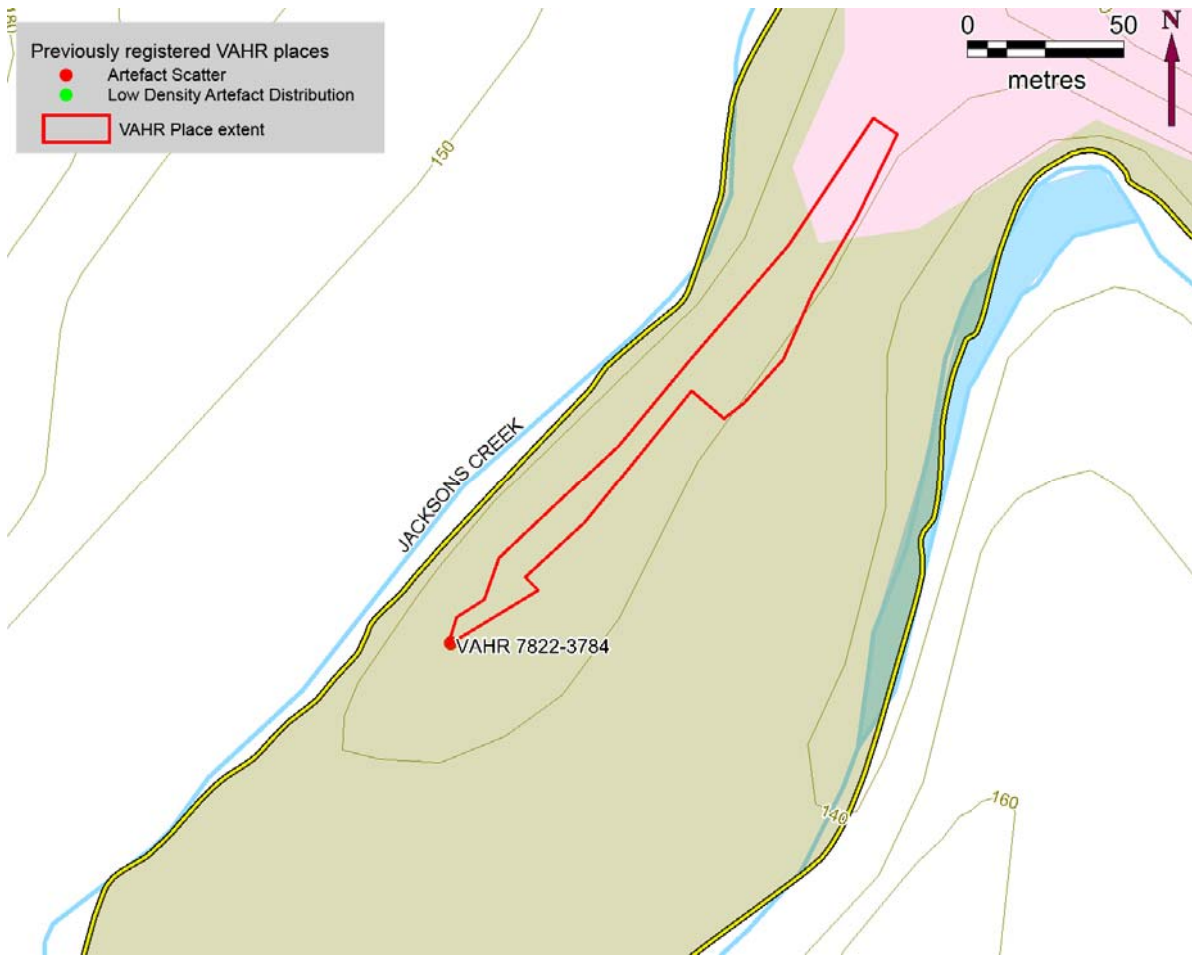


Table 15: Description of VAHR 7822-3784

VAHR No.	Cadastral Description:
7822-3785	Parish of Bulla Bulla, County of Bourke
Redstone Hill 2	Lot 5 \ LP95031
Type:	Context and Condition:
Surface	VAHR 7822-3785 is a previously registered Aboriginal place that contains an isolated surface stone artefact located on a flat to gently sloping terrace landscape within 50 m north of the floodplains of Jacksons Creek. This isolated stone artefact is situated c. 50-100 south of VAHR 7822-3784, at the base of native vegetation bordering the creek line. This isolated stone artefact was recorded in 2014 as a part of the Heritage Impact Assessment undertaken by Chamberlain (2015).
Low Density Artefact Distribution	
Size:	
NA	The cultural material that forms this Aboriginal place was able to be re-identified during the Standard Assessment for this CHMP. The fact that this isolated artefact was able to be re-identified suggests that minimal disturbance is occurring within close proximity to this Aboriginal place.
Density:	
NA	VAHR 7822-3785 is situated within alluvial deposits, and in close proximity to Jacksons Creek. As such, it is considered likely that this Aboriginal place will contain a subsurface component. It is also anticipated that additional surface artefacts will be located where ground surface visibility is low.
Primary Grid Coordinate:	Contents/Stone Artefact Assemblage and Archaeological Significance:
MGA 55 GDA 94	VAHR 7822-3785 has been assessed as being of low archaeological significance based on the low density of stone artefacts and the common occurrence of this site type within the broader region.
E 300558.093	
N 5834510.787	
	<u>Raw material:</u> Silcrete
	<u>Artefact type:</u> Complete flake
	Raw material and stone artefact types are taken from the site card registration for this Aboriginal place.



Location of VAHR 7822-3785. Photo taken facing south



Isolated silcrete flake associated with VAHR 7822-3785.

Site Plan

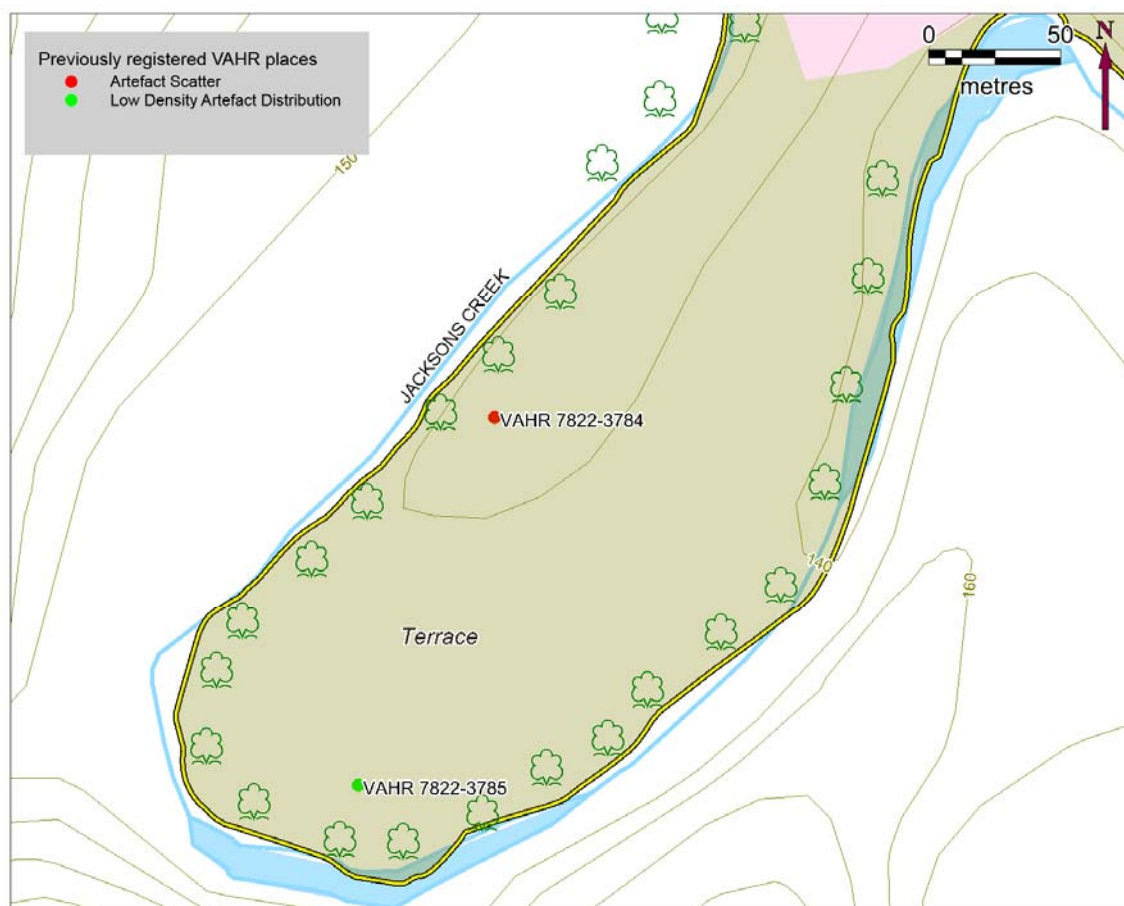


Table 16: Description of VAHR 7822- 3785

VAHR No.	Cadastral Description:
7822-3786	Parish of Bulla Bulla, County of Bourke
Redstone Hill 3	Lot 5 \ LP95031
Type:	Context and Condition:
Surface	<p>VAHR 7822-3786 is a previously registered Aboriginal place that contains c. 150 surface stone artefacts situated on the very low slopes of the escarpment north of the terrace running between the Jacksons Creek flood plain and Redstone Hill. This stone artefact scatter was recorded in 2014 as a part of the Heritage Impact Assessment undertaken by Chamberlain (2015).</p> <p>The site extent is defined by areas of exposure on a 210 m long informal vehicle track and areas of high ground surface visibility in the surrounding area (up to a 50 m radius).</p> <p>The cultural material that forms this artefact scatter was able to be re-identified during the Standard Assessment for this CHMP. Despite the location of VAHR 7822-3786 on an informal (rarely used) vehicle track, the stone artefact scatter exhibited a reasonably high level of surface integrity - it was found to be in good condition with minimal impacts to the nature and extent of the place.</p> <p>As VAHR 7822-3786 is situated within alluvial deposits, and in close proximity to Jacksons Creek, it is considered likely that this Aboriginal place will contain a subsurface component. It is also anticipated that additional surface artefacts will be located where ground surface visibility is low.</p>
Artefact Scatter	
Size:	
10,500 m ²	
Density:	
Estimated to be c.1 artefact per 70 m ² (based on total number counted) or 1 artefact per 23.33 m ² (based on total number estimated ²⁶).	
Primary Grid Coordinate:	Contents/Stone Artefact Assemblage and Archaeological Significance:
MGA 55 GDA 94	<p>VAHR 7822-3786 has been assessed as being of moderate archaeological significance based on the medium density of stone artefacts and the high potential for <i>in situ</i> deposits within a subsurface context.</p> <p><u>Raw material:</u> Silcrete (n = 120) and Quartzite (n = 30)</p> <p><u>Artefact types:</u> Complete flakes, broken flakes (proximal, distal, medial flakes) and angular fragments.</p> <p>Raw material and stone artefact types are taken from the site card registration for this Aboriginal place, which counted 150 artefacts, but estimated up to 450 artefacts within the extent of this Aboriginal place.</p>
E 300988.137	
N 5834399.931	

²⁶ Densities are estimates only, and are based on the registered site card for this Aboriginal place.



Location of VAHR 7822-3786 facing south.

Site Plan

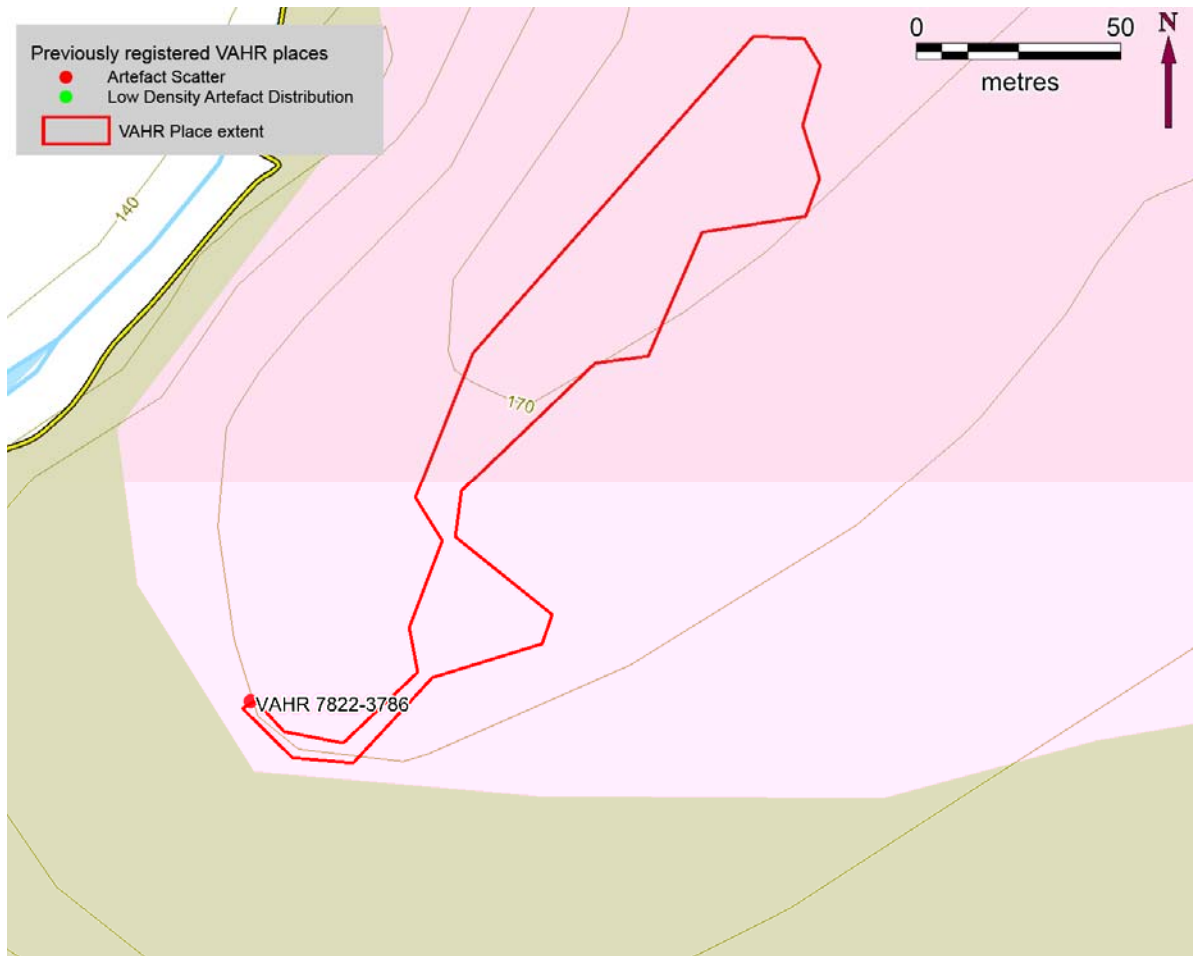


Table 17: Description of VAHR 7822- 3786

VAHR No.	Cadastral Description:
7822-3787	Parish of Bulla Bulla, County of Bourke
Redstone Hill 4	Lot 5 \ LP95031
Type:	Context and Condition:
Surface	VAHR 7822-3787 is a previously registered Aboriginal place that contains an isolated surface stone artefact situated on a flat to gently sloping terrace 25 m north of the floodplains of Jacksons Creek. This isolated stone artefact is situated c. 150 m south west of VAHR 7822-3786, at the base of native vegetation bordering the creek line. This isolated artefact was recorded in 2014 as a part of the Heritage Impact Assessment undertaken by Chamberlain (2015).
Low Density Artefact Distribution	
Size:	
NA	The cultural material that forms this Aboriginal place was able to be re-identified during the Standard Assessment for this CHMP. The fact that this isolated artefact was able to be re-identified suggests that minimal disturbance is occurring within close proximity to the Aboriginal place, and that it exhibits a relatively high level of surface integrity.
Density:	
NA	VAHR 7822-3787 is situated within alluvial deposits, and in close proximity to Jacksons Creek. As such, it is considered likely that this Aboriginal place will contain a subsurface component. It is also anticipated that additional surface artefacts will be located where ground surface visibility is low.
Primary Grid Coordinate:	Contents/Stone Artefact Assemblage and Archaeological Significance:
MGA 55 GDA 94	VAHR 7822-3787 has been assessed as being of low archaeological significance based on the low density of stone artefacts and the common occurrence of this site type within the broader region.
E 300868.185	
N 5834410.402	
	<u>Raw material:</u> Silcrete (n=1)
	<u>Artefact type:</u> Complete flake
	Raw material and stone artefact types are taken from the site card registration for this Aboriginal place.



Isolated artefact associated with VAHR 7822-3787

Location of VAHR 7822-3787
facing west

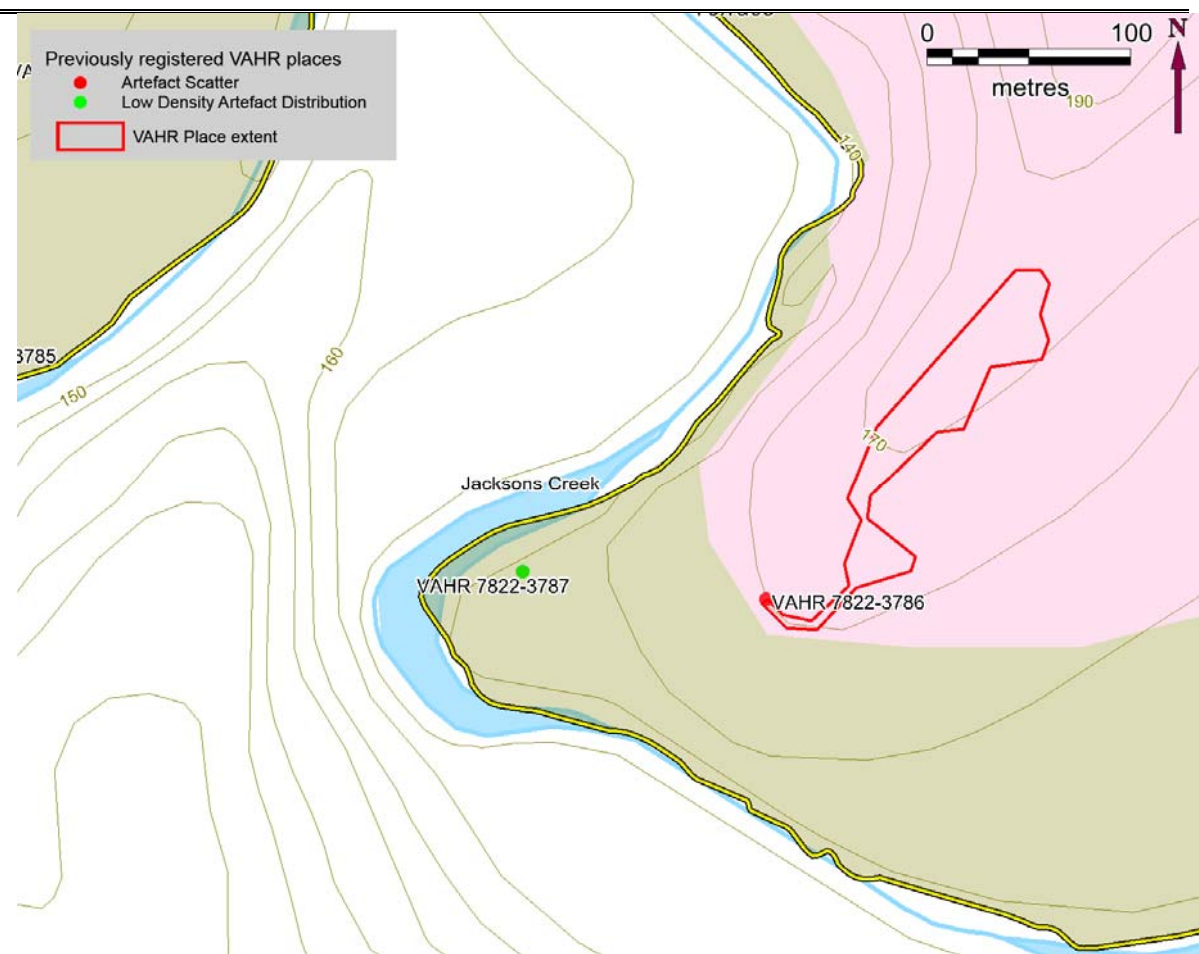


Table 18: Description of VAHR 7822- 3787

VAHR No.	Cadastral Description:
7822-3788	Parish of Bulla Bulla, County of Bourke
Redstone Hill 5	Lot 5 \ LP95031
Type:	Context and Condition:
Surface	VAHR 7822-3788 is a previously registered Aboriginal place that contains ten surface stone artefacts situated on the lower slopes of Redstone Hill c. 500 m north of Jacksons Creek. The artefact scatter is located on the southern edge of the ploughed and cropped slopes of Redstone Hill, in association with an informal vehicle track. The LDAD is c. 100 m north of an escarpment overlooking Jacksons Creek, and was recorded in 2014 as a part of the Heritage Impact Assessment undertaken by Chamberlain (2015).
Low Density Artefact Distribution	
Size: NA	
Density: NA	The cultural material that forms this Aboriginal place was able to be re-identified during the Standard Assessment for this CHMP. VAHR 7822-3788 was found to be in good condition with some vehicular disturbance evident across the surface. As VAHR 7822-3788 is situated within shallow (c. 100 mm) silty clay deposits it is considered unlikely that this Aboriginal place extends into subsurface deposits.
Primary Grid Coordinate:	Contents/Stone Artefact Assemblage and Archaeological Significance:
MGA 55 GDA 94	VAHR 7822-3788 has been assessed as being of low archaeological significance based on the low density of stone artefacts and the common occurrence of this site type within the broader region. <u>Raw material:</u> Silcrete (n=5), quartzite (n=4) and quartz (n=1) <u>Artefact type:</u> Complete flakes, proximal flake and angular fragments. Raw material and stone artefact types are taken from the site card registration for this Aboriginal place.
E 301261.474	
N 5834893.938	



Location of VAHR 7822-3788 facing east. Artefacts are exposed along the informal vehicle track

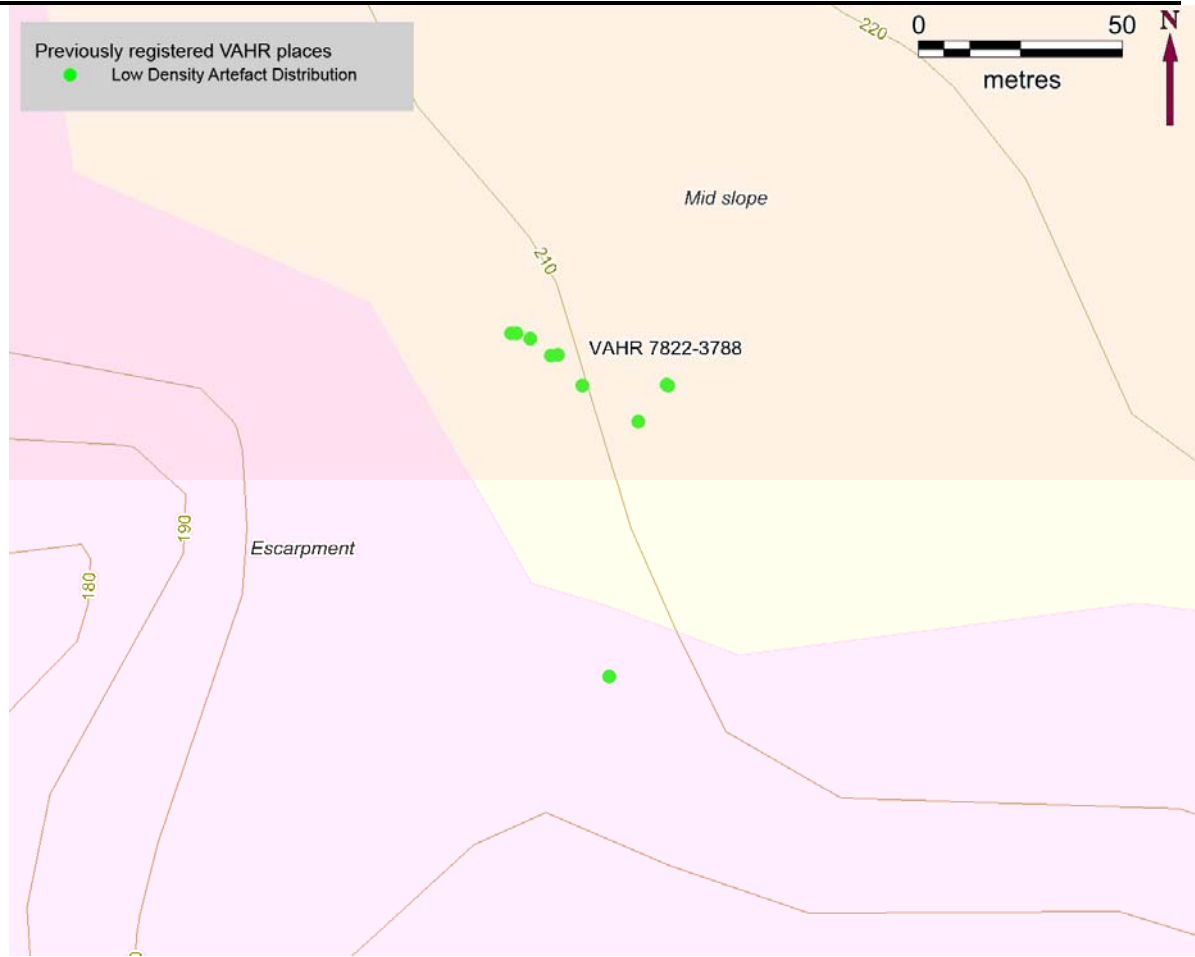


Table 19: Description of VAHR 7822- 3788

VAHR No.	Cadastral Description:
7822-3789	Parish of Bulla Bulla, County of Bourke
Redstone Hill 6	Lot 5 \ LP95031
Type:	Context and Condition:
Surface	VAHR 7822-3789 is a previously registered Aboriginal place that contains an isolated surface stone artefact recorded on the upper slope of Redstone Hill. It was recorded on the surface of an informal vehicle track. This isolated artefact was recorded in 2014 as a part of the Heritage Impact Assessment undertaken by Chamberlain (2015).
Low Density Artefact Distribution	
Size:	
NA	The cultural material that forms this Aboriginal place was unable to be re-identified during the Standard Assessment for this CHMP. It is considered likely that the cultural material associated with VAHR 7822-3789 may have been relocated (possibly as the result of vehicle traffic and/or erosion) into an area of lowered ground surface visibility surrounding the exposure provided by the vehicle track, thus making it difficult to re-identify.
Density:	
NA	VAHR 7822-3789 is situated within shallow (c. 100 mm) silty clay deposits. As such, it is considered very unlikely that this Aboriginal place will contain a subsurface component.
Primary Grid Coordinate:	Contents/Stone Artefact Assemblage and Archaeological Significance:
MGA 55 GDA 94	VAHR 7822-3789 has been assessed as being of low archaeological significance based on the low density of stone artefacts and the common occurrence of this site type within the broader region.
E 301550.161	
N 5835271.075	
	<u>Raw material:</u> Quartz (n=1)
	<u>Artefact type:</u> Complete flake
	Raw material and artefact type have been taken from the site card registration for this Aboriginal place.



