Low Density Artefact Distributions

A Low Density Artefact Distribution (LDAD) is the occurrence of stone artefacts at densities of up to 10 counted artefacts in any area of approximately 10m x 10m, or 100m^2, including within a single test pit of ≤1m^2. This density distinction has been adopted to facilitate a streamlined recording process for lower densities of artefacts.

As a distribution, the LDAD does not have an extent but each individual artefact is accorded an area of Aboriginal cultural heritage sensitivity. Therefore there is no assumption made that additional artefacts might not be found between those included in a registration. Subsequent LDAD registrations for each new project in a previously investigated area may demonstrate the existence of higher densities that can ultimately be registered as a full recording with a definable place extent.

There is no assumption of association between artefacts recorded in the same LDAD registration, so they do not need to be grouped or separated by landform, material type etc. This is because all artefacts can easily be referred to individually by their unique nine digit heritage Register number (eg 7822-9999-23). However, associated artefacts should also be submitted as an LDAD if within the threshold density. Generally there should be a maximum of one kilometre between the artefacts recorded in a single LDAD submission. However, for very large projects such as windfarms and highway or pipeline alignments, it may be convenient to include artefacts spread over a distance of more than one kilometre within the same activity area. In such cases, it is recommend that all artefacts in an LDAD submission be located on the same 1:100,000 map sheet. This is because the heritage Register number is generated from the 1:100,000 map sheet number. Finally, while a recording date is required to be entered, there will be no assumption that all artefacts in a given LDAD registration were necessarily recorded on that date. Where different dates need to be highlighted, as all artefacts in an LDAD will be related to a specific CHMP or assessment project, reference can be made to the lodged report.

An exception to using the LDAD recording system for a low density of artefacts is where the artefacts are found in association with other forms of cultural heritage for which a full recording of a multi-component place with an extent will be made. The artefacts should be recorded in an Artefact Scatter component as part of the submission for registration.

The recording for an LDAD requires less time than the standard Victorian Aboriginal Heritage Register Form, as there is no requirement to provide context details, detailed mapping or photographs. The Supporting Documentation tab is provided for the attachment of documents with additional information such as an Object Collection form if artefacts were removed, or a map may be useful where Victorian government GIS data has been shown to be inaccurate eg the artefacts show on the wrong side of a rural creek because the GIS water sources dataset does not have sub-metre accuracy across Victoria.

Where some or all artefacts of a registered LDAD have subsequently been salvaged, a Place Inspection form should be emailed to Registry (at VAHR@dpc.vic.gov.au), whose staff will attach it to the Supporting Documentation tab of the original record. Place Inspection forms should also be submitted following a revisit advising of a change in condition, lack of relocation of artefacts etc.

However, in the interests of streamlining as many processes associated with LDADs as possible:

- New artefacts found in the vicinity of registered LDADs should be submitted as a new LDAD (unlike full records, LDAD records cannot be merged);
- Unprovenanced artefacts (eg found in imported fill) should include the word UNPROVENANCED as a suffix in the heritage Register name;
- Salvaged and reburied collected LDAD artefacts should be registered in a separate, new submission using the same name as the original registration with SALVAGE or COLLECTION as a suffix.

Recording Requirements

The details of each artefact must be individually recorded, including location. Both surface and sub-surface artefacts can be recorded in this way. Where artefacts have been uncovered through open-area mechanical excavation, the coordinates of a point in the trench or scrape in which the artefacts were found may be used as the artefact coordinate.

The following standard equipment will be needed to ensure collection of the required data:

- **Differential or Carrier Phase Enhancement Global Positioning System (DGPS, or CPGPS which uses Real Time Kinematic [RTK] satellite navigation)** - The Victorian Aboriginal Heritage Register has a target accuracy of 1 metre. This means the recorder needs to use coordinates obtained from a DGPS or CPGPS (accurate to 1 metre or less) or by direct survey.
- **Callipers** - It is expected that callipers are normally used for recording artefact dimensions, both in the field and the laboratory.
- **