Location of VAHR 7822-3789 (from Chamberlain 2015: 34). Photo taken facing south east

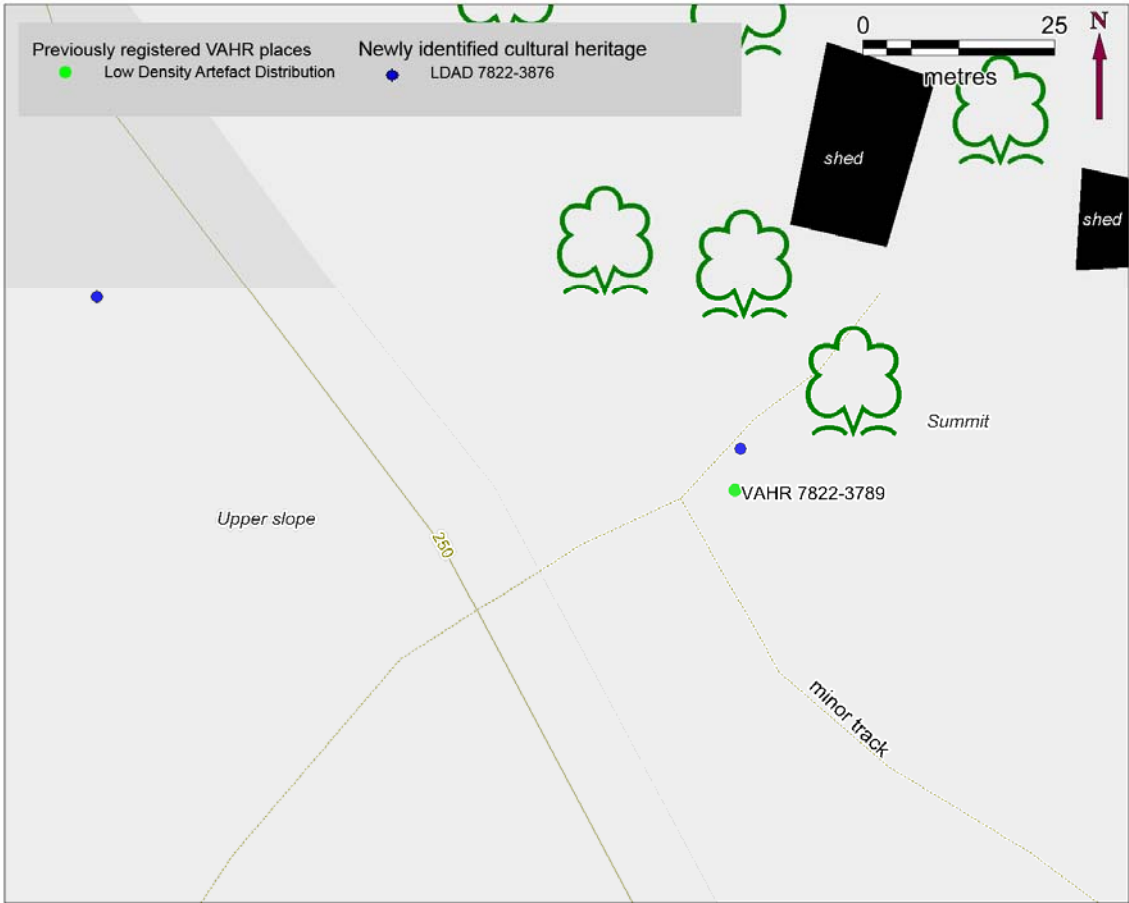


Table 20: Description of VAHR 7822- 3789

VAHR No.	Cadastral Description:
7822-3790	Parish of Bulla Bulla, County of Bourke
Redstone Hill 7	CP157019
Type:	Context and Condition:
Surface	<p>VAHR 7822-3790 is a previously registered Aboriginal place that contains twelve surface stone artefacts situated on the lower slopes of Redstone Hill c. 500 m north of Jacksons Creek. The Aboriginal place is spread over a 100 x 10 m area, and is located on the southern edge of the ploughed and cropped slopes of Redstone Hill, and is located on an informal vehicle track, and in areas of exposure. The LDAD is c. 100 m north of an escarpment overlooking Jacksons Creek, and was recorded in 2014 as a part of the Heritage Impact Assessment undertaken by Chamberlain (2014).</p> <p>The cultural material that forms this Aboriginal place was able to be re-identified during the Standard Assessment for this CHMP. VAHR 7822-3790 was found to be in a reasonable condition, with vehicular traffic and regular ploughing likely to be impacting upon the nature of this Aboriginal place.</p> <p>As VAHR 7822-3790 is situated within shallow (c. 100 mm) silty clay deposits, stone artefacts associated with this Aboriginal place occur within the plough zone and are therefore not <i>in situ</i>.</p>
Low Density Artefact Distribution	
Size:	
NA	
Density:	<p>As VAHR 7822-3790 is situated within shallow (c. 100 mm) silty clay deposits, stone artefacts associated with this Aboriginal place occur within the plough zone and are therefore not <i>in situ</i>.</p>
NA	
Primary Grid Coordinate:	
MGA 55 GDA 94	
E 301574.554	<p>Contents/Stone Artefact Assemblage and Archaeological Significance:</p> <p>VAHR 7822-3790 has been assessed as being of low archaeological significance based on the low density of stone artefacts and the common occurrence of this site type within the broader region.</p> <p><u>Raw material:</u> Silcrete (n=7) and quartzite (n=5)</p> <p><u>Artefact type:</u> Complete flakes, proximal flakes and angular fragments.</p> <p>Raw material and stone artefact types recorded for this LDAD have been taken from the site card registration for this Aboriginal place.</p>
N 5834595.214	



Location of VAHR 7822-3790. Photo taken facing north east.

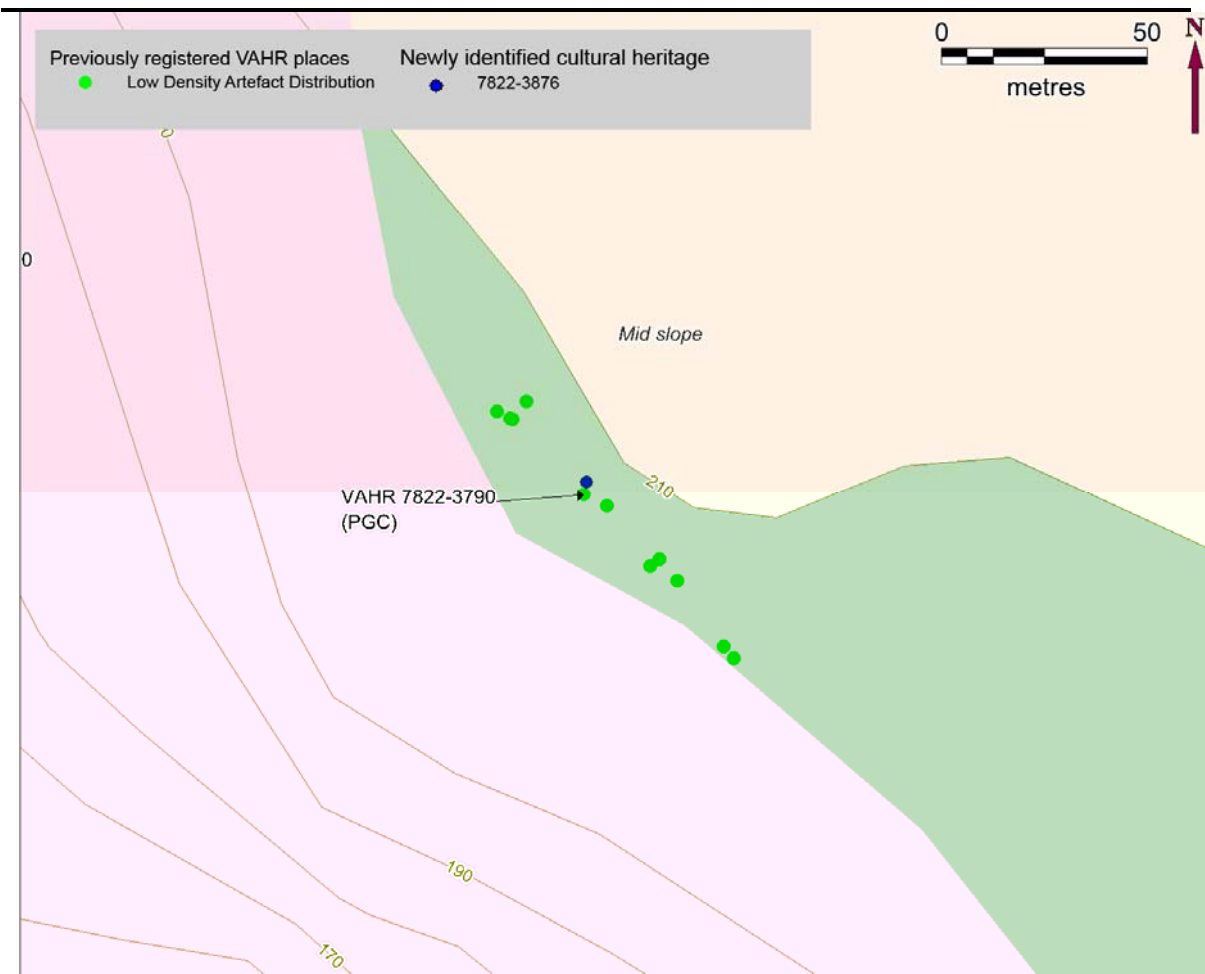




Table 21: Description of VAHR 7822-3790

VAHR No.	Cadastral Description:
7822-3794	Parish of Bulla Bulla, County of Bourke
Redstone Hill 8	2\PS423080
Type:	Context and Condition:
Surface	VAHR 7822-3794 is a previously registered Aboriginal place that contains an isolated surface stone artefact situated on the lower northern slopes of Redstone Hill, along a fence line in an area of exposure. This isolated artefact was recorded in 2014 as a part of the Heritage Impact Assessment undertaken by Chamberlain (2014).
Low Density Artefact Distribution	
Size:	
NA	The cultural material that forms this Aboriginal place was able to be re-identified during the Standard Assessment for this CHMP. The fact that this isolated artefact was able to be re-identified suggests that minimal disturbance is occurring within close proximity to the Aboriginal place, which would mostly come in the form of grazing stock.
Density:	
NA	As VAHR 7822-3790 is situated within shallow (c. 100 mm) silty clay deposits, stone artefacts associated with this Aboriginal place occur within the plough zone and are therefore not <i>in situ</i> .
Primary Grid Coordinate:	Contents/Stone Artefact Assemblage and Archaeological Significance:
MGA 55 GDA 94	VAHR 7822-3794 has been assessed as being of low archaeological significance based on the low density of stone artefacts and the common occurrence of this site type within the broader region.
E 302357.732	
N 5835522.443	
	<u>Raw material:</u> Silcrete (n=1)
	<u>Artefact type:</u> Multidirectional core
	
Location of VAHR 7822-3794. Photo taken facing east	Silcrete core associated with VAHR 7822-3794

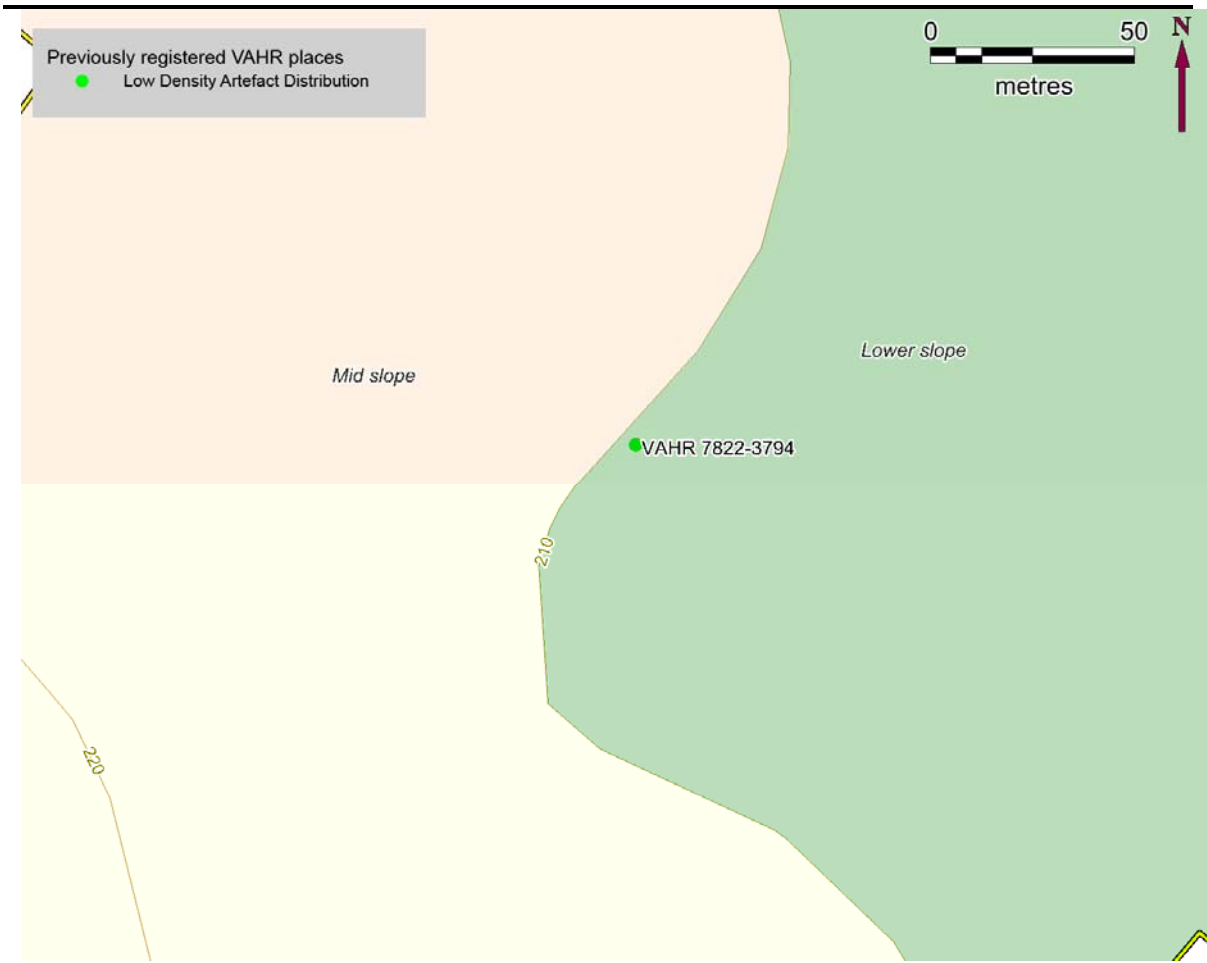


Table 22: Description of VAHR 7822- 3794

VAHR No.	Cadastral Description:
7822-3876 /	Parish of Bulla Bulla, County of Bourke
7822-3875	2\PS423080
Redstone Hill 9/ Redstone Hill 9 Part 2	5\LP95031 CP157019
Type:	Context and Condition:
Surface and subsurface	VAHR 7822-3876 and 7822-3875 were recorded during the Standard and Complex Assessment stages for this CHMP and collectively contain 178 artefacts, predominately within a surface context (surface = 176, subsurface = 2) dispersed across the slopes of Redstone Hill. A high proportion of cultural material is located in close proximity (c. 200 m) to Jacksons Creek, specifically within the spur in the south eastern extent of the development footprint and the slopes immediately south west of the Redstone Hill summit.
Low Density Artefact Distribution	
Size:	
NA	A majority of VAHR 7822-3876 and 7822-3875 have been impacted upon by regular ploughing and cropping activities.
Density:	As both LDADs are situated within shallow (c. 100 mm) silty clay deposits, stone artefacts associated with these places occur within the plough zone and are therefore not <i>in situ</i> . It is considered likely that any subsurface component would be highly dispersed and at a very low density.
NA	
Primary Grid Coordinate:	Contents/Stone Artefact Assemblage and Archaeological Significance:
MGA 55 GDA 94	VAHR 7822-3876 has been assessed as being of moderate scientific significance based on the diverse range of cultural material present and a moderate number of artefacts over an extended area. There is a common occurrence of this type of Aboriginal place in the region.
VAHR 7822-3876	
E 301483.05	<u>Raw material:</u> Silcrete (n=130), quartzite (n=35), quartz (n=8), basalt (n=2), sandstone (n=1) and other/unknown (n=2)
N 5835780.41	
VAHR 7822-3875	<u>Artefact type:</u> Complete flakes, broken flakes, cores, angular fragments, tools (including geometric microliths, scrapers, utilised flakes and notched tools), grinding stones and manuports.
E 301848.02	
N 5834270.10	



General location of Redstone Hill 9, photo taken facing south west

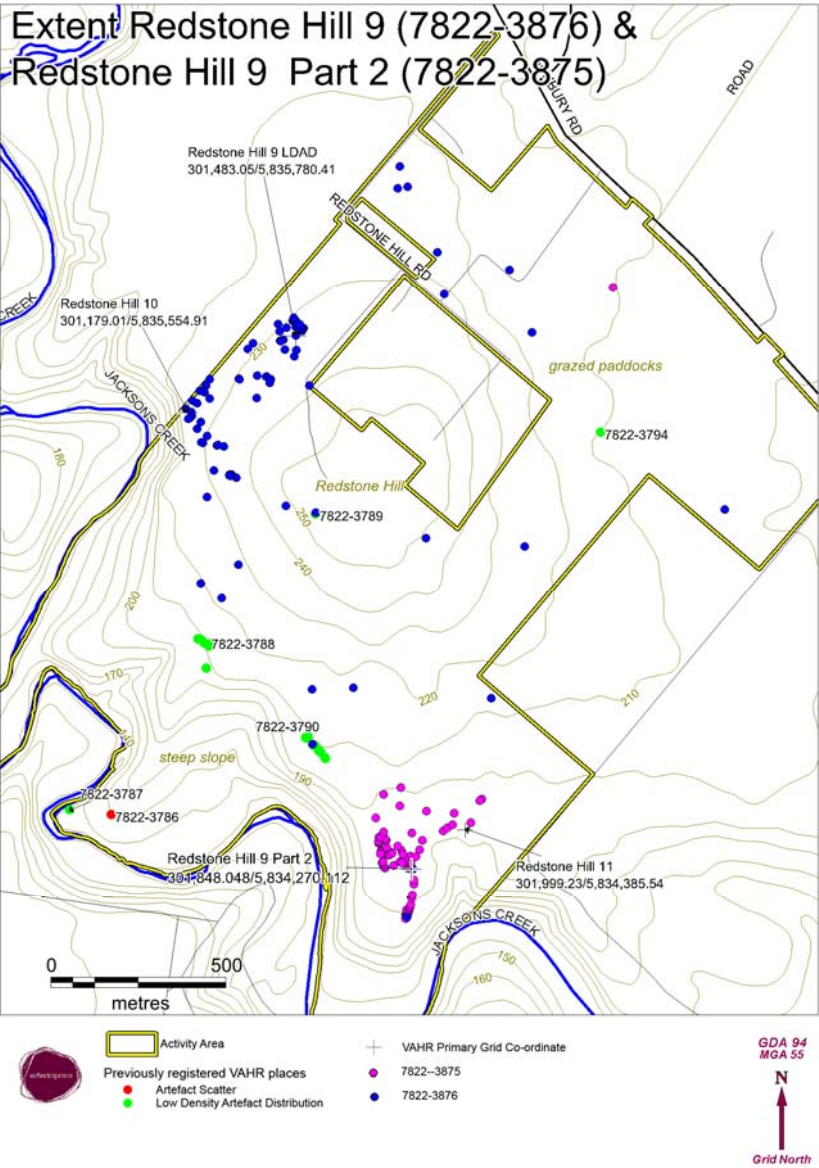



Table 23: Description of VAHR 7822-3876 and 7822-3875

VAHR No.	Cadastral Description:
7822-3881	Parish of Bulla Bulla, County of Bourke
Redstone Hill 10	5\LP95031
Type:	Context and Condition:
Surface	VAHR 7822-3881 was recorded during the Standard Assessment stage for this CHMP and contains 10 surface artefacts on the mid to upper slopes west of Redstone Hill. The artefact scatter is located in close proximity (c. 200 m) to Jacksons Creek and has been impacted upon by regular ploughing and cropping activities.
Artefact Scatter	
Size:	
41.2 m ²	
Density:	As VAHR 7822-3881 is situated within shallow (c. 100 mm) silty clay deposits overlying sterile clay stone artefacts associated with this Aboriginal place occur within the plough zone and are therefore not <i>in situ</i> . It is considered likely that any subsurface component to this artefact scatter would be highly dispersed and at a very low density.
1 artefact per 4.12 m ²	
Primary Grid Coordinate:	Contents/Stone Artefact Assemblage and Archaeological Significance:
MGA 55 GDA 94	VAHR 7822-3881 has been assessed as being of low archaeological significance based on the low density of stone artefacts and the common occurrence of this site type within the broader region.
E 301483.05	
N 5835780.41	
	<u>Raw material:</u> Silcrete (n=8), quartz (n=1) and sandstone (n=1)
	<u>Artefact type:</u> Complete flakes, broken flakes, angular fragments and one notched tool.
	
Location of Redstone Hill 10, facing north east	

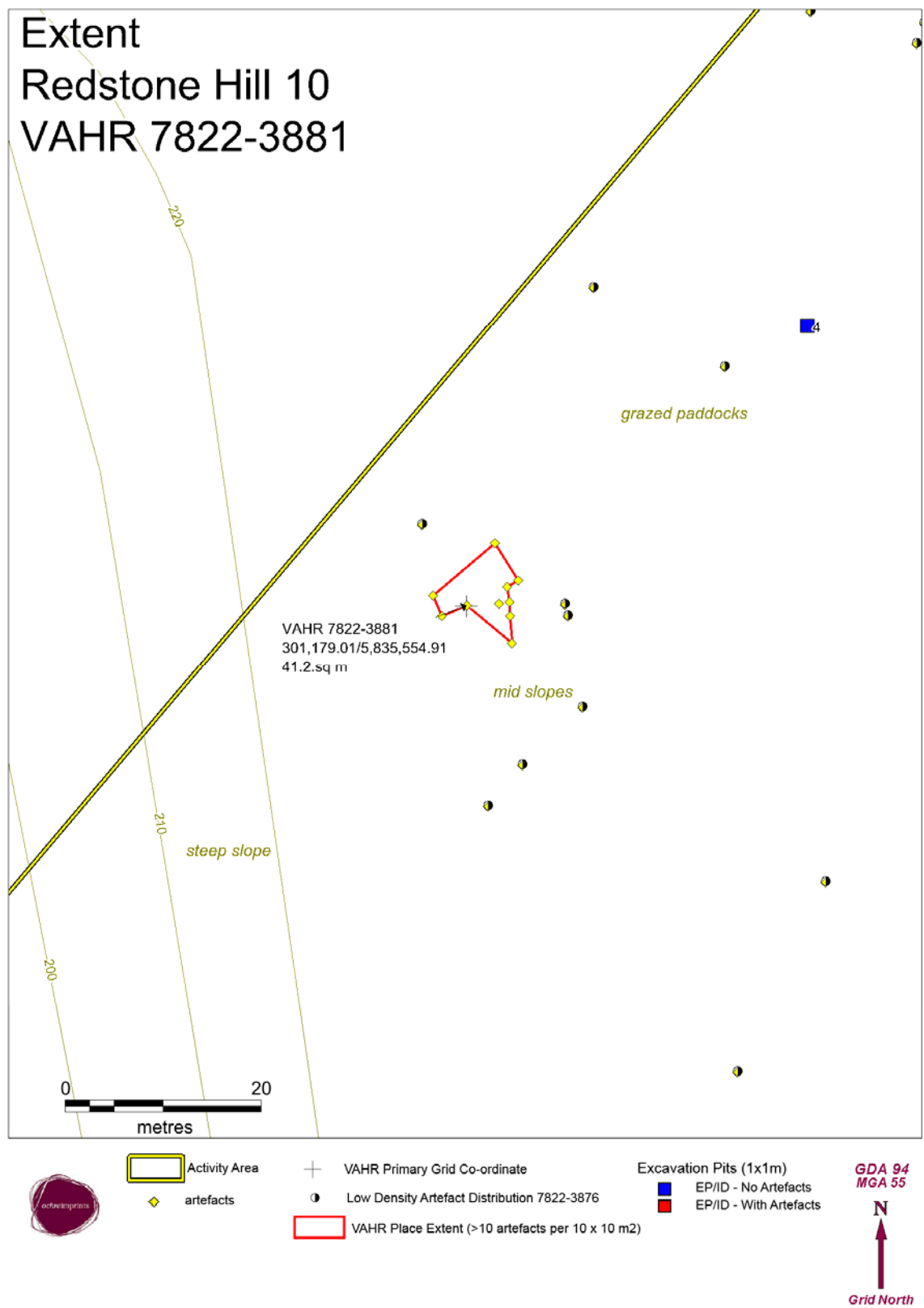


Table 24: Description of VAHR 7822-3881

VAHR No.	Cadastral Description:
7822-3882	Parish of Bulla Bulla, County of Bourke
Redstone Hill 11	CP157019
Type:	Context and Condition:
Surface	VAHR 7822-3882 was recorded during the Standard Assessment stage for this CHMP and contains 17 surface artefacts on the spur located south east of the summit of Redstone Hill. The artefact scatter is located in close proximity (c. 200 m) to Jacksons Creek near an escarpment overlooking the terraces of Jacksons Creek.
Artefact Scatter	
Size:	Redstone Hill 11 is a higher density portion of the overarching LDAD 7822-3882 which dominates much of the spur landform and south western slopes of Redstone Hill.
11 m ²	
Density:	As VAHR 7822-3882 is situated within shallow (c. 100 mm) silty clay deposits overlying sterile clay stone artefacts associated with this Aboriginal place occur within the plough zone and are therefore not <i>in situ</i> . It is considered likely that any subsurface component to this artefact scatter would be highly dispersed and at a very low density.
1 artefact per 1.5 m ²	
Primary Grid Coordinate:	Contents/Stone Artefact Assemblage and Archaeological Significance:
MGA 55 GDA 94	VAHR 7822-3882 has been assessed as being of low archaeological significance based on the low density of stone artefacts and the common occurrence of this site type within the broader region.
E 301483.05	
N 5835780.41	
	<u>Raw material:</u> Silcrete (n=12), quartz (n=4) and quartzite (n=1)
	<u>Artefact type:</u> Complete flakes, broken flakes and angular fragments.



Location of Redstone Hill 11 facing south west

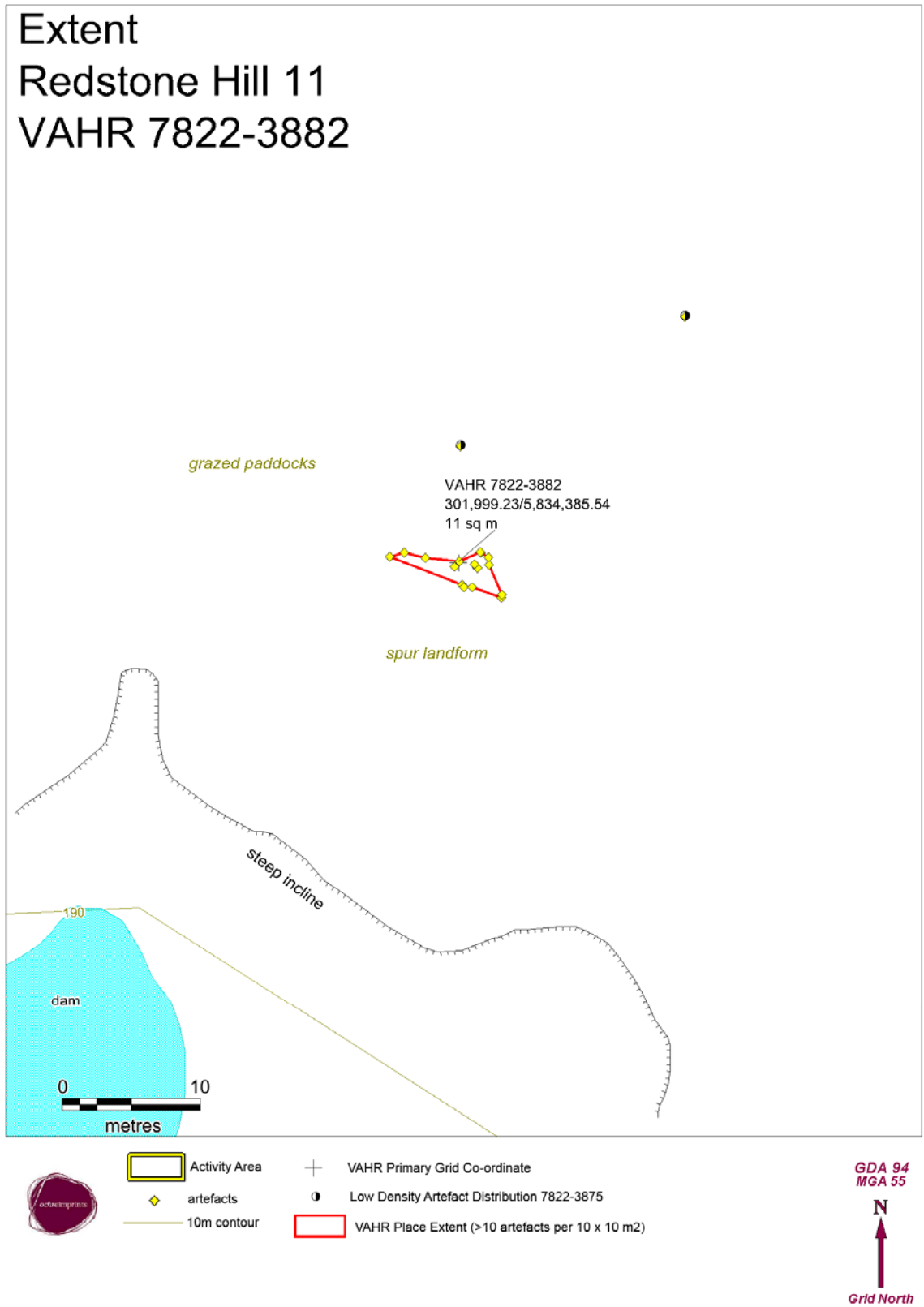


Table 25: Description of VAHR 7822-3882

5.3 LITHIC ANALYSIS (BY CAROLINE SPRY)

Introduction

This analysis investigates the four newly recorded Aboriginal places in the activity area: 178 surface and subsurface artefacts associated with VAHR 7822-3876 and 7822-3875 ('Redstone Hill 9 and Redstone Hill 9 Part 2'); 10 surface artefacts identified at VAHR 7822-3881 ('Redstone Hill 10'); and 17 surface artefacts associated with VAHR 7822-3882 ('Redstone Hill 11'). These artefacts were identified and recorded during the Standard and Complex assessments.

This analysis also investigates the eight existing Aboriginal places within the activity area. These comprise c.150 surface artefacts identified at VAHR 7822-3784; a single surface artefact associated with VAHR 7822-3785; c.150 surface artefacts located at VAHR 7822-3786; one surface artefact identified at VAHR 7822-3787; 10 surface artefacts associated with VAHR 7822-3788; a single surface artefact situated at VAHR 7822-3789; 12 surface artefacts identified at VAHR 7822-3790; and one surface artefact associated with VAHR 7822-3794 (Chamberlain 2015).

The analysis comprises three parts. The first is a summary of the assemblages identified at each Aboriginal place. In the second part, the features of assemblages located on the slopes and spur – landforms within the development footprint – are compared (Figure 23). While the escarpment is also situated within the development footprint, only one silcrete flake was identified on this landform (VAHR 7822-3788), and it is therefore excluded from this comparison. Specifically, the comparison of assemblages located on the slopes and spur aims to

- Determine the composition and characteristics of the slope and spur assemblages;
- Establish which stone-working activities occurred on each landform; and
- Consider whether any post-depositional processes have impacted the composition of each assemblage.

The third part of the analysis briefly considers the features of the assemblages located on the terrace and summit, which are located outside of the development footprint.

The results of this analysis are also compared to those from previous archaeological investigations conducted in the geographic region.

Recorded Artefact Attributes

The attributes recorded are based on those outlined in the OAAV *Standards for Recording Victorian Aboriginal Heritage Places and Objects* (2008) and guidelines for recording *Low Density Artefact Distributions* (2013).

All stone artefacts were measured to the nearest hundredth of a millimetre using electronic callipers. A 20x magnification hand lens was used to identify macroscopic retouch and edge damage. As most of the artefacts were identified and recorded during the Standard Assessment, no refitting studies were undertaken, and it was not possible to determine which artefacts had been struck from the same piece of raw material based on similarities in raw material, colour, texture and other visual characteristics (i.e. Minimum Analytical Nodule Analysis; Larson 1994; Larson and Ingbar 1992:153 – see also Frison 1974 and Kelly 1985).

Surface artefacts were recorded and catalogued in the field by Caroline Spry and Claire St George (Ochre Imprints), while subsurface artefacts were catalogued in the Ochre Imprints office by Claire St George.

The full stone artefact catalogue is provided in Appendix 5, and a glossary of stone artefact terminology in Appendix 2.

Limitations of Analysis

Stone artefact assemblages are the most durable remains of past human activity, and often form the basis of our understanding of archaeological sites. However, there are limitations in their study to understand human behaviour. Over decades of research, including careful observation of, and collaboration with, Indigenous stone workers, archaeologists have demonstrated that much of the variation in Australian stone tool assemblages can be explained by the proximity to and availability of raw materials, and their original form and flaking properties. In other words, there is no clear link between assemblage composition and site function (Holdaway and Stern 2004:71).

The way a site forms, and the physical impacts to the site over time ('post-depositional processes'), also influences the composition of stone artefact assemblages. The abandonment, loss or discard of stone artefacts results in their falling out of a system (Ammerman and Feldman 1974; Schiffer 1972, 1976, 1996) and the creation of archaeological sites. However, it also means that the archaeological record only contains the parts of a living system that were disconnected and subsequently preserved at a particular location (Binford 1980:5). Post-depositional processes, such as wind and water erosion, can subsequently remove items from an assemblage – or add them. In general, a lack of fine-grained contextual information (e.g. xyz co-ordinates for individual artefacts) precludes a detailed spatial analysis to investigate whether disturbance to the site has moved artefacts vertically or horizontally. Lastly, strategies for the recovery of material – that is, how stone artefacts are collected in the field – also affect assemblage composition.

What stone artefact analysis can tell us, when field methods are rigorous, is how certain raw materials were exploited, what type of stone-working techniques were employed, and which

kinds of tools were made. Intact archaeological deposits provide a tangible link to a discrete moment in the distant past when a person used his or her skills to knap a piece of stone, to make workable stone tools for use in everyday life. This tangible link holds great value to both Indigenous and non-Indigenous people.

Age estimates

Unless dated material can be unequivocally associated with stone artefacts, or used to generate bracketing age estimates for the stratigraphic unit from which the artefacts originated, no age estimates can be generated for an assemblage. In some instances, however, the geological feature with which the assemblage is associated can indicate the time period of discard.

A stratified deposit provides a good basis for investigating technological change over time. In the past, the presence of certain types of cores and tools was used to denote the age of an assemblage in Australia. For example, backed blades and geometric microliths were ascribed to the Australian Small Tool Tradition (ASTT; Gould 1969), which was thought to date to the last 5,000 years. However, more recent studies have identified backed artefacts in much older deposits, reinforcing the notion that tool typologies are not reliable indicators of the age of Australian assemblages²⁷.

Potential for *in situ* deposits

Stone artefacts from *in situ* – or undisturbed – deposits can be associated with a specific time period and set of palaeoenvironmental conditions, and therefore have good research potential. Stone artefact analysis can reveal whether an *in situ* deposit exists by identifying refit sets and groups of artefacts that were struck from the same piece of raw material, or by establishing whether the by-products of stone-working, such as debitage and microdebitage, are present.

Analysis Results

Summary of artefacts identified at each Aboriginal place

VAHR 7822-3784

More than 150 artefacts were identified at VAHR 7822-3784 (Chamberlain 2015:30). However, a specific artefact count, complete catalogue and detailed description are unavailable from Chamberlain's (2015) report or ACHRIS. This assemblage comprises

²⁷Backed artefacts from Walkunder Arch in Queensland, Mussel Shelter on the Hawkesbury River catchment in NSW, and at two sites adjacent to the Gregory River in Queensland have age estimates of $16,090 \pm 700$ yrcal BP (Campbell 1982), $6,100 \pm 110$ and $9,340 \pm 260$ yrcal BP (Hiscock and Attenbrow: 1998:59), and between $15,370 \pm 750$ and $19,350 \pm 660$ yrcal BP (Slack et al. 2004), respectively.

“artefacts manufactured from silcrete and quartzite, with a sample suggesting that silcrete makes up over 60% of the assemblage” (Chamberlain 2015:30).

VAHR 7822-3785

The VAHR 7822-3785 assemblage comprises one silcrete whole flake.

VAHR 7822-3786

Like the VAHR 7822-3784 assemblage, a specific artefact count, complete artefact catalogue and detailed description are unavailable for the artefacts associated with VAHR 7822-3786 (Chamberlain 2015). This assemblage contains over 150 artefacts, including those “manufactured from silcrete, quartzite and basalt”, with silcrete dominating the assemblage (55%; Chamberlain 2015:31).

VAHR 7822-3787

One silcrete whole flake was identified at VAHR 7822-3787.

VAHR 7822-3788

The VAHR 7822-3788 assemblage comprises 10 artefacts, including four silcrete whole flakes, three quartzite angular fragments, one quartzite whole flake, a single quartz whole flake and one silcrete proximal flake.

VAHR 7822-3789

One quartzite whole flake is associated with VAHR 7822-3789.

VAHR 7822-3790

The VAHR 7822-3790 assemblage contains 12 artefacts, including three silcrete proximal flakes, two silcrete whole flakes, two silcrete angular fragments, two quartzite angular fragments, one quartzite whole flake, a single silcrete angular fragment and one quartzite proximal flake.

VAHR 7822-3794

The VAHR 7822-3794 assemblage comprises a single silcrete multidirectional core.

VAHR 7822-3876 and 7822-3875

A total of 176 surface artefacts and two subsurface artefacts were identified at VAHR 7822-3876 and 7822-3875 (Table 26). Most of these artefacts were made on silcrete, followed by quartzite, quartz and small quantities of other materials. While angular fragments and whole flakes are the dominant artefact type, cores and tools constitute a relatively high proportion (15% and 8%, respectively), which may indicate that less stone knapping occurred at this Aboriginal place. A similar proportion of tools are formal or informal, including four notched silcrete artefacts, one notched quartz artefact, and two silcrete geometric microliths.

Artefact type	Silcrete	Quartzite	Quartz	Basalt	Other	Sandstone
Angular fragment	40	8	3			
Whole flake	33	10	1			
Core	24	3				
Distal flake	13	3	1			
Tool	11	2	1	1		
Proximal flake	5	2		1		
Longitudinal split flake	3	1	1			
Medial flake	1	2	1			
Bipolar flake		2				
Grinding stone					2	
Manuport		2				1
Total	130	35	8	2	2	1

Table 26: Artefact types made on different raw materials at VAHR 7822-3786 and 7822-3785

VAHR 7822-3881

Ten artefacts were located at VAHR 7822-3881 (Table 27). The majority of these were produced on silcrete, followed by quartz and sandstone. Angular fragments and broken artefacts are the main artefact types, and while there is one silcrete notched tool, no cores are present. Although it is possible that these items were transported to this Aboriginal place, the cores from which they were detached may have been removed, or could remain in an unexcavated portion of the activity area.

Artefact type	Silcrete	Quartz	Sandstone
Angular fragment	3	1	1
Distal flake	1		
Medial flake	1		
Proximal flake	1		
Whole flake	2		
Total	8	1	1

Table 27: Artefact types made on different raw materials at VAHR 7822-3881

VAHR 7822-3882

A total of 17 artefacts were identified at VAHR 7822-3882 (Table 28). Silcrete is the dominant raw material, followed by quartz and quartzite. The proportion of angular fragments is relatively high, followed by whole and broken flakes. One silcrete utilised flake is present, but there are no cores. These items may have been transported to rather than made at this Aboriginal place, although it is also possible that the cores from which they were struck were taken away, or remain buried in part of the activity area.

Artefact type	Silcrete	Quartz	Quartzite
Angular fragment	4	3	1
Whole flake	4	1	
Proximal flake	3		
Medial flake	1		
Total	12	4	1

Table 28: Artefact types made on different raw materials at VAHR 7822-3882

Comparison of spur and slope assemblages

The results presented here detail the size and distribution of the assemblages located in spur and slope contexts (VAHR 7822-3876, 7822-3875, VAHR 7822-3881, VAHR 7822-3882, VAHR 7822-3788, VAHR 7822-3790, VAHR 7822-3794). The proportions of different raw materials, size of artefacts, range of artefact types, and evidence for different stages of reduction in these assemblages are also investigated.

Assemblage size and distribution

The slope assemblage contains 132 stone artefacts, the overwhelming majority of which were identified on the surface (98%; Table 29). In the spur assemblage, all 95 stone artefacts were located on the surface (100%). As the activity area has been subject to land clearance, bioturbation, pastoral grazing and regular ploughing, the virtual absence of subsurface artefacts suggests that most of the artefacts were originally located in very shallow deposits, and have been exposed largely through ploughing.

Depth (mm)	Slopes	Spur
Surface	130	95
0-100	1	
100-200	1	
Total	132	95

Table 29: Depths at which artefacts in the slope (n = 132) and spur (n = 95) assemblages were identified

While the number of artefacts in the slope and spur assemblages is similar, the average artefact density is higher for the latter (Table 30). One potential explanation for this is that more stone artefacts were transported to the spur. However, it is also possible that more stone knapping took place on this landform – or that stone was reduced more heavily.

Landform	Average surface artefact density per m ²	Average subsurface artefact density per m ³
Slopes	0.00011 (or one artefact every 8,888.23m ²)	8.33 m ³
Spur	0.00198 (or one artefact every 503.78m ²)	1.56 m ³

Table 30: Average surface artefact density per m² and subsurface artefact density per m³ on slopes and the spur

Raw materials

Geological maps and quarter sheets indicate that sources of basalt, sandstone, quartz and quartzite are common in the broader region (Rison 1973; Selwyn no date). Six silcrete sources also occur within 10 km of the activity area (Webb 1995 – see also the Desktop Assessment). Another potential source of raw material is Jacksons Creek, which borders the activity area, and contains pebbles and cobbles in a variety of raw materials – including quartz. While

silcrete artefacts dominates the slope and spur assemblages, the proportion of silcrete artefacts is significantly higher in the slope assemblage (Figure 13; $Z = 2.92$, $p < 0.01$). In contrast, quartz artefacts constitute a significantly higher proportion of the spur assemblage ($Z = -3.61$, $p < 0.001$). There are three potential reasons for these differences. First, it is possible that more silcrete and quartz was transported to and knapped on the slopes and spur, respectively. A second possibility is that larger pieces of silcrete and quartz were knapped on each landform, producing more debris. A final potential explanation is that silcrete and quartz were worked more heavily on each landform.

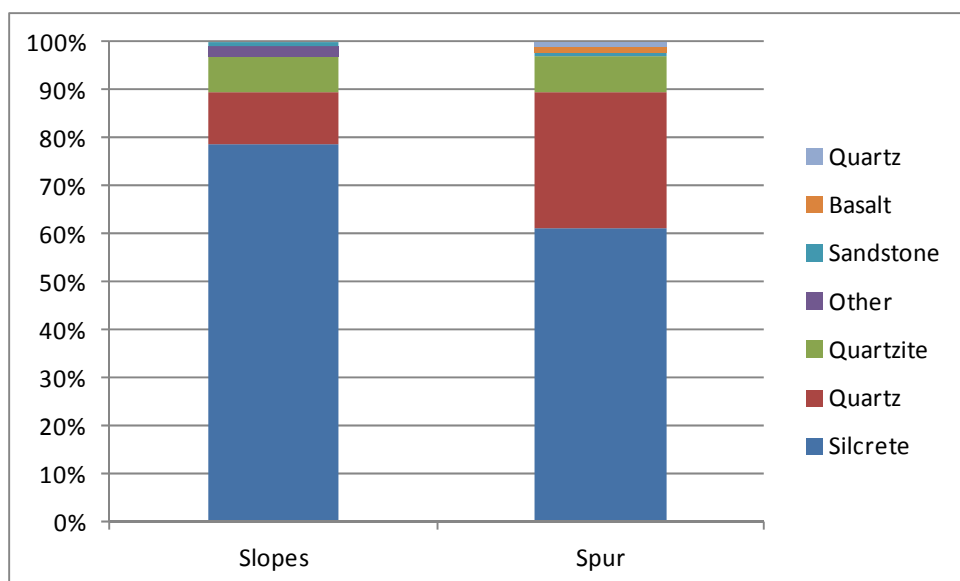


Figure 13: Proportions of artefacts made on silcrete, quartz, other raw materials, quartzite, sandstone or basalt in the slope ($n = 132$) and spur ($n = 95$) assemblages

The small number of artefacts made on basalt, sandstone, quartzite and other raw materials suggest that these materials were exploited less frequently.

Cortex

The type and amount of cortex – or outer weathering rind – on an artefact provide a useful indication of the original source of material, and the extent to which that material was reduced. Rough cortex is indicative of primary geological sources, such as ridges and rises, whereas smooth cortex is diagnostic of secondary geological sources that include rivers and creeks. Larger and smaller amounts of cortex suggest earlier and later stages of reduction, respectively. However, as cortex is not always present at raw material sources, the absence of any cortex should be interpreted with caution.

A similar proportion of artefacts in the slope assemblage have smooth or rough cortex, whereas smooth cortex dominates the spur assemblage (Figure 14). This suggests that a similar amount of cortical material was transported from primary and secondary geological sources to the slopes, but that more pebbles or cobbles were conveyed to the spur. The

proximity of the spur to Jacksons Creek, a source of water-worn pebbles and cobbles, probably accounts for this difference.

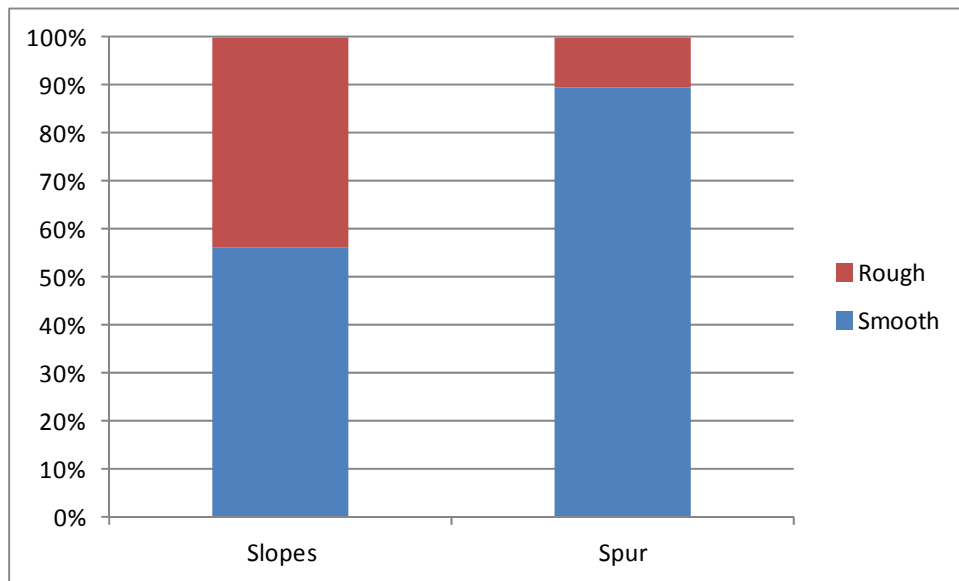


Figure 14: Proportions of artefacts with smooth or rough cortex in the slope (n = 25) and spur (n = 19) assemblages

Most of the artefacts in each assemblage do not bear any traces of cortex (Figure 15). A relatively large proportion of cortical artefacts in the slope assemblage contain small amounts of cortex, and vice versa for the spur assemblage. This difference is probably due to the proximity of the spur to Jacksons Creek, which contains pebbles and cobbles with smooth cortex.

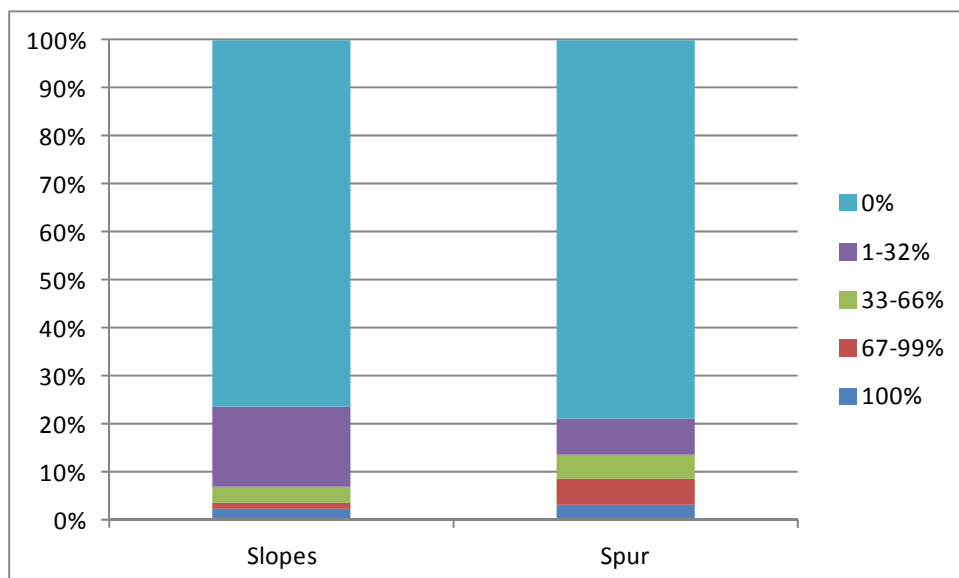


Figure 15: Proportions of complete artefacts with different amounts of cortex in the slope (n = 132) and spur (n = 95) assemblages

Artefact Size

Flake size can be the product of many different variables. Generally, the size of flakes depends on that of cores – a larger core is more likely to produce sizeable flakes, and a lesser-sized core to yield smaller flakes. Accordingly, as core reduction proceeds, the size of cores and flakes diminish. As not all flakes have axial or plunge terminations, flake size does not always provide a good indication of the size of the core from which it was detached. It is therefore difficult to estimate core size based on flake size without the aid of refitting studies.

Experimental studies have demonstrated that microdebitage (<10 mm maximum dimension) is the most common size class in any intact stone-knapping assemblage (Fladmark 1982; Schick 1989; Toth 1982). However, this size class is virtually missing from each assemblage (Figure 16). This may be due to the removal of smaller artefacts by post-depositional processes, survey visibility, or the use of ≤ 5 mm sieves during excavations. A final possibility is that stone knapping was limited on each landform.

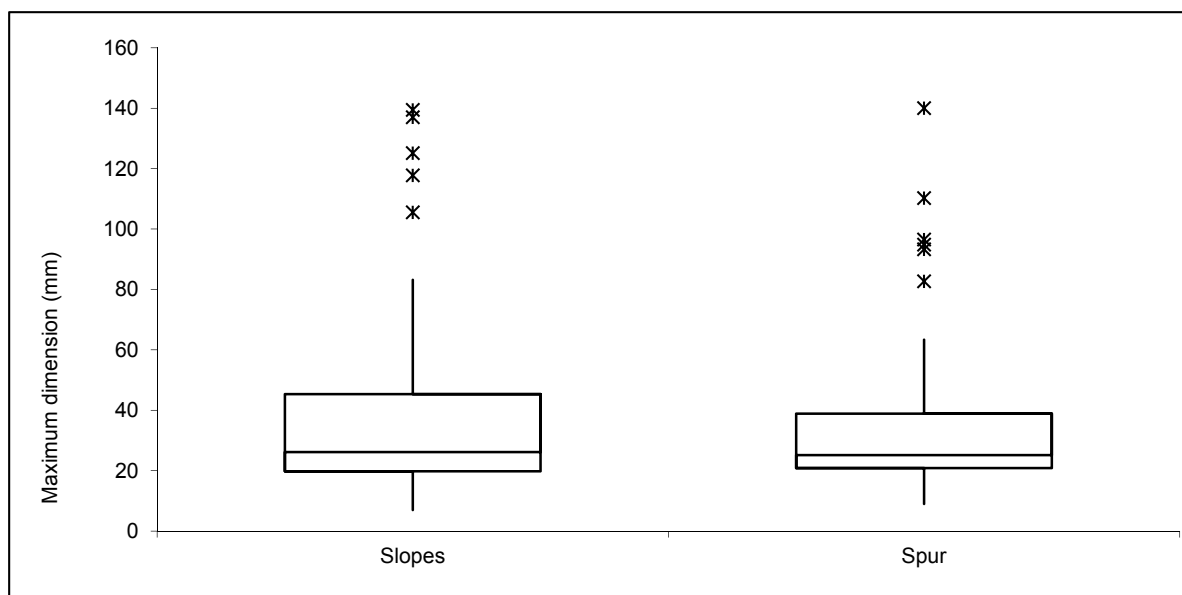


Figure 16: Box and whisker plot of the length (mm) values for whole flakes in the slope (n = 130) and spur (n = 95) assemblages

The location of the assemblages does not influence the size (i.e. length) of artefacts in each assemblage ($H = 0.43$, $p = 0.51$)²⁸. This suggests that that material was transported to each landform in similarly sized form, and reduced to a comparable extent.

²⁸ The maximum dimension (mm) data are not normally distributed ($\chi^2 = 239.25$, d.f. = 7, $p < 0.0001$), so non-parametric analysis, which focus on the differences between median values, were applied.

Artefact types

Debitage comprises broken flakes, angular fragments and different types of whole flakes. It typically forms the greatest component of flaked stone artefact assemblages that are intact (Andrefsky 2001:2; Johnson 2001:16), and unsurprisingly dominates each assemblage (Figure 17).

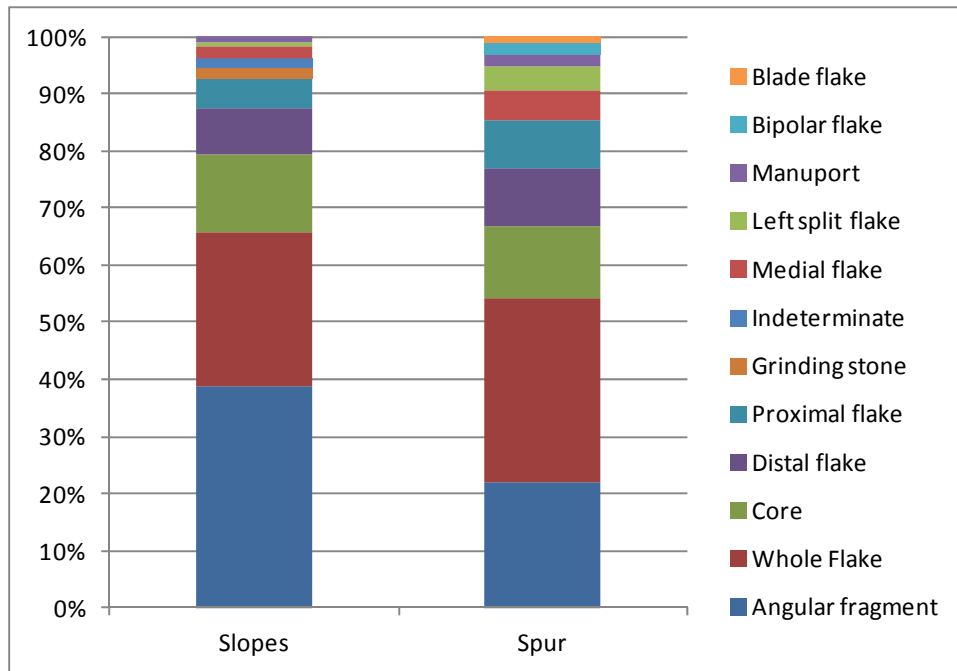


Figure 17: Proportions of different types of artefacts in the slope (n = 132) and spur (n = 95) assemblages

Angular fragments form a relatively large proportion of the slope assemblage, whereas whole flakes dominate the spur assemblage. This is unsurprising, as the slopes have been ploughed more regularly, whereas animal grazing is more common on the spur.

The Minimum Number of Flakes is slightly higher in the spur assemblage, and the Minimum Number of Cores a little lower (Figure 18). This difference is probably due to the greater degree of artefact fragmentation in the slope assemblage. The Minimum Number of Tools is similar in both assemblages.

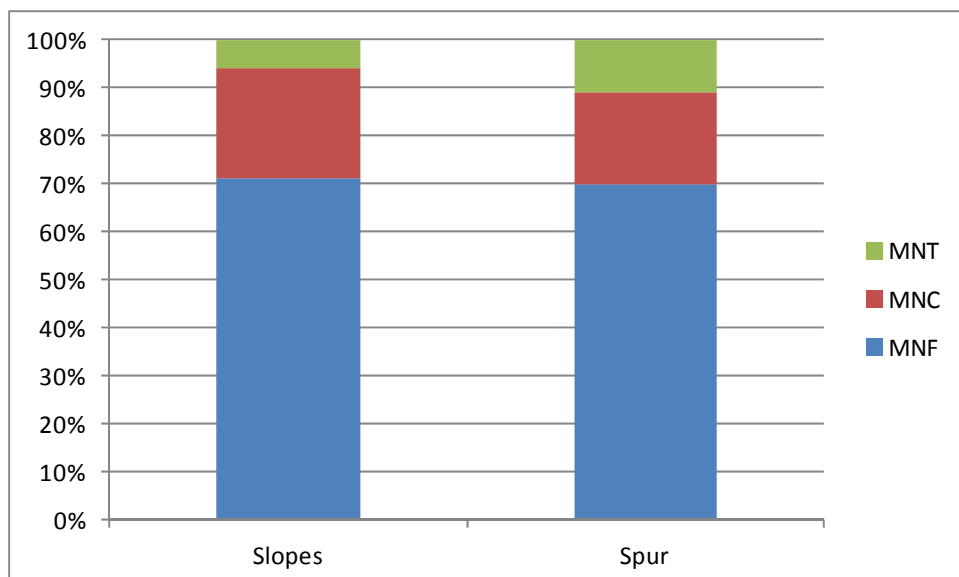


Figure 18: Minimum Number of Flakes (MNF), Minimum Number of Cores (MNC) and Minimum Number of Tools (MNT) in the slope (n = 69) and spur (n = 63) assemblages. N.B. The MNF and MNT were calculated by counting the number of artefacts/tool blanks made on complete flakes, distal flakes and left split flakes. The MNC represents the number of complete cores.

A flake's platform provides insight into the morphology of a core's striking platform, prior to the removal of that flake. It can therefore indicate the stage of core reduction. Some studies suggest that cortical and plain platforms occur earlier in core reduction, whereas flaked and faceted platforms become more common later (Clarkson and O'Connor 2006:184). Facetting is typically employed to improve the shape and angle of a core's striking platform, produce flakes with small platforms, or facilitate blade production (Hiscock 1993:68; Whittaker 1994:101).

A similar proportion of different platforms types are present in both assemblages, with most platforms being plain (Figure 19). The only notable difference is the absence of any flakes with faceted platforms in the slope assemblage, which may be due to the small sample size.

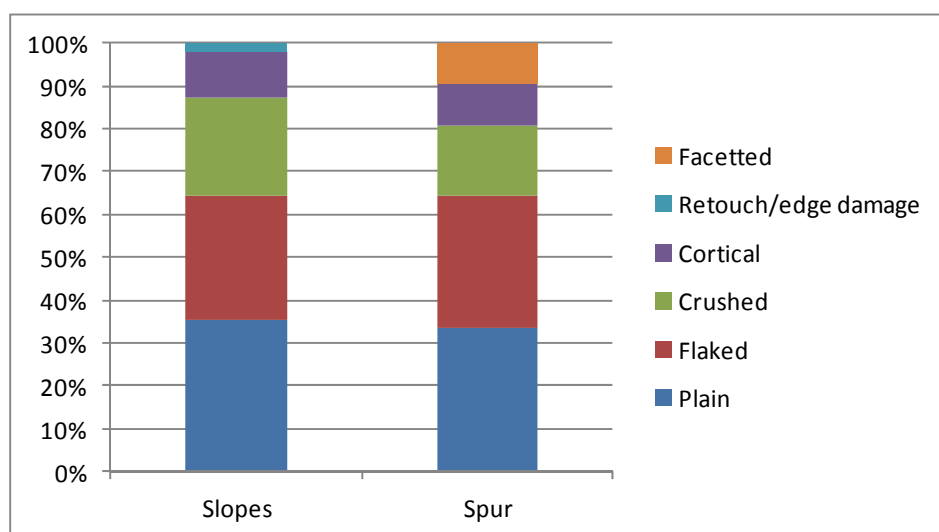


Figure 19: Proportions of flakes with different types of platforms in the slope (n = 48) and spur (n = 44) assemblages

Flake terminations reflect the amount of force used during stone knapping. Generally speaking, feather terminations are regarded as the result of optimal flaking technique, whereas step and hinge terminations indicate an insufficient amount of percussive force (Phagan 1985). Some studies suggest that the number of step and hinge terminations increases as core reduction proceeds (Clarkson and O'Connor 2006:184). Others have demonstrated the deliberate production of flakes with step and hinge terminations, to produce specific types of tools (Holdaway and Irwin 2004). Axial and plunge terminations occur when percussive force moves all the way through a core, but can also reflect deliberate attempts to create a new platform with a better (i.e. lower) angle (Holdaway and Stern 2004:194).

Most of the flakes in the slope assemblage have hinge terminations, whereas feather terminations predominate in the spur assemblage (Figure 20). In each case, this may reflect the greater production of flakes with this termination type, or the more frequent removal of flakes with other types of terminations.

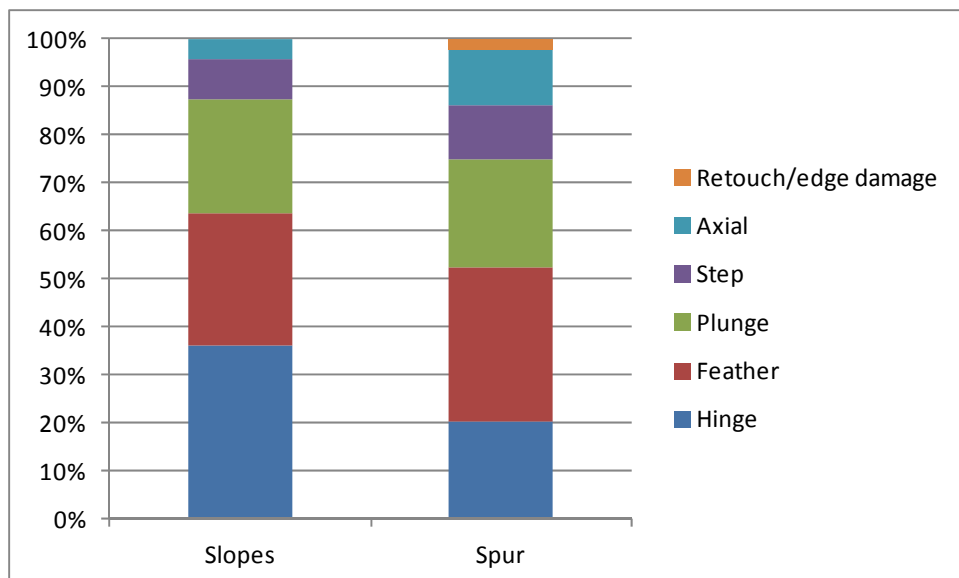


Figure 20: Proportions of flakes with different types of terminations in the slope (n = 48) and spur (n = 46) assemblages

The number and direction of dorsal flake scars corresponds to the intensity and direction of flake removal from a core (Holdaway and Stern 2004:145-6). Some studies indicate that the number of dorsal flake scars and flaking directions increase as core reduction advances (Clarkson and O'Connor 2006:183-184; 189). Following this rationale, evidence for early-stage core reduction is more abundant in the spur assemblage (Figure 21). Most of the flakes in both assemblages were detached from cores that were not rotated during knapping (Figure 22).

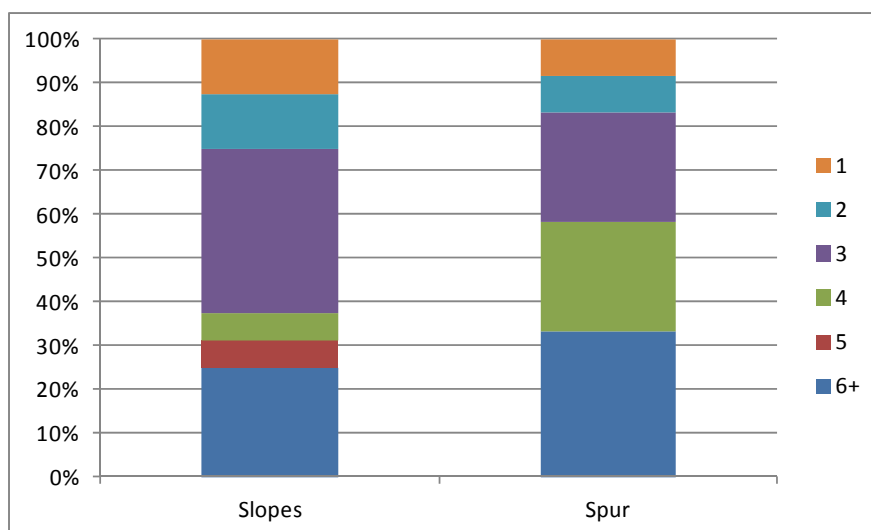


Figure 21: Proportions of flakes with different numbers of dorsal flake scars in the slope (n = 16) and spur (n = 12) assemblages

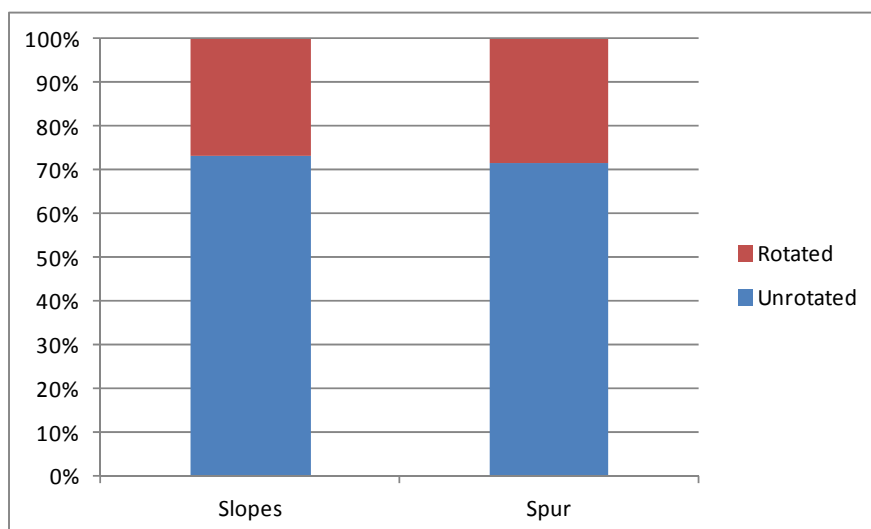


Figure 22: Proportions of flakes struck from unrotated or rotated cores in the slope (n = 15) and spur (n = 21) assemblages

The majority of cores in each assemblage were flaked in multiple directions – particularly in the spur assemblage (Table 31). This may indicate that cores were worked more intensively on this landform. The largest proportion of cores in the slope assemblage were made on indeterminate forms of material, whereas a broad range of core blanks in the spur assemblage – including cobbles and slabs – were exploited (Table 32).

Core type	Slopes	Spur
Multidirectional	8	8
Unidirectional	4	1
Bidirectional	1	3
Microblade/unidirectional	1	
Radial	1	
Total	15	12

Table 31: Different types of cores in the slope (n = 15) and spur (n = 12) assemblages

Type of core blank	Slopes	Spur
Indeterminate	9	4
Flake	2	1
Pebble	2	1
Cobble		3
Slab		2
Total	13	11

Table 32: Different types of core blanks in the slope (n = 13) and spur (n = 11) assemblage

The number of tools in each assemblage is small, limiting the information that can be gleaned about tool manufacture (Table 33). It is nonetheless evident that a range of formal and informal tools are present in both assemblages, including notched artefacts, utilised flakes, geometric microliths and a single steep-edged scraper. Without MANA and refitting studies, however, it is unclear whether these tools were transported to or manufactured on the slopes and spur.

Tool type	Slopes	Spur
Notched	3	3
Utilised flake	1	1
Geometric microlith	1	1
Other	1	1
Steep-edged scraper	1	
Total	7	6

Table 33: Different types of tools in the slope (n = 7) and spur (n = 6) assemblages

Terrace and summit assemblages

The terrace and summit assemblages are associated with five Aboriginal places (VAHR 7822-3784, VAHR 7822-3785, VAHR 7822-3786, VAHR 7822-3787, VAHR 7822-3789), which were identified by Chamberlain (2015). Over 300 artefacts are located on the terraces, however, as previously noted, a specific artefact count, complete catalogue and detailed technological information are unavailable for the two Aboriginal places where most of the artefacts were identified (VAHR 7822-3784, VAHR 7822-3786). According to Chamberlain (2015:30-31), each of these Aboriginal places contains over 150 artefacts mostly made on silcrete, as well as quartzite (VAHR 7822-3784), or quartzite and basalt (VAHR 7822-3786).

Of the two remaining artefacts associated with the terraces, one is a silcrete whole flake (VAHR 7822-3785), and the other a silcrete elouera (VAHR 7822-3787).

Only one artefact, a quartzite whole flake, is located on the summit (VAHR 7822-3789).

Discussion and conclusion

The activity area contains four newly recorded Aboriginal places (VAHR 7822-3876, VAHR 7822-3875, VAHR 7822-3881 and VAHR 7822-3882) and eight existing Aboriginal places (VAHR 7822-3784, VAHR 7822-3785, VAHR 7822-3786, VAHR 7822-3787, VAHR 7822-3788, VAHR 7822-3789, VAHR 7822-3790 and VAHR 7822-3794). These were identified on a range of landforms, including an escarpment, spur and summit, in addition to slopes and terraces.

Composition and characteristics of the slope and spur assemblages

The slope and spur assemblages, which comprise 132 and 95 artefacts respectively, are characterised by a:

- profusion of artefacts identified in a surface context;
- low average artefact density, which is less pronounced on the spur;
- relative abundance of silcrete artefacts, with significantly higher proportions of silcrete artefacts (slopes), or quartz artefacts (spur);
- comparably high proportion of artefacts with smooth or rough cortex (slopes), or smooth cortex (spur);
- paucity of cortical artefacts, most of which have small amounts of cortex (slopes), or more substantial traces of cortex (spur);
- virtual absence of microdebitage, and the absence of any significant size differences between artefacts deriving from each landform;
- relatively high proportion of debitage, and comparatively more angular fragments (slope), or whole flakes (spur);
- greater proportion of flakes with plain platforms;
- relative abundance of flakes with hinge terminations (slopes), or feather terminations (spur);
- large number of flakes with many dorsal flake scars (slopes), or fewer dorsal flake scars (spur);
- relative preponderance of flakes detached from cores flaked in a single direction;
- higher proportion of cores struck in multiple directions, particularly in the spur assemblage;
- variety of different types of core blanks, especially in the spur assemblage; and
- range of informal and formal tool types.

Stone-working activities on the slopes and spur

The features of the slope and spur assemblages suggest similarities, but also some pronounced differences, between the stone-working activities carried out on each landform. It is likely that the differences reflect greater exploitation of pebbles and cobbles from Jacksons Creek on the spur.

Virtually all of the material in the slope and spur assemblages was produced using direct, hard-hammer percussion. Some material was occasionally reduced on an anvil, and there are two instances in the slope assemblage where the edges of tools were ground, rather than chipped.

The relatively large proportion of non-cortical artefacts in each assemblage suggest that most material was transported to the slopes and spur in relatively prepared form – or else, was knapped extensively once conveyed to these landforms. The occurrence of artefacts in both assemblages with large amounts of cortex suggests that early-stage core reduction did in fact occur on each landform. However, a greater proportion of artefacts in the spur assemblage were produced during this stage of the reduction sequence. A similar proportion of cortex-bearing material in the slope assemblage came from primary and secondary geological sources, whereas material from secondary geological contexts (probably Jacksons Creek) was transported to the spur more frequently.

Although the proportion of debitage is relatively high in each assemblage, the near absence of microdebitage raises questions about how much stone-knapping actually occurred on slopes and the spur. It is also possible, however, that post-depositional processes, survey visibility, and field recovery methods have contributed to this phenomenon. The presence of groups of artefacts struck from the same piece of material, and sets of refitting stone artefacts, would help to clarify this further.

The predominance of flakes with many flake scars in the slope assemblage contrasts with the relatively high proportion of flakes with fewer flake scars in the spur assemblage. One potential explanation for this is that material was more heavily worked on slopes compared to the spur. This interpretation is consistent with greater evidence for early-stage core reduction in the spur assemblage.

The presence of tools with retouch and macroscopic edge damage suggests that stone-working activities extended beyond the preparation of raw material to the manufacture of tool blanks and tools. It also raises the possibility that tools were used on slopes and the spur.

Impact of post-depositional processes on the slope and spur assemblages

The scarcity of microdebitage in the slope and spur assemblages indicates that a substantial component of each assemblage is missing. As discussed previously, this may be due to post-depositional processes removing parts of these assemblages, but could also be due to survey visibility, or the use of ≤ 5 mm sieves during excavations.

Assemblages identified on the terraces and summit

Over 300 artefacts are located on the terraces, most of which were manufactured on silcrete, followed by quartzite and occasionally basalt. However, no specific artefact count, complete catalogue or detailed description of these artefacts is available in Chamberlain's (2015) report or via ACHRIS.

A single quartzite whole flake was identified on the summit.

Comparison with assemblages in the geographic region

The Desktop Assessment provided a summary of Aboriginal places located in the geographic region. Most of the artefacts identified in the activity area (VAHR 7822-3876, VAHR 7822-3875, VAHR 7822-3881, VAHR 7822-3882, VAHR 7822-3784, VAHR 7822-3785, VAHR 7822-3786, VAHR 7822-3787, VAHR 7822-3788, VAHR 7822-3789, VAHR 7822-3790, VAHR 7822-3794) were located within 200m of Jacksons Creek, on terraces, and a considerable portion were situated on slopes overlooking the creek. This is consistent with the locations of other stone artefact assemblages identified in the vicinity.

Silcrete artefacts dominate the stone artefact assemblages identified during previous archaeological investigations, as they do in the activity area. Other materials discerned in the broader region and activity area include quartzite, quartz and basalt. A number of stone artefact assemblages identified previously contain chert artefacts, however none were recovered from VAHR 7822-3876, VAHR 7822-3875, VAHR 7822-3881, VAHR 7822-3882, VAHR 7822-3784, VAHR 7822-3785, VAHR 7822-3786, VAHR 7822-3787, VAHR 7822-3788, VAHR 7822-3789, VAHR 7822-3790, VAHR 7822-3794).

The absence of detailed technological information generated during previous archaeological investigations makes it difficult to draw further comparisons between the artefacts identified at VAHR 7822-3876, VAHR 7822-3875, VAHR 7822-3881, VAHR 7822-3882, VAHR 7822-3784, VAHR 7822-3785, VAHR 7822-3786, VAHR 7822-3787, VAHR 7822-3788, VAHR 7822-3789, VAHR 7822-3790, VAHR 7822-3794 and in the broader region.

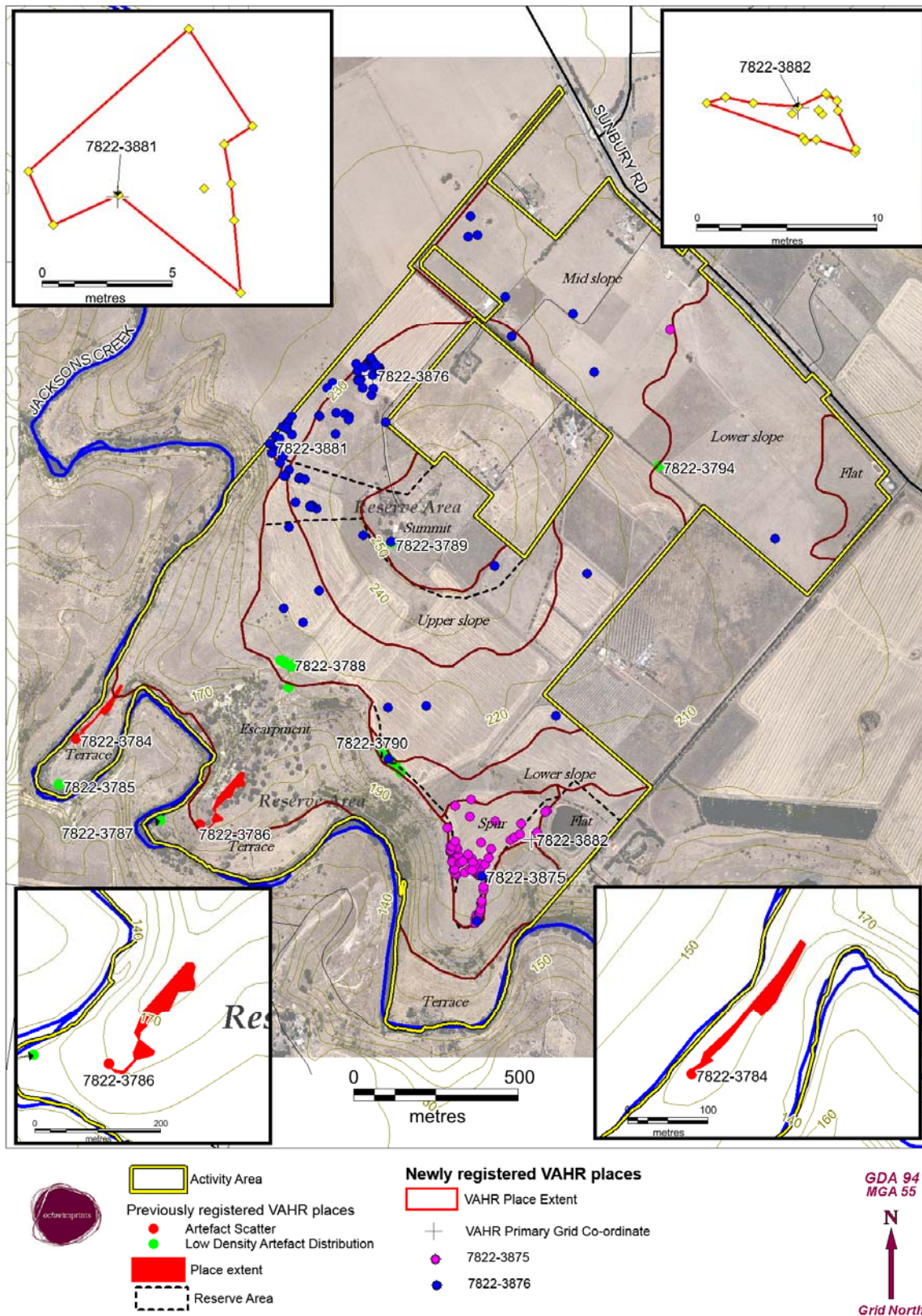


Figure 23: Location of Aboriginal places within the activity area

5.4 INFORMATION PROVIDED BY RAP OR OTHER PERSONS

For all discussions held with Wurundjeri, the RAP for this area, please refer to Section 1.5.

At the time of submission of this CHMP for evaluation, no additional cultural information was provided by any other groups and/or people.

5.5 SIGNIFICANCE OF ABORIGINAL PLACES

The significance of Aboriginal cultural heritage in the activity area is described within a framework provided by 'The Burra Charter' (Australia ICOMOS Burra Charter 2013), which defines aesthetic, historic, scientific, social and spiritual values. A general statement of the significance for each value is presented below. This is based on the results of the field assessments undertaken as part of this CHMP.

Aesthetic values: while the aesthetic value of the activity area has been altered by European land use practices it is likely to retain some important aesthetic values to Aboriginal people.

Historic values: The activity area is important as a place which has evidence of Aboriginal occupation and where aspects of Aboriginal people's association with the area have been clearly demonstrated.

Scientific values: Bowdler (1984) developed a method for the assessment of scientific significance through ranking the contents, condition, and representativeness of individual Aboriginal places. The results of the scientific significance assessment are presented in Table 34. The significance determination may change on the basis of future research and analysis.

VAHR No.	Place Type	Place Contents	Place Condition	Representativeness	Scientific Significance
7822-3784 Redstone Hill 1	Artefact Scatter	2	2	1	5 (Moderate)
7822-3785 Redstone Hill 2	LDAD	1	1	1	3 (Low)
7822-3786 Redstone Hill 3	Artefact Scatter	2	2	1	5 (Moderate)
7822-3787 Redstone Hill 4	LDAD	1	2	1	4 (Low)
7822-3788 Redstone Hill 5	LDAD	1	1	1	3 (Low)
7822-3789 Redstone Hill 6	LDAD	1	1	1	3 (Low)
7822-3790 Redstone Hill 7	LDAD	1	1	1	3 (Low)
7822-3794 Redstone Hill 8	LDAD	1	1	1	3 (Low)
7822-3876 Redstone Hill 9	LDAD	2	1	2	5 (Moderate)
7822-3875 Redstone Hill 9 Part 2	LDAD	2	1	2	5 (Moderate)
7822-3881 Redstone Hill 10	Artefact Scatter	2	1	1	4 (Low)
7822-3882 Redstone Hill 11	Artefact Scatter	2	1	1	4 (Low)

Key:

Place Contents: 0 – No remnant cultural material; 1 – Limited range and / or low number (e.g. 0-10 stone artefacts) of cultural material; 2 – Moderate range and/or density of cultural material; 3 – High density and diverse range of cultural material and/or presence of rare artefact types.

Place Condition: 0 – Place destroyed; 1 – Place displaced / eroded from original context; 2 – Place contains some remnant *in situ* or intact components (surface or subsurface); 3 – Place is predominantly *in-situ* or intact (surface or subsurface).

Representativeness: 1 – Common occurrence; 2 – Occasional occurrence; 3 - Rare occurrence.

Scientific Significance: 1-4 Low; 5-7 Moderate; 8-9 High.

Table 34: Scientific significance of Aboriginal places in the activity area

VAHR 7822-3784 was rated as having moderate scientific significance based on the diverse range of cultural material present and the likelihood for intact or *in situ* components of the Aboriginal place to exist.

VAHR 7822-3785 was rated as having low scientific significance based on the limited range and low number of stone artefacts present and the common occurrence of this type of Aboriginal place in the region.

VAHR 7822-3786 was rated as having moderate scientific significance based on the diverse range of cultural material present and the likelihood for intact or *in situ* components of the Aboriginal place to exist.

VAHR 7822-3787 was rated as having low scientific significance based on the diverse range of cultural material present and the common occurrence of this type of Aboriginal place in the region.

VAHR 7822-3788 was rated as having low scientific significance based on the limited range and low number of stone artefacts present, the apparent displacement of cultural material from its original context and the common occurrence of this type of Aboriginal place in the region.

VAHR 7822-3789 was rated as having low scientific significance based on the limited range and low number of stone artefacts present, the apparent displacement of cultural material from its original context and the common occurrence of this type of Aboriginal place in the region.

VAHR 7822-3790 was rated as having low scientific significance based on the limited range and low number of stone artefacts present, the apparent displacement of cultural material from its original context and the common occurrence of this type of Aboriginal place in the region.

VAHR 7822-3794 was rated as having low scientific significance based on the limited range and low number of stone artefacts present, the apparent displacement of cultural material from its original context and the common occurrence of this type of Aboriginal place in the region.

VAHR 7822-3876 was rated as having moderate scientific significance based on the diverse range of cultural material present, a moderate number of artefacts over an extended area and the common occurrence of this type of Aboriginal place in the region.

VAHR 7822-3875 was rated as having moderate scientific significance based on the diverse range of cultural material present, a moderate number of artefacts over an extended area and the common occurrence of this type of Aboriginal place in the region.

VAHR 7822-3881 was rated as having low scientific significance based on the limited range and low number of stone artefacts, the apparent displacement of cultural material from its original context and the common occurrence of this type of Aboriginal place in the region.

VAHR 7822-3882 was rated as having low scientific significance based on the limited range and low number of stone artefacts, the apparent displacement of cultural material from its original context and the common occurrence of this type of Aboriginal place in the region.

Social values: Landforms in the activity area and associated flora and fauna resources may have value to Aboriginal people.

Spiritual values: Aboriginal people continue to have spiritual connections to their country and Aboriginal places that occur within it.

5.6 ARCHAEOLOGICAL SENSITIVITY OF THE ACTIVITY AREA

Archaeological places frequently consist of buried deposits of material which is not visible on the ground surface due to a range of factors (such as sedimentation, vegetation cover, etc.). It is usually not possible to identify every archaeological place within a given area due to these factors, or because the size of an area is too large to survey fully. Most heritage impact assessments rely on predictive modelling to define areas of archaeological sensitivity.

An area of Aboriginal archaeological sensitivity potentially contains Aboriginal cultural heritage. Areas of archaeological sensitivity are rated from low to high, depending on the relative probability that archaeological deposits will be present. The known registered Aboriginal place distribution and the types of landforms present influence the end rating. The conditions that *generally* apply for each rating level that is used in the report are described below, though it is stressed that other factors may come into play depending on the individual area.²⁹

Low: No registered Aboriginal places are present or Aboriginal places are confined to single stone artefacts or Low Density Artefact Distributions (LDAD). Landforms in the activity area are not known to be associated with Aboriginal places (aside from isolated stone artefacts) in the wider region.

Moderate: No registered Aboriginal places or registered Aboriginal places of low-moderate significance are present. Landforms in the activity area are known to be associated with Aboriginal places in the wider region.

²⁹ For instance, an area may contain registered Aboriginal scarred tree places, but the potential for any other places to occur in the area may be non-existent due to the absence of further mature trees.

High: No registered Aboriginal places or registered Aboriginal places of moderate to high significance are present. Landforms in the activity area are known to be associated with significant Aboriginal places in the wider region.

Landforms of High Archaeological Sensitivity

On the basis of the CHMP investigation, the **terrace landform** (which is located outside of the development footprint, refer Figure 24) is considered to be an area of high sensitivity. Aboriginal places VAHR 7822-3784, 7822-3785, 7822-3786 and 7822-3787 are located within this landform, and a number of Aboriginal places within the wider region are recorded within the alluvial floodplains of Jacksons Creek, or within 200 m of the creek line. With the exception of some land clearance and post contact activities, the terrace landform is considered to be relatively undisturbed. However, as this landform is located outside of the proposed development footprint for this CHMP, it was not subject to survey or subsurface testing. There is a high probability that additional archaeological deposits will be present in this landform, in both a surface and subsurface context.

Predicted archaeological site types within the terrace landform include

- Large stone artefact scatters;
- Freshwater shell middens;
- Hearths;
- Scarred trees; and
- Burials.

Landforms of Moderate Archaeological Sensitivity

The **escarpment, spur and slopes of Redstone Hill immediately adjacent to the escarpment** are all considered to be areas of moderate Aboriginal archaeological sensitivity (refer Figure 24). These landforms are generally within c. 500 m of Jacksons Creek and contain two artefact scatters (VAHR 7822-3881 and 7822-3882), two LDADs (VAHR 7822-3788 and 7822-3790) and a majority of the artefacts that form VAHR 7822-3876 and 7822-3875 (both also LDADs). In the wider region, most Aboriginal places are recorded within similar landforms, particularly when associated with spurs or slopes overlooking the creek. These landforms have been subjected to minimal ploughing, cropping and agricultural activities when compared to the broader slopes of Redstone Hill and surrounds. With the exception of the escarpment landform (which sits outside of the proposed development footprint and was therefore not subject to survey or subsurface testing), the Complex Assessment stage of this CHMP determined that the underlying stratigraphy of these landforms is composed of very shallow clayey silt, overlying clay at depths of c. 100 m. Stone artefact deposits associated with these landforms occur within the plough zone and are therefore not considered to be *in situ*.

Predicted archaeological site types within these landforms include:

- Stone artefact quarries (specifically within the escarpment);
- Stone artefact scatters; and
- Isolated stone artefacts.

The **summit of Redstone Hill**, which contains VAHR 7822-3789, has been determined to be of moderate sensitivity. Although this CHMP did not include a survey or subsurface testing of this landform (as it sits outside of the development footprint for this CHMP), it is still anticipated that this prominent feature within the Sunbury landscape was of cultural significance to the Wurundjeri and would, if investigated also contain a moderate level of archaeological sensitivity.

Landforms of Low Archaeological Sensitivity

The **upper southern slopes, eastern slopes and northern slopes of Redstone Hill** are considered to be areas of low archaeological sensitivity. These slopes contain VAHR 7822-3794 (an isolated artefact) and a small component of VAHR 7822 3876 (n=9) and VAHR 7822-3875 (n=1). These slopes are greater than 1 km from Jacksons Creek and are not known to be associated with Aboriginal places, aside from the occasional diffuse artefact scatters or LDADs. The subsurface testing of these landforms confirmed a similar stratigraphy to that of the lower slopes consisting of shallow clayey-silt overlying clay at depths of c. 100 m. Stone artefact deposits associated with these landforms occur within the plough zone and are therefore not considered to be *in situ*.

Predicted archaeological site types within these landforms include:

- Low density stone artefact scatters; and
- Isolated stone artefacts.

Overall, if unrecorded Aboriginal cultural heritage is present within the development footprint, it will most likely consist of low densities of surface stone artefacts (at a predicted average density of one artefact per 5,243.94 m²) and be associated with either VAHR 7822-3876 or 7822-3875.

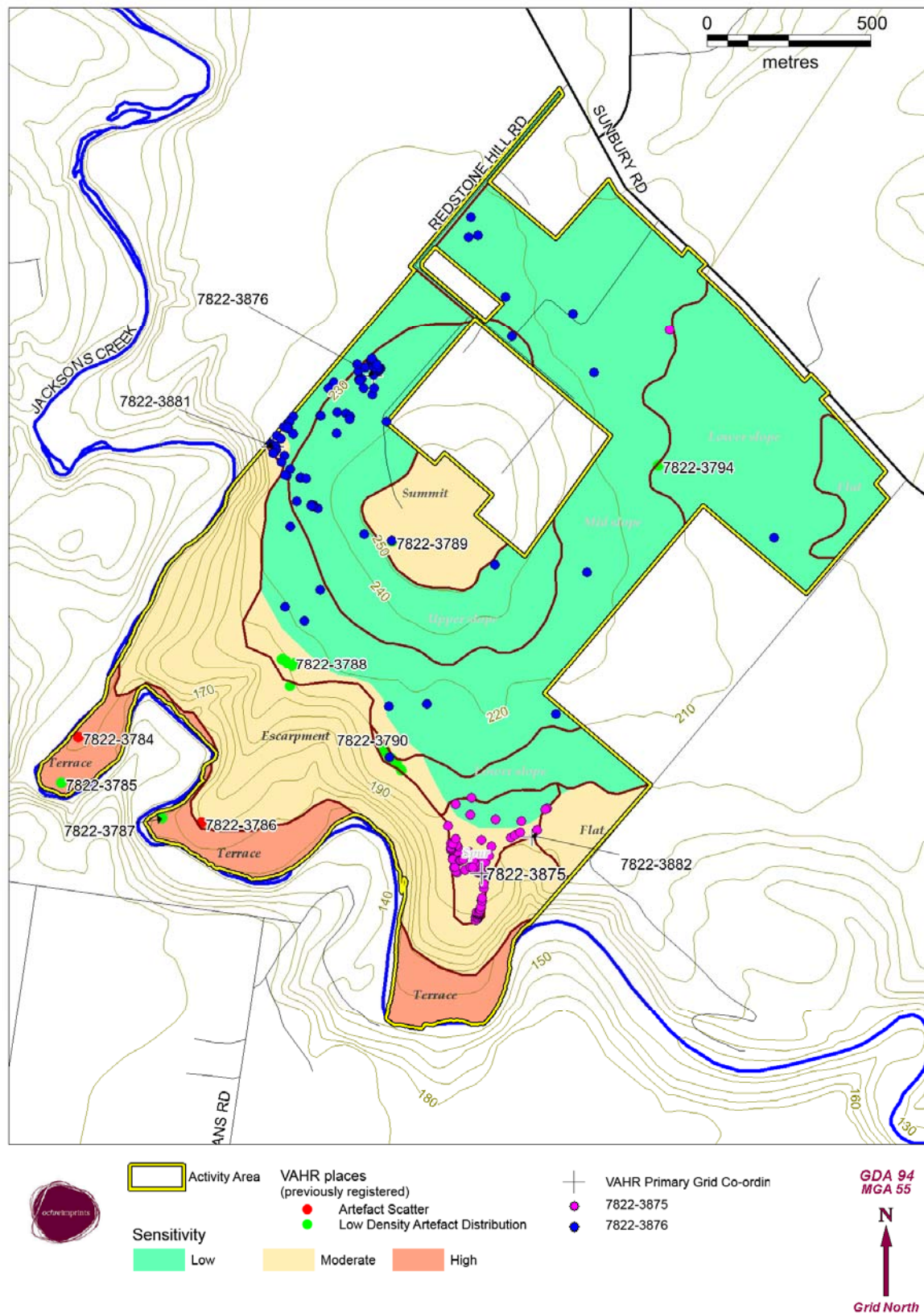


Figure 24: Archaeological sensitivity across the activity area

5.7 CONCLUSION

A total of 12 Aboriginal places are located in the activity area: eight previously registered Aboriginal places (two artefact scatters – VAHR 7822-3784 and 7822-3786, and six LDADs – VAHR 7822-3785, 7822-3787, 7822-3788, 7822-3789, 7822-3790 and 7822-3794); and four recorded during the preparation of this CHMP (two artefact scatters - VAHR 7822-3881 and 7822-3882, and two LDADs - VAHR 7822-3876 and 7822-3875³⁰).

These Aboriginal places are composed of:

- **VAHR 7822-3789**(an isolated surface artefact) located on the upper slope of Redstone Hill and is not located within the development footprint;
- **VAHR 7822-3788**(an LDAD) which contains ten surface artefacts located on the lower southern slopes of Redstone Hill c. 500 m north of Jacksons Creek. This LDAD is located partly outside of the development footprint with one surface artefact located within the southern reserve;
- **VAHR 7822-3790** (an LDAD) which contains 12 surface artefacts located on the lower southern slopes of Redstone Hill c. 500 m north of Jacksons Creek, and 500 m east of VAHR 7822-3788. Six out of twelve of these stone artefacts are located outside of the development footprint within the southern reserve;
- **VAHR 7822-3794**(an isolated surface artefact) located on the lower northern slopes of Redstone Hill (greater than 1 km north of Jacksons Creek). This Aboriginal place is located within the development footprint;
- **VAHR 7822-3784** (an artefact scatter) located on a flat to gently sloping terrace 200 m north of the floodplains of Jacksons Creek and is located outside of the development footprint. This Aboriginal place is composed of 150 surface stone artefacts at a density of one artefact per 8.8 m²;
- **VAHR 7822-3785** (an isolated surface artefact) located c. 50 - 100 m south of VAHR 7822-3784 on a flat to gently sloping terrace within 50 m to Jacksons Creek. This Aboriginal place is located outside of the development footprint;
- **VAHR 7822-3786** (an artefact scatter) is also located outside of the development footprint, on a flat to gently sloping terrace 100 m north of Jacksons Creek. The Aboriginal place is composed of 150 surface stone artefacts at a density of 1 artefact per 23.33 m². The scatter measures 10,500 m².
- **VAHR 7822-3787** (an isolated artefact) situated on a flat to gently sloping terrace 25 m north of the floodplains of Jacksons Creek. This isolated surface stone artefact is situated c.

³⁰ Due to administrative restrictions with the VAHR, the dispersed LDAD across the activity area was split into two LDADs, VAHR 7822-3876 and 7822-3875 (Redstone Hill 9 and Redstone Hill 9 Part 2, respectively).

150 m south west of VAHR 7822-3786. This Aboriginal place is located outside of the development footprint;

- **VAHR 7822-3876** (an LDAD) contains 99 stone artefacts (97 surface and two subsurface) dispersed across the slopes of Redstone Hill. A majority of this LDAD is located in close proximity (c. 200 m) to Jacksons Creek, specifically the slopes immediately south west of the Redstone Hill summit;
- **VAHR 7822-3875** (an LDAD and secondary component of VAHR 7822-3876) contains 79 surface artefacts dispersed across the slopes of Redstone Hill. A majority of this LDAD is located in close proximity (c. 200 m) to Jacksons Creek, specifically within the spur in the south eastern extent of the development footprint;
- **VAHR 7822-3881** (an artefact scatter) contains 10 surface artefacts on the mid to upper slopes west of Redstone Hill. The artefact scatter is located in close proximity (c. 200 m) to Jacksons Creek and is located outside of the development footprint; and
- **VAHR 7822-3882** (an artefact scatter) contains 17 surface artefacts on the spur located south east of the summit of Redstone Hill. The artefact scatter is located in close proximity (c. 200 m) to Jacksons Creek near an escarpment overlooking the terraces of Jacksons Creek. This Aboriginal place is located outside of the development footprint.

Silcrete artefacts dominate the stone artefact assemblages identified during previous archaeological investigations, as they do in the activity area. Other materials discerned in the broader region and activity area include quartzite, quartz and basalt. A number of stone artefact assemblages identified previously contain chert artefacts, however none were recovered from VAHR 7822-3876, VAHR 7822-3875, VAHR 7822-3881, VAHR 7822-3882, VAHR 7822-3784, VAHR 7822-3785, VAHR 7822-3786, VAHR 7822-3787, VAHR 7822-3788, VAHR 7822-3789, VAHR 7822-3790, VAHR 7822-3794).

6 CONSIDERATION OF SECTION 61 MATTERS

CHMPs are required to address matters raised in Section 61 of the *Aboriginal Heritage Act* 2006. These matters concern the management of Aboriginal cultural heritage prior to, during, and after the activity. A discussion of these matters is provided below. The matters raised in this section inform the management requirements presented in Section 7.

Section 61a whether the activity will be conducted in a way that avoids harm to Aboriginal cultural heritage

The activity will be conducted in a way that avoids harm to seven Aboriginal places which occur outside of the development footprint: VAHR 7822-3784; VAHR 7822-3785; VAHR 7822-3786, VAHR 7822-3787; VAHR 7822-3789; VAHR 7822-3881 and VAHR 7822-3882.³¹

The activity cannot be conducted in a way that entirely avoids harm to the following five Aboriginal places due to the extensive spatial area covered by diffuse artefacts and the extent of the proposed activity over areas occupied by these Aboriginal places:

- VAHR 7822-3788, VAHR 7822-3790 and VAHR 7822-3786 and VAHR 7822-3875 are LDADs that partly extend into the development footprint; and
- VAHR 7822-3794 is a single stone artefact which occurs entirely within the development footprint.

Section 61b if it does not appear to be possible to conduct the activity in a way that avoids harm to Aboriginal cultural heritage, whether the activity will be conducted in a way that minimises harm to Aboriginal cultural heritage

As identified above, the activity will be conducted in a way that avoids harm to seven Aboriginal places: VAHR 7822-3876; VAHR 7822-3875; VAHR 7822-3786, VAHR 7822-3787; VAHR 7822-3789; VAHR 7822-3881 and VAHR 7822-3882. This discussion is limited to those Aboriginal places that will be harmed by the activity, which includes five Aboriginal places as detailed below. Minor adjustments have been made in the planning stages to the development footprint to avoid locations where artefacts have been identified in association with the following registered Aboriginal places:

- VAHR 7822-3788 - 1 of 10 stone artefacts associated with this LDAD occur outside the development footprint;
- VAHR 7822-3790 - 6 of 12 stone artefacts associated with this LDAD occur outside the development footprint;

³¹ Changes have been made to the layout of the development footprint to avoid harm to several of these Aboriginal places (i.e. VAHR 7822-3881 and 7822-3882).

- VAHR 7822-3876- 24 of 99 stone artefacts associated with this LDAD occur outside the development footprint; and
- VAHR 7822-3875 - 40 of 79 stone artefacts associated with this LDAD occur outside the development footprint.

The activity cannot be conducted in a way that minimises harm to VAHR 7822-3794, a single stone artefact, which occurs entirely within the development footprint.

Section 61c any specific measures required for the management of Aboriginal cultural heritage likely to be affected by the activity, both during and after the activity

Specific measures are required to avoid and mitigate impacts to Aboriginal cultural heritage. These measures are required prior to and at the conclusion of the activity and involve the:

- Installation of temporary fencing around VAHR 7822-3881, VAHR 7822-3882 and VAHR 7822-3789 prior to the activity proceeding. The fencing is required to limit inadvertent disturbance to these Aboriginal places during construction;
- installation of temporary fencing around parts of VAHR 7822-3788, VAHR 7822-3790, VAHR 7822-3876 and VAHR 7822-3875 prior to the activity proceeding³²;
- salvage of surface artefacts at VAHR 7822-3794 prior to the activity proceeding;
- salvage of surface artefacts from the components of VAHR 7822-3788, VAHR 7822-3790, VAHR 7822-3876 and VAHR 7822-3875 that will be impacted by the activity, prior to the activity proceeding;
- removal of temporary fencing at the conclusion of the activity; and
- relocation / burial of Aboriginal cultural heritage collected during the CHMP field work and salvage program into a suitable location of open space.

Section 61d any contingency plans required in relation to disputes, delays and other obstacles that may affect the conduct of the activity

Processes to be followed in relation to disputes, delays and other obstacles are outlined in the management requirements (Section 7.3). Procedures are also outlined below for other factors that may affect the conduct of the activity, such as contingency measures to deal with the discovery of previously unidentified Aboriginal cultural heritage and suspected human remains.

³² Note that fencing is not considered necessary around VAHR 7822-3784; VAHR 7822-3785; VAHR 7822-3786 and VAHR 7822-3787 as they are located >500 m from the development footprint in locations that are inaccessible to construction vehicles and equipment.

Section 61e requirements relating to the custody and management of Aboriginal cultural heritage during the course of the activity

The custody and management of Aboriginal cultural heritage that may be uncovered during the activity is addressed in Section 7.3.

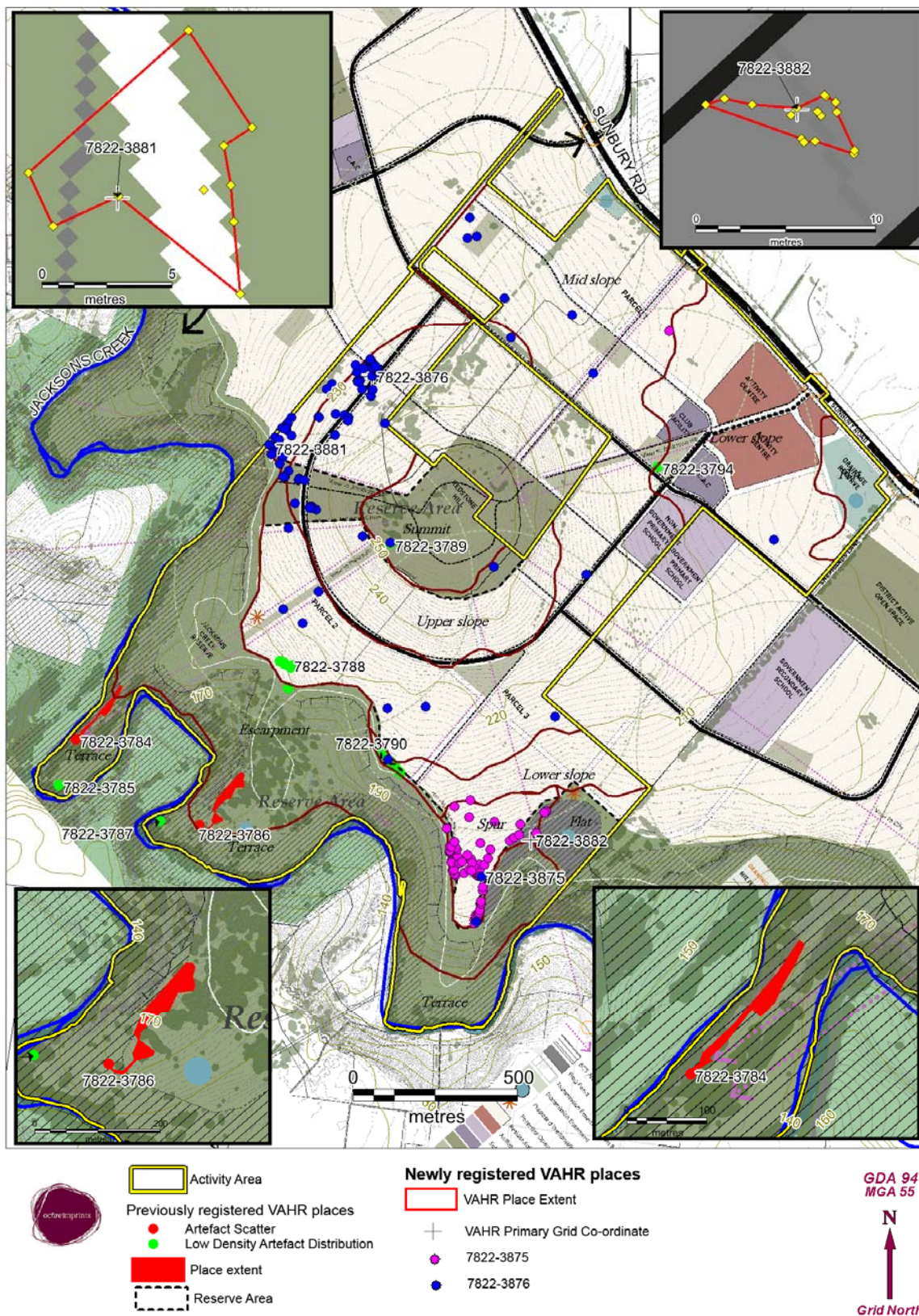


Figure 25: Map showing location of VAHR places in relation to the proposed development

PART 2 – CULTURAL HERITAGE MANAGEMENT RECOMMENDATIONS

7 CULTURAL HERITAGE MANAGEMENT

7.1 INTRODUCTION

This section presents measures for managing Aboriginal cultural heritage, prior to, during and after the proposed activity. A total of 14 management requirements (MR) are presented here, and these must be adhered to in order to ensure compliance with the *Aboriginal Heritage Act* 2006. Specific management recommendations are presented below.

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

7.2 SPECIFIC CULTURAL HERITAGE MANAGEMENT REQUIREMENTS

MR1: Fencing Requirements for VAHR 7822-3876, 7822-3875, 7822-3788, 7822-3790, 7822-3881, 7822-3882 and 7822-3789

Part of VAHR 7822-3876, 7822-3875, 7822-3788, 7822-3790 and all of VAHR 7822-3881, 7822-3882 and 7822-3789 must be protected from harm.

The following management recommendations must be followed in order to minimise harm:

- 1) temporary fencing (a minimum of star pickets and fluorescent webbing) must be erected around part of VAHR 7822-3876, 7822-3875, 7822-3788, 7822-3790 located outside of the development footprint and all of VAHR 7822-3881, 7822-3882 and VAHR 7822-3789 as specified in Figure 26 and provided to the Sponsor as spatial data, once works commence within 100 m of any of these Aboriginal places (unless the areas are otherwise inaccessible, to the satisfaction of the WTLCHC);
- 2) a CHA and RAP representative must supervise the placement of fencing;
- 3) during the course of the activity, no machine/vehicle access or ground disturbing works are allowed within the fenced areas;
- 4) at the completion of the activity, the fencing may be removed; and
- 5) ongoing management specifications for works within the protected areas after the completion of the activity are outlined in MR3.

MR2: Salvage Program for part of VAHR 7822-3788, 7822-3790, 7822-3876, 7822-3875 and all of 7822-3794

This CHMP allows harm to the following Aboriginal places by the activity:

- part of VAHR 7822-3788;
- part of VAHR 7822-3790;
- part of VAHR 7822-3876;
- part of VAHR 7822-3875; and
- all of VAHR 7822-3794.

The following salvage program must take place for those components of these Aboriginal places that will be impacted by the activity.

Salvage Program

- i. Prior to the commencement of the activity, a qualified archaeologist and two RAP representatives must undertake an archaeological salvage program in the form of a surface artefact collection of visible surface artefacts associated with those components of the above Aboriginal places that will be impacted by the activity. Note that artefacts identified in a subsurface context at VAHR 7822-3786 have already been collected.
- ii. The program must utilise the following methodology:
 - The location of the surface artefacts must be re-visited using a dGPS and, if the artefacts can be re-identified, they must be collected;
 - If the artefacts cannot be re-identified at their recorded location, a search must be made within a 10 m radius of that location, in case they have been displaced by agricultural activities undertaken since their identification;
 - If the artefacts are unable to be re-identified within a 10 m radius of the recorded dGPS location *and* ground surface visibility is less than 80% during the salvage, then an area measuring 2 x 2 m from the dGPS co-ordinate for that Aboriginal place must be de-turfed and 100% of soils sieved³³, and
 - The salvaged surface artefacts must be bagged at a minimum of a single bag for each Aboriginal place.
- iii. The salvaged artefacts must be relocated to the nearest reserve within the activity area following salvage. Stone artefacts will be placed in an appropriately labelled container (as determined by the RAP), and reburied within areas greater than 50 m outside of

³³ Should the surface stone artefacts not be relocated following de-turfment and sieving of associated soils, then it is presumed that the stone artefact is no longer at this location, and no further salvage works are required.

the development footprint as indicated in Figure 25. If immediate reburial is not possible, these salvaged stone artefacts will be managed as outlined in MR8 and reburied at a later stage as advised by the Sponsor. It is the Sponsor's responsibility to contact the RAP to advise when reburial can occur.

- iv. The CHA must notify OAAV in relation to the location of any salvaged cultural material.

MR3: Ongoing Management Specifications for VAHR 7822-3876, 7822-3875, 7822-3881, 7822-3882, 7822-3794, 7822-3789, 7822-3788, 7822-3790, 7822-3784, 7822-3785, 7822-3787 and 7822-3786

After the completion of the activity and when the Sponsor no longer has management responsibility for the areas outside of the development footprint, the Sponsor must provide the new manager/owner with this list of ongoing management recommendations:

- no harm is permitted to any registered Aboriginal places without a Cultural Heritage Permit or CHMP;
- a CHMP will be required for any High Impact Activities (as defined under the Aboriginal Heritage Regulations 2007, Division 5) in areas of Cultural Heritage Sensitivity (as defined under Division 3);
- it is recommended that a risk assessment be undertaken for any proposed ground disturbing works; and
- the involvement of WTLCHC in the future management of open space outside of the development footprint is strongly recommended.

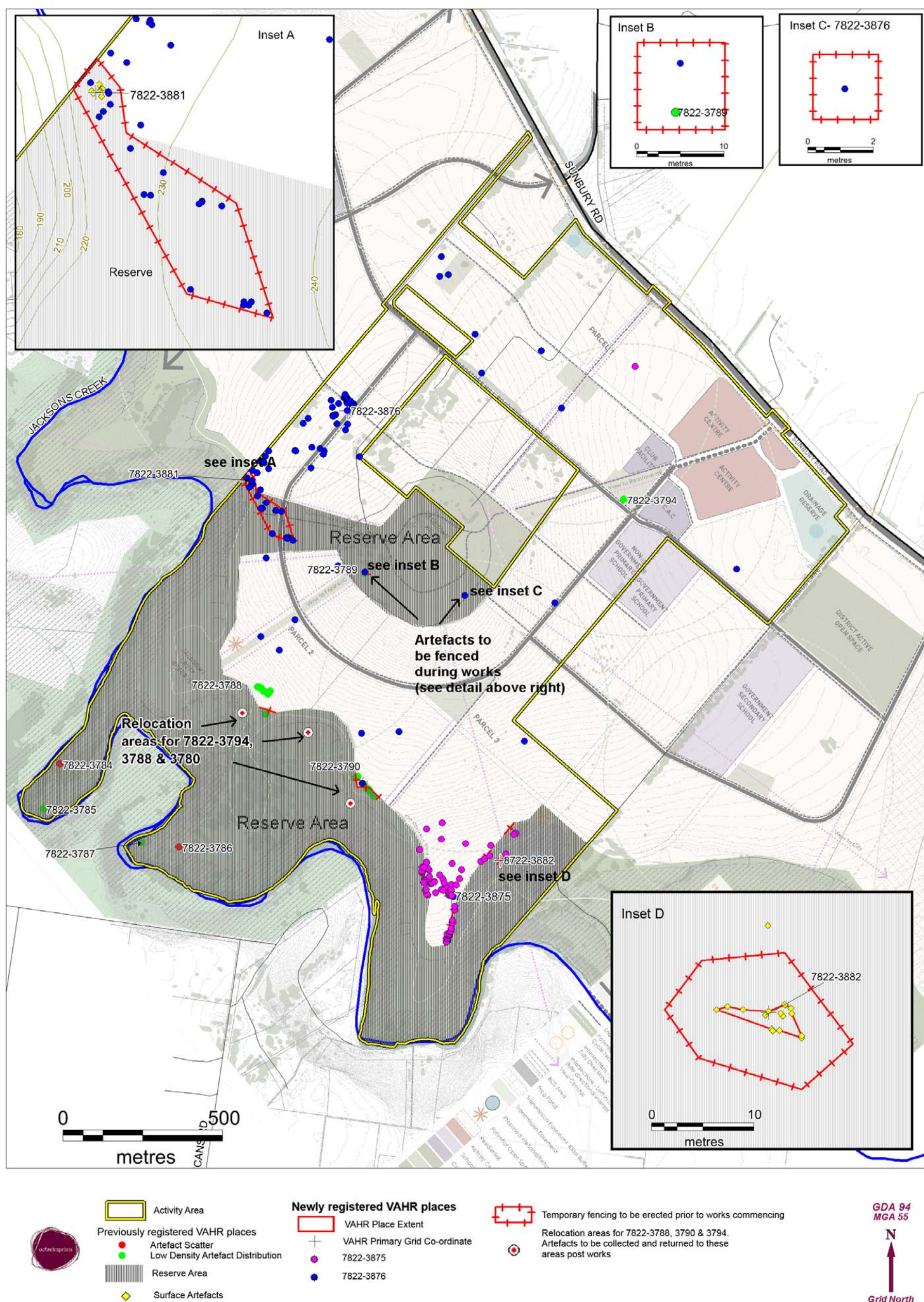


Figure 26: Site specific management requirements

7.3 CONTINGENCY PLANS AND OTHER MATTERS

The following management requirements address contingencies in the event that Aboriginal cultural heritage is uncovered in the activity area, and other matters.

MR4: Cultural Heritage Induction

The principal contractors involved in undertaking ground disturbing works in the activity area must participate in a cultural heritage induction prior to the initiation of the activity. This must be conducted by representatives of the RAP, at the cost of the Sponsor. This may be undertaken on the day that site works commence and can take the form of a toolbox meeting. The RAP must be contacted directly to organise the timing, content and duration of this induction, and must be given a minimum of 2 weeks' notice. RAP contact details are provided in MR12. In the event that the principal contractors are changed, additional cultural heritage inductions must be undertaken.

MR5: Status and Distribution of CHMP

This approved CHMP is a legally binding document. Copies of the approved CHMP must be distributed to the following parties:

- Secretary, Department of Premier and Cabinet (DPC) (s.64(1)(b));
- RAP;
- All owners/managers of land encompassed by the activity area; and
- A copy of the CHMP must be kept on site during the construction activity.

MR6: Discovery of Unexpected Aboriginal Cultural Heritage

If suspected Aboriginal cultural heritage is identified the following process applies:

Isolation to Protect Cultural Heritage

- a) Relevant works within 5 m of the discovery must be suspended immediately and the place extent must be isolated from further disturbance by safety webbing or other suitable above ground barriers/temporary fencing (i.e. no subsurface component). The cultural material must not be removed.

Notification and Inspection

- b) The Site Supervisor must be notified immediately and a Cultural Heritage Advisor (CHA) and the RAP must be notified within two working days of the discovery.
- c) A CHA and RAP representative will inspect the site within an agreed timeframe of being notified.

- d) During this inspection an appropriate course of action for the investigation and management of any Aboriginal cultural heritage will be discussed and agreed to.
- e) Agreement regarding the process to be followed to manage the Aboriginal cultural heritage and how to proceed with works must be made in writing within a period not exceeding three working days from the on-site meeting by a RAP representative, the CHA and the Sponsor.

Investigation of Unexpected Cultural Heritage

- f) The CHA, in consultation with the RAP and Sponsor, shall determine the most appropriate course of action to investigate the nature of the cultural heritage. This should include establishing the nature and extent of the cultural heritage through the application of minimally intrusive archaeological techniques such as surface survey, cleaning back exposed sections and auguring.
- g) If, during the initial inspection and investigation, the Aboriginal cultural heritage is determined to be:
 - 1) Not part of a previously identified and recorded Aboriginal place where existing management recommendations apply;
 - 2) Of archaeological/scientific significance (e.g. it is an intact cultural deposit); and/or,
 - 3) Of cultural significance to the RAP;

Then *protection, impact mitigation* or *salvage* measures may be required.

- h) Options for the implementation of *protection, impact mitigation* or *salvage* measures must:
 - 1) Be explored by the CHA in consultation with the RAP and the Sponsor; and,
 - 2) Consider the application of the General Principles outlined below.

General Principles to apply upon discovery of unexpected significant cultural heritage:

- a) ***Investigation of cultural heritage*** - further investigation may be required to confirm the nature and extent of the cultural heritage.
- b) ***Protection of cultural heritage*** - all attempts must be made to protect the significant cultural heritage from being disturbed further by the activity. This must include written agreement on:
 - 1) Management of the cultural heritage during the activity (e.g. with the installation of fencing to prevent disturbance);

- 2) Management of the cultural heritage during the site remediation works at the end of the activity.
- c) **Impact mitigation** - If protection of the cultural heritage place is not possible then consideration must be given to reducing the impact of the activity through the introduction of harm mitigation measures e.g. limiting impact on the cultural heritage so that a portion remains unaffected by the activity.
- d) **Salvage of cultural material and information** - If the cultural heritage cannot be protected then salvage of all or part of the Aboriginal place may be required prior to the activity resuming and the impact to cultural heritage proceeding. The following parameters must be considered during the salvage process:

For Surface Cultural Heritage

- a) Recording spatial characteristics (e.g. Differential GPS records of artefact locations, mapping the place boundary, drawing detailed plans of place extent and features);
- b) Documenting fabric/raw materials (e.g. earth feature, silcrete quarry; shell types in shell midden);
- c) Creating a photographic record;
- d) Collecting cultural heritage.

For Subsurface Cultural Heritage

- a) Controlled excavation of cultural deposits; and,
- b) Salvage excavation must be carried out in accordance with proper archaeological practice and standards, and an archaeological report detailing the methods, analysis and results of the excavation must be prepared.

If appropriate material suitable for radiometric dating or residue and use wear analysis is retrieved (i.e. *in situ* organic material associated with cultural material and *in situ* cultural material respectively) then this material will be subject to these procedures. The cost of this process will be borne by the Sponsor.

Works Proceeding

- a) The CHA (with the approval of the RAP) will advise the Sponsor's representative when suspended construction works can proceed.
- b) In general, works may recommence:
 - 1) When the appropriate protective measures have been taken;
 - 2) Where the relevant Aboriginal cultural heritage records have been updated and/or completed;

- 3) Where all parties agree there is no prudent or feasible course of action; or
- 4) Once any existing dispute has been resolved.

Notification to OAAV

The Office of Aboriginal Affairs Victoria (OAAV) will be notified about the Aboriginal place via the submission of the appropriate Victorian Aboriginal Heritage Registry forms;

If a salvage excavation has been conducted, the report must be submitted to OAAV.

MR7: Unexpected Discovery of Human Remains

If any suspected human remains are found during any activity, works must cease. The Victoria Police and the State Coroner's Office must be notified immediately.

If there are reasonable grounds to believe that the remains are Aboriginal, the State Control Centre must be contacted immediately on 1300 888 544.

This advice has been developed by the OAAV and is described in the following five step contingency plan. Any such discovery at the activity area must follow these steps.

1. Discovery:

- If suspected human remains are discovered, all activity in the vicinity must stop to ensure minimal damage is caused to the remains; and,
- The remains must be left in place, and protected from harm or damage.

2. Notification:

- Once suspected human skeletal remains have been found, the Coroner's Office and the Victoria Police must be notified immediately;
- If there are reasonable grounds to believe that the remains could be Aboriginal, the State Control Centre must be immediately notified on 1300 888 544;
- All details of the location and nature of the human remains must be provided to the relevant authorities; and,
- If it is confirmed by these authorities that the discovered remains are Aboriginal skeletal remains, the person responsible for the activity must report the existence of the human remains to the Secretary, DPC in accordance with s.17 of the *Aboriginal Heritage Act* 2006.

3. Impact Mitigation or Salvage:

- The Secretary, after taking reasonable steps to consult with any Aboriginal person or body with an interest in the Aboriginal human remains, will determine the appropriate course of action as required by s.18(2)(b) of the Act; and,
- An appropriate impact mitigation or salvage strategy as determined by the Secretary must be implemented (this will depend on the circumstances in which the remains were found, the number of burials found and the type of burials and the outcome of consultation with any Aboriginal person or body).

4. Curation and further analysis:

- The treatment of salvaged Aboriginal human remains must be in accordance with the direction of the Secretary.

5. Reburial:

- Any reburial place(s) must be fully documented by an experienced and qualified archaeologist, clearly marked and all details provided to OAAV;
- Appropriate management measures must be implemented to ensure that the remains are not disturbed in the future.

MR8: Custody and Management of Aboriginal Cultural Material

It is the responsibility of the CHA to ensure that all Aboriginal cultural heritage recovered from the activity area is documented, bagged and labelled. The OAAV will be advised of this through completion and submission of relevant VAHR forms to the Heritage Registrar, OAAV, by the CHA.

The RAP will be the caretaker of this material and require all collected Aboriginal cultural heritage to be relocated into areas outside of the development footprint (see MR2).

MR9: Safety

RAPs, the CHA or any other personnel involved in inspecting, recovering and documenting Aboriginal cultural heritage shall abide by the Site Supervisor's OH&S procedures and Victorian WorkSafe practice at all times. In addition:

- In any matters relating to OH&S, the Site Supervisor shall have the right to require any party to vacate the construction area and, if applicable, the area managed by the Sponsor.

- The Sponsor will at all times provide a safe working environment for RAP representatives, the CHA and any other personnel engaged in cultural heritage activities within the activity area.
- It is the responsibility of the RAP, the CHA or any other cultural heritage personnel to ensure they comply with Personal Protective Equipment requirements required by the Site Supervisor.

MR10: Future Changes to the Activity

Future changes to the activity can be made so long as they are

- confined to the development footprint assessed by this CHMP;
- are for the same activity; and
- do not result in greater harm to Aboriginal places as allowed by this CHMP.

If changes fall outside of these requirements then a new CHMP may be required.

MR11: Handling of Sensitive Information

Outside of publically available information and information presented in this CHMP, no Aboriginal cultural heritage information will be distributed without the approval of the RAP.

All Aboriginal place GPS co-ordinates must be removed from this CHMP prior to its distribution to all parties other than those listed in MR4.

MR12: Communication Between Parties

Notification of the following parties to the CHMP by the means as indicated is deemed to comply with the requirements for notice to be given under this CHMP.

Each party is to ensure that there is an electronic means of confirmation of notification. Telephone notification is to be confirmed by either fax or email within 12 hours of the telephone conversation.

The CHA will notify all parties of any change in RAP status that occurs prior to the completion of construction works.

Party to Agreement	Name of Delegate	Phone	Fax	Email
RAP	Alex Parmington/RAP Representative	(03) 8673 0901	(03) 9416 3095	rapofficer@wurundjeri.com.au
The Sponsor	Adam Davidson / Villawood Properties	(03) 9695 3000	(03) 9695 3001	adam@villawoodproperties.com
Site Supervisor	TBA	TBA	TBA	TBA
CHA	TBA	TBA	TBA	TBA

Table 35: Contact details

MR13: Dispute Resolution

Clause 13(1) Schedule 2 of the Regulations requires that the CHMP must contain a contingency plan for the resolution of any disputes between the Sponsor and relevant RAPs in relation to the implementation of an approved CHMP or the conduct of the activity. Disputes may occur at various stages during the activity. Procedures for dispute resolution aim to ensure that all parties are fully aware of their rights and obligations, that full and open communication between parties occurs, and those parties conduct themselves in good faith.

If a dispute arises that may affect the conduct of the activity, resolution between parties using the following Informal Dispute Resolution guidelines is recommended.

Informal Dispute Resolution

The following steps have been designed to guide the dispute resolution process:

- The party raising the dispute will complete a Dispute Notification Form (included below) and email or fax a copy to all parties listed in MR12.
- Project delegates (as listed in MR12) of each party (RAP and Sponsor) will attempt to negotiate a resolution to any dispute related to cultural heritage management of the activity area within two working days of written notice being received that a dispute between parties is deemed to exist.
- If the project delegates cannot reach an agreement, representatives of both parties will negotiate a resolution to an agreed schedule.
- If representatives of the relevant parties fail to reach an agreement, an independent mediator should be initially sought to assist in resolving the dispute.

- Both parties must agree upon a timeframe for the independent mediator.
- If an independent mediator cannot be agreed on, or fails to resolve the dispute within the allowed timeframe, the Victorian Aboriginal Heritage Council may be approached for their willingness to act in resolving the dispute.
- All disputes will be jointly investigated.
- Where a breach of a CHMP recommendation has been found to occur, the RAP and the Sponsor will agree to the best method of correction or remediation.
- Any correction or remedial activities required (e.g. repairing damage to an Aboriginal place) will be overseen by a RAP representative and will take place in accordance with their instruction and at the cost of the Sponsor.
- The RAP will use their best endeavours to minimise delays to work schedules while not compromising cultural places or values.
- Only issues directly relating to cultural heritage management will be handled through the dispute resolution mechanism.
- If it is deemed that a cultural heritage audit is the most appropriate method of addressing a breach, the CHA will contact OAAV regarding this process.
- If ordered by the Minister responsible for administering the *Aboriginal Heritage Act* 2006 a cultural heritage audit will be undertaken as per the requirements for such audits outlined in s.83-86 of the *Aboriginal Heritage Act* 2006.
- These arrangements do not preclude any legal recourse open to the parties being taken but the parties agree that the above avenues will be exhausted before such recourse is made.

DISPUTE RESOLUTION NOTIFICATION FORM**Cultural Heritage Plan No 13370****Relevant Party Raising the Dispute:**

Contact Person:

Date:

Nature of the dispute:**Proposed Meeting Time/Date and Place:****Relevant parties who have been sent (email or fax) this notification (tick box):**

Party to Agreement	Name of Delegate	Fax	Email	Contacted (✓)
RAP	RAP Representative	(03) 9416 3095	rapofficer@wurundjeri.com.au	
The Sponsor	Villawood Properties	(03) 9695 3001	adam@villawoodproperties.com	
Site Supervisor	TBA	TBA	TBA	
CHA	TBA	TBA	TBA	

Table 36: Dispute resolution notification form

MR14: Provision for Review – Compliance Checks

Compliance checks must be undertaken by the CHA, on behalf of the Sponsor, three times during the construction phase of the activity. These compliance checks will be initiated by the Sponsor, at the cost to the Sponsor. Two RAP representatives must be invited to participate in these compliance checks. The RAP must be given a minimum of 2 weeks' notice. Their contact details are provided in MR12.

The checklist provided in Table 37 will be used to review compliance with the CHMP. The CHA will submit a completed checklist to both the RAP and the Sponsor within 7 working days of the compliance check being undertaken.

CHMP Compliance Checklist

Management Measure	Yes/No	If No – Proposed Action to Remedy Non-Compliance
Has temporary fencing around VAHR 7822-3789, 7822-3881, 7822-3882 and the components of VAHR 7822-3876, 7822-3875, 7822-3788, 7822-3790 located outside of the development footprint been installed prior to the activity commencing in accordance with MR1?		
Has a surface salvage of the required components of VAHR 7822-3876, 7822-3875, VAHR 7822-3788, 7822-3790 and all of 7822-3794 been undertaken (MR2)?		
Are the ongoing management recommendations as per MR3 being followed?		
Has a Cultural Heritage Induction been undertaken in accordance with MR4?		
Is a copy of this CHMP being kept onsite (MR5)?		
Have copies of the approved CHMP been distributed according to MR5?		
Are Cultural Heritage Contingencies being adhered to (MR6 and MR7)?		
Do the custody arrangements of any Aboriginal cultural heritage follow the requirements of the CHMP (MR8)?		
Are the safety requirements being met (MR9)?		
If there are any changes to the layout or conduct of the activity do they occur within the area assessed during this CHMP (MR10)?		
Has the RAP been consulted prior to the distribution of any cultural heritage information as per MR11?		
Is communication between parties being undertaken as per MR12?		

Management Measure	Yes/No	If No – Proposed Action to Remedy Non-Compliance
In the event of a dispute has the dispute resolution process outlined in MR13 been followed?		
Have three compliance checks been undertaken (MR14)?		
If the review has identified any areas of non-compliance has a meeting taken place between the RAP, CHA and Sponsor to establish actions to address non-compliance (MR14)?		

Table 37: CHMP compliance check list

If the Project Delegate identifies any areas of non-compliance with the CHMP:

- A meeting will be required between the CHA, Sponsor and the RAP to establish actions to address non-compliance.
- This should be undertaken within 7 working days, or as soon as is practical, from the completion of the 'CHMP Compliance Checklist'.

It is noted that under Part 6 of the *Aboriginal Heritage Act* 2006 the Minister may order a cultural heritage audit if:

- The Sponsor of an approved CHMP has contravened, or is likely to contravene, the recommendations in the plans (s.81a); or,
- The impact on Aboriginal cultural heritage of an activity to which an approved CHMP applies will be greater than that determined at the time the plan was approved (s.81c).

Maximum penalties for breaching the *Aboriginal Heritage Act* 2006 are more than \$265,000 for an individual or more than \$1.4 million for a company.

MR15: Tendering for Salvage Works

The Sponsor is required to notify the RAP when / if salvage works go out to tender and the Sponsor will consider any fee proposal provided by the RAP.

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Plans

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APPENDIX 1: COPY OF 'NOTICE OF INTENT TO PREPARE A CHMP'



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

This form can be used by the Sponsor of a Cultural Heritage Management Plan to complete the notification provisions pursuant to s.54 of the *Aboriginal Heritage Act 2006* (the "Act").

For clarification on any of the following please contact Victorian Aboriginal Heritage Register (VAHR) enquiries on 1800-726-003.

SECTION 1 - Sponsor information

Sponsor: Villawood Properties
 ABN/ACN: 16 100 813 161
 Contact Name: Adam Davidson
 Postal Address: Level 1, 6 Riverside Quay, Southbank VIC 3006
 Business Number: 03 9695 3000 Mobile: 0488 092 683
 Email Address: adam@villawoodproperties.com

Sponsor's agent (if relevant)

Company: _____
 Contact Name: _____
 Postal Address: _____
 Business Number: _____ Mobile: _____
 Email Address: _____

SECTION 2 - Description of proposed activity and location

Project Name: Residential Subdivision, Redstone Hill, Sunbury
 Municipal district: Hume City Council

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

Subdivision _____

SECTION 3 - Cultural Heritage Advisor

Petra Schell	Ochre Imprints	petra@ochreimprints.com.au
<i>Name</i>	<i>Company</i>	<i>Email address</i>

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

Start Date: 16-Dec-2014 Finish Date: 16-Dec-2015

Submitted on: 16 Dec 2014



Department of **Planning
and Community Development**



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 as it is listed in the regulations?

Subdivision

Is any part of the activity an area of cultural heritage sensitivity, as listed in the regulations? Yes



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 is to be completed where there are registered Aboriginal parties in relation to the management plan.

Wurundjeri Tribe Land & Compensation Cultural Heritage Council Inc

SECTION 7 - Notification checklist

Ensure that any relevant registered Aboriginal party/s is also notified. A copy of this notice with a map attached 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 and any relevant registered Aboriginal party/s, 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 with a map attached may be used for this purpose.

Submitted on: 16 Dec 2014



18 December 2014
Wurundjeri Reference: WT0512

Adam Davidson
Villawood Properties
Level 1, 6 Riverside Quay
Southbank VIC 3006

Dear Adam,

CULTURAL HERITAGE MANAGEMENT PLAN: RESIDENTIAL SUBDIVISION, REDSTONE HILL, SUNBURY

I refer to your written notification to the Wurundjeri Tribe Land & Compensation Cultural Heritage Council, received 18 December 2014, of your intention to prepare a cultural heritage management plan for the above activity.

Your notification has been accepted and the Wurundjeri Council advises that it intends to evaluate this plan when complete. We also advise that during the preparation of this plan, the Wurundjeri Tribe Land & Compensation Cultural Heritage Council Inc. wishes to:

- Consult with you in relation to the assessment of the area for the purposes of the plan
- Participate in the conduct of the assessment
- Consult with the sponsor in relation to the recommendations to be included in the plan.

Please note that before any fieldwork program commences it will be necessary for your heritage advisor to participate in a Project Establishment Meeting at the Wurundjeri Council office to discuss the project. It is preferable for the project sponsor to attend the Project Establishment Meeting as well. As the Project Establishment Meeting provides an opportunity for all parties to clarify the aims of the CHMP and methodology for any fieldwork program, it is helpful if you and/or your heritage advisor can bring along the following information to expedite these discussions:

- Aerial photo of the Activity Area
- A clear map of the Activity Area
- Aboriginal site location data within the Geographic Region
- Site cards of any sites already recorded in the Activity Area.

If you require any additional information about this advice, please contact Alexander Parmington by telephone on 03 9416 2905 or by email: alex@wurundjeri.com.au

We look forward to meeting with you soon to discuss the project.

Yours sincerely,

Stephen Fiyalko
Chief Executive Officer

Cc. Claire St George, Ochre Imprints

Mailing Address: P. O. Box 386, Abbotsford VIC 3067
Street Address: 1st floor, Providence Building, Abbotsford Convent, 1 St. Heliers Street,
Abbotsford VIC 3067
Phone: 8673 0901 Fax: 8673 0900 Email: reception@wurundjeri.com.au
Registration No. A0005530A ABN: 542 749 968

Figure 27: NOI and Wurundjeri's election to evaluate CHMP 13370

APPENDIX 2: GLOSSARY

This glossary utilises definitions taken from the following reference books:

- Bahn, P. 2004 *The New Dictionary of Archaeology*. Penguin Books, London.
- Holdaway, S. and N. Stern. 2004 *A Record in Stone: The Study of Australia's Flaked Stone Artefacts*. Museum Victoria, Melbourne.

ASSTT	Australian Small Stone Tool Tradition
Backed	/ Any stone artefact on which one (usually) or more margins contains
Backing	consistent retouch, opposite a sharp working edge.
Blade	Blade: Any stone artefact retaining observable and complete fracture planes, platform, lateral margins and termination and has a length more than twice its width. Broken Blade: Any stone artefact retaining partial diagnostic features of a blade.
BP	Before Present
Chalcedony	Very fine grained cryptocrystalline silica quartz found in a range of colours from transparent to opaque. Branded forms include agate, jasper and onyx.
Chert	Very fine grained siliceous rock of organic and inorganic origin with no macroscopic visible grains.
Core	Any stone artefact retaining more than two negative scars of previous flakes struck from the piece.
Cortex	The original surface of the stone prior to the flaking episode. This may be further divided into nodule, pebble and terrestrial cortex indicating the original source of the material (i.e. pebble indicates a river or beach source).
Edge Damage	Minor retouch or use-wear that is unable to be described as formal retouch. May also be a result of post deposition breakage.
Flaked Piece/ Angular Fragment	Any stone artefact retaining evidence of cultural modification (i.e. fracturing consistent with stone tool manufacture) but no diagnostic features associating it to other artefact class categories.
Flake	Broken flake: Any stone artefact retaining partial diagnostic features of a flake. Complete/Whole flake: Any stone artefact retaining observable and complete fracture planes, platform, lateral margins and termination.

	<p>Distal Flake: Any flake on which the breakage removes the platform but retains the termination.</p> <p>Left Split Flake: Any flake on which the breakage removes the right portion of the flake (the left is retained) when oriented platform down and dorsal surface exposed.</p> <p>Proximal Flake: Any flake on which the breakage removes the termination but retains the platform.</p> <p>Right Split Flake: Any flake on which the breakage removes the left portion of the flake (the right is retained) when oriented platform down and dorsal surface exposed.</p>
Flint	A member of the chalcedony group of silica minerals characterised by its dark (black, grey or brown) colour resulting from included organic matter.
<i>In Situ</i>	Refers to material culture that has not been moved from its original place of construction, use or deposition
Geometric Microlith	A piece on which at least one end and sometimes one lateral margin is backed forming a tool that is 'symmetrical around its transverse axis' (e.g. triangles, trapezoids) (Holdaway and Stern 2004: 262).
Manuport	Any object, generally stone material, transported and deposited by humans.
Platform	<p>Cortical Platform: A platform retaining cortex.</p> <p>Crushed Platform: A platform which retains the diagnostic features of a proximal flake but on which too much damage has occurred to identify its features.</p> <p>Facetted Platform: A platform on which negative flake scars (≥ 1) are present.</p> <p>Plain Platform: A platform surface that shows no evidence of preparation, cortex, or negative scars.</p> <p>Overhung Platform: A platform surface that shows evidence of overhang removal prior to being struck.</p>
Quartz	A mineral that, while not ideal for flaking due to its irregularity (difficult to predict fracturing behaviour), was often utilised for artefact production.
Quartzite	A metamorphic rock; quartz-rich sandstone that has been recrystallised by heat, by pressure, or by both... [it is] granular (or

	sugary) in texture and varies in grain size' (Holdaway and Stern 2004: 24).
Retouch	Scalar: Shallow scale like scars on margin with feather terminations. Usually small rounded scars. Step: Small, abrupt flake scars on margin, with step terminations.
Scraper	Scraper: Any piece with systematic retouch along part of its margin. Thumbnail Scraper: Small semi-discoidal flake with unifacial and systematic steep retouch around a curved margin.
Silcrete	A sedimentary rock; 'formed through the impregnation of a sedimentary layer with silica [consisting] of quartz grains in a matrix of either amorphous or fine-grained silica' (Holdaway and Stern 2004: 24).
Stone Artefact	A piece of stone that has been formed by Aboriginal people to be used as a tool or is the bi-product of Aboriginal stone tool manufacturing activities. Stone artefacts can be flaked (i.e. to make points and scrapers) or ground (i.e. ground-edge axes, grinding stones).
Stone Artefact Dimensions	Oriented Length: In this case, the distance from the impact point to the distal margin in the direction of flaking. Maximum Dimension: The largest measurement possible to take on a stone artefact. Oriented Thickness: In this case, measured at right angles to the oriented width and oriented length. Oriented Width: In this case, the width of the artefact at the midpoint at right angles to the oriented length. Quadrants: artefact is oriented with proximal end down and dorsal side facing observer.
Tachylyte	A fine grained grey to black volcanic material, often with a thin grey weathered cortex.
Tool	Complete Tool: Any piece retaining edges modified by use or consistent retouch. Broken Tool: Any piece retaining a partial edge modified by use or consistent retouch. Formal Tool: Any tool that is unambiguously a known tool type (cf. artefact type Holdaway and Stern 2004).

Table 38: Glossary of artefact recording terms / definitions

APPENDIX 3: ABORIGINAL PLACE GAZETTEER

VAHR No.	Site Type	Grid Co-ordinates GDA94 MGA 55	
		Easting	Northing
7822-3784 Redstone Hill 1	Artefact Scatter	300606.704	5834651.458
7822-3785 Redstone Hill 2	Low Density Artefact Distribution	300558.093	5834510.787
7822-3786 Redstone Hill 3	Artefact Scatter	300988.137	5834399.931
7822-3787 Redstone Hill 4	Low Density Artefact Distribution	300868.185	5834410.402
7822-3788 Redstone Hill 5	Low Density Artefact Distribution	3012232.854	5834900.501
7822-3789 Redstone Hill 6	Low Density Artefact Distribution	301550.161	5835271.075
7822-3790 Redstone Hill 7	Low Density Artefact Distribution	301558.032	5834612.205
7822-3794 Redstone Hill 8	Low Density Artefact Distribution	302357.732	5835522.443
7822-3876 Redstone Hill 9	Low Density Artefact Distribution	301483.05	5835780.41
7822-3875 Redstone Hill 9 Part 2	Low Density Artefact Distribution	301848.02	5834270.10
7822-3881 Redstone Hill 10	Artefact Scatter	301179.01	5835554.91
7822-3882 Redstone Hill 11	Artefact Scatter	301999.23	5834385.54

Table 39: Aboriginal place gazetteer

APPENDIX 4: TABLE OF SUBSURFACE EXCAVATION WITHOUT ARTEFACTS

EP/STP	GPS coordinates (MGA 55 GDA 94)		Size / Depth	Landform	Stratigraphy
	Easting	Northing			
EP2	302084.02	5834589.0 0	1 x 1 m 150 mm	Lower Slope	0-120mm: Dark reddish brown friable clayey silt. 120-150mm: Dark, reddish brown, firm silty clay
EP3	301721.15	5834898.6 1	1 x 1 m 200 mm	Middle Slope	0-130mm: Dark, reddish brown friable clayey silt. 130-200mm: Dark reddish brown firm silty clay
EP6	302609.37	5835787.7 0	1 x 1 m 120 mm	Lower Slope	0-80mm: Very dark, greyish brown friable silt 80-120: Very dark grey firm silty clay
STP1	301997.43	5036086.6 3	400 x 400 mm 120 mm	Middle Slope	0-90 mm: Dark brown, compact clayey silt. 90-120 mm: Dark brown compact silty clay.
STP2	302052.61	5836153.4	400 x 400 mm 250 mm	Middle Slope	0-50mm: Very dark brown firm silt 50-150mm: Dark greyish brown compact silty clay. 150-250mm: Dark brown compact clay
STP3	302112.99	5836226.5 6	400 x 400 mm 130 mm	Middle Slope	0-30mm: Dark brown firm silt 30-110: Dark brown, compact silty clay 110-130mm: Dark brown, compact clay.
STP4	302169.85	5836296.8 3	400 x 400 mm 160 mm	Middle Slope	0-30mm: Dark brown firm silt. 30-150mm: Dark brown, compact silty clay 150-160mm: Dark brown compact clay.
STP5	302191.28	5836179.3 6	400 x 400 mm 90 mm	Middle Slope	0-40mm: Dark brown, firm silt. 40-90mm: Dark brown, compact silty clay.
STP6	302128.70	5836118.6 5	400 x 400 mm 120 mm	Middle Slope	0-20mm: Dark brown, compact clayey silt. 20-120mm: Dark brown, compact silty clay
STP7	302128.70	5836118.6 5	400 x 400mm 120mm	Lower Slope	0-20mm: Dark brown, firm silt. 20-120mm: Dark brown compact silty clay.
STP9	302711.70	5835306.3 3	400 x 400 mm 100 mm	Lower Slope	0-90mm: Dark red-brown clayey silt 90-100mm: Dark red silty clay
STP10	302725.79	5835307.7 7	400 x 400 mm 150 mm	Lower Slope	0-140mm: Dark red-brown, friable clayey silt 140-150mm: Dark red, firm silty clay
STP11	302723.73	5835322.1 5	400 x 400 mm 120 mm	Lower Slope	0-100mm: Dark red-brown, friable clayey silt 100-120mm: Dark red-brown firm silty clay

STP12	302709.09	5835321.2 9	400 x 400 mm 110 mm	Lower Slope	0-100mm: Dark red-brown, friable clayey silt 100-110: Dark red silty clay
STP13	301841.97	5834138.8 2	400 x 400 mm 100 mm	Spur	0-90mm: Dark red-brown, friable clayey silt 90-100mm: Dark red silty clay
STP14	301849.22	5834127.9 3	400 x 400 mm 120 mm	Spur	0-110mm: Dark red-brown, friable clayey silt 110-120: Dark red, firm silty clay
STP15	301837.25	5834119.5 6	400 x 400 mm 130 mm	Spur	0-120mm: Dark red-brown, friable clayey silt 120-130: Dark red, firm silty clay
STP16	301830.41	5834130.9 0	400 x 400 mm 100 mm	Spur	0-90mm: Dark red-brown friable clayey silt 90-100: Dark red, firm silty clay
STP17	302790.44	5835261.9 6	400 x 400 mm 100 mm	Lower Slope	0-90mm: Dark red-brown, friable clayey silt 90-100: Dark red, firm silty clay
STP18	302869.73	5835321.2 9	400 x 400 mm 200 mm	Lower Slope	0-190mm: Dark red-brown, friable clayey silt 190-200mm: Dark red, firm silty clay
STP19	302686.89	5835445.8 3	400 x 400 mm 160 mm	Lower Slope	0-150mm: Dark red-brown, friable clayey silt 150-160mm: Dark red, firm silty clay
STP20	302630.03	5835519.3 9	400 x 400 mm 80 mm	Lower Slope	0-70mm: Dark red-brown, friable clayey silt 70-80mm: Dark red, firm, silty clay
STP21	301912.35	5835899.1 2	400 x 400 mm 120 mm	Upper Slope	0-100mm: Dark red-brown, friable clayey silt 100-120: Dark red, firm silty clay
STP22	302148.51	5835494.6 0	400 x 400 mm 150 mm	Middle Slope	0-140mm: Dark red-brown, friable clayey silt 140-150mm: Dark red, firm silty clay
STP23	301906.16	5835273.4 5	400 x 400 mm 200 mm	Upper Slope	0-190mm: Dark red-brown friable clayey silt 190-200mm: dark red, firm silty clay
STP24	301870.26	5834606.0 7	400 x 400 mm 180 mm	Upper Slope	0-170mm: Dark red-brown, friable clayey silt 170-180: Dark red, firm silty clay

Table 40: STPs and EPs without artefacts

APPENDIX 5: ARTEFACT CATALOGUE

Redstone Hill 9																
Easting	Northing	Zone	Depth (m)	Raw Material	Primary form	Cortex %	R/ED %	Platform	Term	# scars	Longest scar	Tool type	Length	Width	Thick	Max dim
301483.055	5835780.415	55	0	Silcrete	Core - Multidirectional	None				> 6	25.83		41.13	36.51	18.15	45.47
302717.810	5835314.010	55	0.1	Quartz	Flake - Complete	33-66%	1-32%	Plain	Feather				19.09	18.04	5.72	21.31
301839.100	5834129.320	55	0.2	Silcrete	Flake - Complete	1-32%	None	Crushed	Step				12.2	11.15	2.6	14.11
301499.291	5835793.572	55	0	Silcrete	Angular fragment	None	None						46.09	21.02	9.19	46.63
301500.635	5835801.301	55	0	Silcrete	Angular fragment	None	None						14.34	11.41	1.78	14.63
301503.513	5835801.581	55	0	Silcrete	Core - Multidirectional	None				4	20.27		31.15	29.61	19.14	34.21
301436.004	5835790.553	55	0	Silcrete	Angular fragment	None	None						37.5	26.5	13.55	36.92
301497.625	5835801.940	55	0	Silcrete	Flake - Complete	None	None	Plain	Feather				10.56	9.33	2.46	12.16
301499.852	5835801.101	55	0	Silcrete	Angular fragment	None	None						18.26	15.55	8.63	24.6
301498.310	5835796.202	55	0	Silcrete	Angular fragment	None	None						30	26.09	15.87	40.84
301497.122	5835801.561	55	0	Silcrete	Angular fragment	None	None						17.8	13.28	7.15	21.09
301495.894	5835804.690	55	0	Silcrete	Angular fragment	None	None						24.81	18.01	11.7	26
301484.432	5835809.139	55	0	Silcrete	Angular fragment	None	None						21.38	21.15	13.6	29.75
301484.086	5835807.799	55	0	Silcrete	Flake - Complete	None	None	Flaked	Axial				15.8	26.19	6.5	26.28
301481.628	5835806.969	55	0	Silcrete	Core - Unidirectional	None				2	24.37		24.89	30.44	22.35	40.37
301472.038	5835820.567	55	0	Silcrete	Core - Unidirectional	33-66%				3	34.77		44.87	32.69	24.92	56.55
301477.085	5835822.256	55	0	Silcrete	Flake - Complete	None	None	Flaked	Step				8.8	12.72	1.56	12.72
301479.320	5835819.777	55	0	Silcrete	Angular fragment	1-32%	None						23.1	23.05	19.03	32.29
301478.751	5835820.147	55	0	Silcrete	Angular fragment	None	None						13.1	14.09	8.64	15.42
301481.422	5835821.956	55	0	Silcrete	Angular fragment	None	None						10.8	7.18	3.36	13.15
301487.112	5835811.349	55	0	Silcrete	Angular fragment	None	None						20.8	15.03	4.63	23.64
301485.265	5835815.848	55	0	Silcrete	Flake - Complete	None	None	Plain	Plunge				18.8	15.4	7.13	26.02
301484.778	5835814.408	55	0	Silcrete	Angular fragment	None	None						16.21	25.95	9.35	25.62
301484.242	5835808.119	55	0	Silcrete	Angular fragment	None	None						11.38	9.05	1.92	13.84
301482.222	5835804.260	55	0	Silcrete	Angular fragment	100%	None						31.03	26.09	11.78	32.25
301488.118	5835812.828	55	0	Silcrete	Flake - Proximal	None	None	Flaked					14.42	24.21	5.21	24.64
301492.818	5835811.019	55	0	Silcrete	Angular fragment	None	None						22.3	11.64	11.33	22.3
301455.192	5835802.100	55	0	Silcrete	Core - Multidirectional	None				1	28.64		53.05	35.04	38.57	54.16
301475.774	5835830.615	55	0	Silcrete	Flake - Medial	None	33-66%					Backed - Geometric Microlith	17.86	9.82	3.29	17.86
301431.494	5835811.728	55	0	Other	Cobble or Pebble	None						Grinding Stone	108.57	77.14	35.42	139.47
301447.054	5835767.348	55	0	Quartz	Cobble or Pebble	100%						Manuport	63.8	48.22	34.83	63.8
301437.785	5835764.608	55	0	Silcrete	Angular fragment	None	None						45.7	27.69	13.77	51.52
301439.443	5835763.838	55	0	Silcrete	Angular fragment	None	None						30.33	27.17	11.16	46.8
301439.393	5835761.789	55	0	Silcrete	Angular fragment	None	None						35.09	19.57	19.98	34.89
301485.059	5835739.013	55	0	Quartz	Core - Bidirectional	1-32%				3	24.3		55.16	43.25	29.45	55.16
301452.314	5835739.513	55	0	Silcrete	Flake - Proximal	None	None	Plain					13.29	11.04	2.83	16.72

Redstone Hill 9

Easting	Northing	Zone	Depth (m)	Raw Material	Primary form	Cortex %	R/ED %	Platform	Term	# scars	Longest scar	Tool type	Length	Width	Thick	Max dim
301479.814	5835719.967	55	0	Silcrete	Flake - Distal	None	None		Hinge				13.27	17.83	2.67	20.81
301361.338	5835754.010	55	0	Silcrete	Flake - Complete	None	None	Plain	Hinge				73.71	136.07	17.22	83.16
301346.256	5835737.324	55	0	Silcrete	Flake - Distal	None	None		Feather				25.89	16.06	5.22	29.81
301374.350	5835663.329	55	0	Silcrete	Angular fragment	None	None						19.21	15.62	6.82	27.01
301400.992	5835660.849	55	0	Silcrete	Flake - Distal	None	None		Plunge				21.06	15.83	3.54	36.24
301400.341	5835660.109	55	0	Silcrete	Angular fragment	None	None						32.15	10.29	4.02	35.34
301414.507	5835652.931	55	0	Silcrete	Angular fragment	None	None						18.78	13.44	8.95	28.26
301411.514	5835642.503	55	0	Quartz	Flake - Complete	100%	None	Crushed	Hinge				17.33	14.15	8.5	18.14
301374.268	5835598.932	55	0	Silcrete	Core - Unidirectional	None				2	22.41		47.3	57.29	21.12	80.12
301322.426	5835652.451	55	0	Silcrete	Flake - Distal	1-32%	None		Plunge				42.07	22.7	14.08	54.85
301239.877	5835648.772	55	0	Silcrete	Flake - Distal	None	1-32%		Plunge			Notched Tool	27.33	17.85	11.72	35.49
301225.628	5835611.229	55	0	Silcrete	Flake - Proximal	1-32%	None	Plain					25.29	14.64	7.8	27.43
301223.517	5835613.179	55	0	Quartzite	Flake - Complete	None	1-32%	Plain	Hinge				17.39	15.59	4.76	19.82
301224.226	5835615.258	55	0	Silcrete	Flake - Complete	None	None	Plain	Hinge				22.67	14.23	3.67	22.7
301212.616	5835616.138	55	0	Silcrete	Flake - Complete	67-99%	None	Flaked	Hinge				90.43	79.68	30.65	117.8
301191.160	5835587.544	55	0	Silcrete	Core - Unidirectional	1-32%				3	13.62		26.39	25.54	20.09	38.14
301229.083	5835631.335	55	0	Silcrete	Core - Multidirectional	None				> 6	24.89		40.7	35.87	21.75	46.24
301204.758	5835579.756	55	0	Silcrete	Flake - Complete	None	None	Flaked	Hinge				32.84	22.18	8.58	40.93
301241.427	5835594.203	55	0	Silcrete	Flake - Complete	None	None	Crushed	Hinge				16.65	11.44	3.97	17.81
301174.273	5835562.969	55	0	Quartz	Flake - Complete	None	None	Crushed	Hinge				19.07	17.04	3.53	19.99
301189.363	5835554.031	55	0	Silcrete	Angular fragment	1-32%	None						23.57	12.5	8.74	24.45
301189.025	5835555.191	55	0	Quartz	Flake - Complete	None	None	Crushed	Hinge				6.97	6.16	1.06	8.88
301191.070	5835544.693	55	0	Other	Flake - Complete	67-99%	1-32%	Cortex	Hinge				68.91	121.61	20.06	125.17
301185.058	5835538.704	55	0	Quartz	Angular fragment	None	None						38.09	15.53	9.6	39.04
301185.058	5835538.704	55	0	Silcrete	Angular fragment	None	None						111.21	81.26	45.76	137.05
301181.661	5835534.415	55	0	Silcrete	Flake - Longitudinal Split	None	None		Hinge				49.2	23.1	10.39	52.54
301524.853	5835638.204	55	0	Silcrete	Core - Multidirectional	1-32%				5	26.62		38.8	41.65	32.47	57.72
301324.100	5835651.381	55	0	Silcrete	Angular fragment	None	None						42.74	43.72	15.96	55.14
301216.269	5835527.566	55	0	Silcrete	Core - Unidirectional	None				3	23.92		39.74	27.51	16.15	40.83
301207.759	5835507.980	55	0	Quartz	Angular fragment	None	None						16	9.43	2.46	16.47
301466.126	5835294.464	55	0	Quartzite	Flake - Proximal	None	None	Plain					16.43	14.54	3.62	24.59
301288.552	5835025.788	55	0	Silcrete	Core - Multidirectional	1-32%				> 6	21.45		50.3	42.1	45.2	50.3
301334.671	5835122.469	55	0	Silcrete	Flake - Distal	None	None		Feather				40.84	19.94	6.26	44.3
301239.456	5835313.460	55	0	Silcrete	Angular fragment	None	None						14.03	9.01	1.49	17.52
301321.873	5835369.968	55	0	Silcrete	Flake - Complete	None	33-66%	Flaked	Feather			Scraper - Steep-edged	37.92	44.04	19.16	61.76
301308.796	5835379.037	55	0	Silcrete	Angular fragment	None	None						27.63	19.63	12.31	30.24

Redstone Hill 9

Easting	Northing	Zone	Depth (m)	Raw Material	Primary form	Cortex %	R/ED %	Platform	Term	# scars	Longest scar	Tool type	Length	Width	Thick	Max dim
301306.767	5835376.517	55	0	Silcrete	Flake - Complete	None	None	Flaked	Hinge				30.29	43.48	5.89	55.14
301302.850	5835379.307	55	0	Silcrete	Flake - Distal	None	None		Hinge				20.17	42.44	11.47	47.77
301302.290	5835376.467	55	0	Silcrete	Angular fragment	None	None						17.38	10.85	18.03	21.41
301257.976	5835389.544	55	0	Other	Cobble or Pebble	None						Grinding Stone	57.9	53.8	28.48	62.55
301228.357	5835067.170	55	0	Silcrete	Flake - Complete	None	1-32%	Plain	Hinge			Notched Tool	30.42	21.99	5.76	31.72
301224.671	5835468.318	55	0	Silcrete	Core - Unidirectional	None				3	20.38		30.45	41.37	26.57	55.07
301219.147	5835468.788	55	0	Silcrete	Angular fragment	None	None						16.56	10.39	8.39	19.93
301235.333	5835487.125	55	0	Silcrete	Angular fragment	1-32%	None						14.2	11.81	7.32	15.12
301265.323	5835461.020	55	0	Silcrete	Angular fragment	None	None						19.81	17.22	18.25	31.28
301267.657	5835463.279	55	0	Silcrete	Flake - Proximal	None	None	Plain					18.97	10.12	2.91	20.34
301267.756	5835462.640	55	0	Silcrete	Flake - Medial	None	None						19.04	11.25	2.4	21.51
301284.231	5835459.210	55	0	Silcrete	Flake - Complete	None	None	Crushed	Hinge				26.19	14.07	18.02	28.19
301552.823	5834771.150	55	0	Silcrete	Angular fragment	1-32%	None						50.12	35.39	30.62	57.58
301558.595	5834615.622	55	0	Silcrete	Flake - Complete	None	None	Plain	Step				25.34	29.77	7.25	39.36
301670.574	5834779.439	55	0	Silcrete	Angular fragment	None	None						15.24	10.33	3.98	15.86
301550.753	5835276.697	55	0	Silcrete	Flake - Distal	None	None		Plunge				20.32	13.36	3.99	24.89
302149.525	5835194.914	55	0	Silcrete	Core - Multidirectional	None				3	24		39	29	37	39
301866.973	5835211.411	55	0	Quartz	Angular fragment	None	None						26	17	7	26
302064.395	5834758.623	55	0	Silcrete	Angular fragment	33-66%	None						51	20	15	51
301879.828	5836028.824	55	0	Silcrete	Flake - Complete	1-32%	None	Flaked	Hinge				37	25	15	37
301763.603	5836208.198	55	0	Silcrete	Core - Multidirectional	None				1	31		40	37	23	40
301768.015	5836270.235	55	0	Silcrete	Flake - Proximal	None	None	Flaked					18	17	7	20
301791.243	5836214.157	55	0	Silcrete	Flake - Distal	None	None		Plunge				15	15	14	16
302087.995	5835982.204	55	0	Quartz	Angular fragment	None	None						16	10	3	16
302155.660	5835804.830	55	0	Quartz	Flake - Complete	1-32%	None	Cortex	Feather				13	10	8	15
301902.249	5835908.059	55	0	Silcrete	Flake - Complete	None	None	Flaked	Feather				23	13	4	23
301853.120	5834267.793	55	0	Quartz	Cobble or Pebble	100%						Manuport	58.31	39.11	35.14	63.34
301848.024	5834270.102	55	0	Quartz	Flake - Complete	None	None	Crushed	Axial				27.1	27.1	9.64	33.48
301843.299	5834269.982	55	0	Quartz	Flake - Complete	None	None	Crushed	Axial				28.81	15.71	17.22	31.2
301838.203	5834270.462	55	0	Silcrete	Core - Multidirectional	1-32%				4	43.85		45.87	35.42	18.69	49.49
301797.452	5834277.451	55	0	Silcrete	Flake - Medial	None	1-32%						25.8	40.07	19.42	52.11
301773.267	5834269.003	55	0	Quartz	Flake - Medial	None	None						15.82	13.71	3.93	16.72
301769.351	5834273.312	55	0	Quartzite	Flake - Longitudinal Split	None	None		Hinge				36.14	19.24	8.27	37.27
301764.420	5834284.179	55	0	Basalt	Flake - Proximal	None	None	Plain					28.27	25.39	7.78	34.72
301766.761	5834287.089	55	0	Silcrete	Angular fragment	None	None						17.95	17.93	8.42	26.35
301759.019	5834308.544	55	0	Silcrete	Flake - Distal	None	None		Plunge				15.4	6.84	2.04	16.5

Redstone Hill 9

Easting	Northing	Zone	Depth (m)	Raw Material	Primary form	Cortex %	R/ED %	Platform	Term	# scars	Longest scar	Tool type	Length	Width	Thick	Max dim
301760.956	5834318.033	55	0	Silcrete	Flake - Complete	None	1-32%	Facetted	Hinge				21.88	12.04	2.34	22.1
301761.319	5834315.123	55	0	Quartz	Flake - Complete	None	None	Plain	Hinge				11.94	6.94	2.54	12.8
301768.419	5834310.784	55	0	Silcrete	Flake - Complete	None	None	Plain	Feather				16.58	16.41	3.06	17.61
301781.373	5834305.925	55	0	Silcrete	Flake - Complete	None	None	Flaked	Feather				11.6	7.25	3.13	12.44
301781.645	5834305.775	55	0	Silcrete	Flake - Complete	None	1-32%	Facetted	Hinge			Notched Tool	74.46	80.94	11.25	94.85
301785.108	5834306.435	55	0	Quartzite	Flake - Medial	None	None						25.93	36.66	4.33	29.45
301792.018	5834310.524	55	0	Silcrete	Core - Unidirectional	33-66%				1	38.99		57.4	70.38	74.79	93.33
301792.332	5834312.584	55	0	Silcrete	Flake - Proximal	None	None	Plain					34.72	30.03	16.23	43.49
301814.958	5834287.819	55	0	Quartz	Core - Multidirectional	None				3	35.3		35.57	28.62	20.24	41.67
301830.675	5834284.979	55	0	Quartz	Angular fragment	None	None						21.9	13.3	10.98	22.2
301837.865	5834278.980	55	0	Quartz	Flake - Distal	None	None		Hinge				27.97	13.34	5.21	27.97
301842.351	5834276.101	55	0	Silcrete	Core - Bidirectional	None				> 6	18.98		23.55	19.62	18.38	27.91
301846.928	5834279.830	55	0	Silcrete	Core - Multidirectional	None				> 6	34.05		75.07	60.99	37.32	82.71
301846.425	5834288.359	55	0	Sandstone	Cobble or Pebble	67-99%						Manuport	96.35	91.36	33.51	110.29
301844.924	5834304.545	55	0	Silcrete	Angular fragment	None	None						40.47	28.27	8.71	43.17
301827.311	5834297.917	55	0	Quartz	Flake - Complete	67-99%	1-32%	Cortex	Feather			Notched Tool	26.23	23.21	11.91	31.14
301818.991	5834320.202	55	0	Silcrete	Core - Multidirectional	67-99%				> 6	10.29		130.85	120.01	69.81	140.03
301822.792	5834308.824	55	0	Silcrete	Flake - Distal	None	None		Hinge				20.08	15.24	1.8	21.12
301808.164	5834332.939	55	0	Silcrete	Core - Bidirectional	1-32%				2	13.15		43.45	46.78	32.94	58.88
301776.879	5834327.741	55	0	Quartz	Core - Multidirectional	33-66%				3	18.54		42.99	24.61	18.03	43.06
301775.172	5834347.956	55	0	Quartz	Flake - Complete	100%	1-32%	Cortex	Step				22.93	25.24	11.69	25.2
301771.165	5834352.486	55	0	Quartz	Angular fragment	None	None						25.37	20.17	11.45	28.76
301753.345	5834338.228	55	0	Quartz	Angular fragment	None	None						21.47	11.72	6.32	22.89
301753.700	5834341.658	55	0	Silcrete	Flake - Complete	1-32%	None	Crushed	Hinge				15.32	10.63	3.85	19.57
301753.073	5834344.257	55	0	Silcrete	Angular fragment	None	1-32%					Backed - Geometric microlith	22.09	10.91	2.56	22.09
301752.834	5834344.377	55	0	Quartz	Flake - Proximal	33-66%	None	Crushed					24.99	8.63	4.25	24.99
301753.164	5834356.575	55	0	Quartz	Flake - Complete	None	None	Plain	Step				18.73	12.4	4.33	21.55
301758.474	5834355.875	55	0	Silcrete	Flake - Complete	None	None	Plain	Plunge				20.47	14.28	6.52	23.25
301758.524	5834356.095	55	0	Silcrete	Flake - Distal	None	None		Axial				22.79	19.81	5.22	32.03
301766.555	5834371.432	55	0	Quartz	Flake - Complete	67-99%	None	Plain	Axial				40.51	41.15	17.2	43.44
301743.772	5834411.314	55	0	Silcrete	Angular fragment	None	None						24.74	22.19	7.37	36.8
301764.156	5834477.680	55	0	Silcrete	Flake - Distal	None	None		Plunge				21.43	15.07	3.21	21.7
301812.913	5834498.406	55	0	Quartz	Flake - Complete	None	None	Cortex	Feather				19.2	11.57	6.77	19.94
301811.190	5834446.456	55	0	Quartz	Flake - Medial	None	None						8.47	11.64	3.59	13.89
301887.547	5834434.179	55	0	Silcrete	Flake - Distal	1-32%	None		Plunge				20.35	29.11	9.19	36.05
301847.092	5834370.012	55	0	Silcrete	Flake - Longitudinal Split	None	None		Plunge				37.91	17.96	6.92	43.99

Redstone Hill 9

Easting	Northing	Zone	Depth (m)	Raw Material	Primary form	Cortex %	R/ED %	Platform	Term	# scars	Longest scar	Tool type	Length	Width	Thick	Max dim
301860.847	5834304.015	55	0	Quartz	Flake - Distal	None	None		Hinge				21.31	18.35	8.85	28.67
301870.305	5834322.892	55	0	Silcrete	Core - Multidirectional	1-32%				> 6	69.98		70.5	85.42	63.97	96.54
301877.050	5834350.846	55	0	Silcrete	Flake - Proximal	None	None	Facetted					18.45	15.1	6.16	20.62
301936.461	5834379.050	55	0	Silcrete	Flake - Complete	100%	None	Crushed	Plunge				44.58	33.4	6.48	44.46
301947.923	5834387.488	55	0	Silcrete	Flake - Longitudinal Split	None	1-32%		Axial				29.7	21.24	15.95	40.5
301963.417	5834397.016	55	0	Quartz	Flake - Longitudinal Split	67-99%	None		Plunge				25.79	13.52	6.52	28.1
301967.210	5834429.690	55	0	Silcrete	Flake - Complete	None	None	Plain	Step				39.92	47	8.11	54.33
302044.036	5834470.961	55	0	Silcrete	Flake - Complete	None	None	Flaked	Plunge				20.54	17.99	5.45	22.9
302038.866	5834467.062	55	0	Silcrete	Angular fragment	None	None						19.25	13.83	3.55	23.12
302015.275	5834403.775	55	0	Silcrete	Flake - Medial	None	None						16.55	18.19	5.92	21.95
302383.913	5835839.552	55	0	Silcrete	Flake - Complete	33-66%	None	Crushed	Feather				31	27	10	35
301820.442	5834285.309	55	0	Silcrete	Flake - Complete	None	None	Flaked	Feather				40	40	12	46
301834.946	5834124.592	55	0	Silcrete	Angular Fragment	None	None						11	10	8	11
301834.526	5834135.100	55	0	Silcrete	Core - Multidirectional	None				4	16		26	17	14	26
301838.599	5834136.709	55	0	Quartzite	Angular Fragment	None	None						21	12	8	23
301838.385	5834133.910	55	0	Quartz	Flake - Distal	None	None		Feather				9	6	2	10
301840.595	5834139.049	55	0	Quartzite	Angular Fragment	None	None						32	14	10	32
301841.592	5834145.128	55	0	Quartzite	Flake - Distal	None	None		Feather				13	13	4	14
301842.203	5834144.258	55	0	Silcrete	Core - Multidirectional	None				4	43		49	44	36	49
301843.126	5834145.118	55	0	Quartzite	Angular Fragment	None	None						29	24	13	29
301843.530	5834146.168	55	0	Silcrete	Angular Fragment	None	None						18	5	5	18
301842.730	5834147.017	55	0	Silcrete	Flake - Complete	None	None	Plain	Feather				9	5	1	9
301843.489	5834147.737	55	0	Silcrete	Flake - Complete	None	None	Flaked	Feather				25	15	5	25
301839.968	5834147.287	55	0	Silcrete	Flake - Complete	None	None	Flaked	Plunge				24	16	5	24
301836.851	5834150.107	55	0	Silcrete	Flake - Proximal	None	None	Flaked					34	38	14	41
301844.503	5834150.287	55	0	Silcrete	Core - Multidirectional	None				3	30		31	14	15	31
301846.721	5834157.075	55	0	Quartz	Angular Fragment	None	None						11	9	10	11
301847.035	5834157.855	55	0	Quartz	Flake - Complete	None	None	Flaked	Feather				34	21	13	34
301848.667	5834166.333	55	0	Quartz	Flake - Proximal	None	None	Flaked					8	7	4	10
301850.803	5834185.949	55	0	Silcrete	Flake - Complete	33-66%	33-66%	Cortex	Step			Notched Tool	42	35	14	50
301851.644	5834185.270	55	0	Quartz	Flake - Complete	None	None	Plain	Feather				13	10	4	16
301852.461	5834193.168	55	0	Silcrete	Flake - Complete	None	None	Flaked	Feather				14	16	2	16
301857.268	5834224.682	55	0	Silcrete	Flake - Distal	None	None		Feather				20	25	13	26
301857.020	5834236.619	55	0	Silcrete	Flake - Complete	33-66%	None	Flaked	Feather				59	31	28	59

Table 41: Redstone Hill 9 and Redstone Hill 9 Part 2, VAHR7822-3875 and 7822-3876 artefact catalogue

Redstone Hill 10

Easting	Northing	Zone	Depth (m)	Raw Material	Primary form	Cortex %	R/ED %	Platform	Term	Tool type	2nd mod	Length	Width	Thick	Max dim
301,175.58	5,835,555.86	55	0	Silcrete	Angular fragment	0%	0%					19.91	11.95	8.14	22.78
301,176.53	5,835,553.79	55	0	Silcrete	Flake - Complete	1-32%	0%	Plain	Axial			22.19	20.02	8.38	23.54
301,179.05	5,835,554.94	55	0	Silcrete	Flake - Proximal	0%	0%	Plain				18.41	22.61	4.97	28.32
301,183.10	5,835,556.90	55	0	Sandstone	Angular fragment	0%	0%					84.98	84.23	47.28	105.58
301,184.20	5,835,557.60	55	0	Silcrete	Angular fragment	1-32%	0%					13.28	13.27	6.43	19.76
301,183.38	5,835,555.38	55	0	Silcrete	Angular fragment	1-32%	0%					19.41	9.24	3.63	21.11
301,181.74	5,835,561.34	55	0	Quartz	Angular fragment	1-32%	0%					18.32	11.46	7.62	20.92
301,182.34	5,835,555.20	55	0	Silcrete	Flake - Medial	0%	0%					14.51	19.33	7.39	22.53
301,183.48	5,835,553.97	55	0	Silcrete	Flake - Complete	0%	0%	Plain	Step			43.4	38.69	13.47	50.06
301,183.73	5,835,551.18	55	0	Silcrete	Flake - Distal	0%	1-32%		Plain	Notched Tool		11.05	13.51	2.87	19.63

Table 42: Redstone Hill 10, VAHR 7822-3881 artefact catalogue

Redstone Hill 11														
Easting	Northing	Zone	Depth (m)	Raw Material	Primary form	Cortex %	R/ED %	Platform	Term	2nd mod	Length	Width	Thick	Max dim
301,994.17	5,834,385.78	55	0	Quartz	Flake - Complete	0%	0%	Crushed	Hinge		22.83	25	5.09	25.14
301,995.25	5,834,386.10	55	0	Quartzite	Flake - Complete	0%	0%	Plain	Step		16.99	13.39	3.26	18.87
301,996.78	5,834,385.77	55	0	Silcrete	Angular fragment	0%	0%				16.82	6.3	3.69	17.1
301,999.16	5,834,393.92	55	0	Quartz	Angular fragment	0%	0%				15.44	14.46	5.41	23.18
301,999.25	5,834,385.59	55	0	Silcrete	Flake - Complete	0%	0%	Flaked	Plunge		25.19	15.05	4.22	26.72
301,998.93	5,834,385.20	55	0	Silcrete	Flake - Complete	0%	1-32%	Crushed	Feather		19.81	9.64	4.12	20.41
301,999.50	5,834,383.87	55	0	Silcrete	Angular fragment	0%	0%				10.65	12.37	6.04	22.08
301,999.63	5,834,383.70	55	0	Silcrete	Angular fragment	1-32%	0%				16.3	11.7	12.38	21.62
302,000.25	5,834,383.74	55	0	Silcrete	Angular fragment	0%	0%				18.03	13.92	4.77	22.83
302,002.41	5,834,383.02	55	0	Quartz	Angular fragment	1-32%	0%				23.25	13.31	8.33	25.07
302,002.44	5,834,383.22	55	0	Quartz	Angular fragment	0%	0%				20.73	11.93	7.35	24.54
302,000.60	5,834,385.14	55	0	Silcrete	Flake - Medial	0%	0%				10.01	12.87	3.04	15
302,000.39	5,834,385.39	55	0	Silcrete	Flake - Proximal	0%	0%	Facetted			7.57	11.04	2.74	12.56
302,000.84	5,834,386.23	55	0	Silcrete	Flake - Proximal	0%	0%	Plain			17.47	13.45	3.76	21.1
302,001.45	5,834,385.35	55	0	Silcrete	Flake - Medial	0%	0%				15.1	12.7	3.61	17.35
302,000.80	5,834,386.30	55	0	Silcrete	Flake - Medial	0%	0%				11.86	8.62	3.46	12.85
302,001.39	5,834,385.92	55	0	Silcrete	Flake - Complete	0%	0%	Plain	Feather		19.79	12.32	6.08	23.03

Table 43: Redstone Hill 11, VAHR 7822-3882 artefact catalogue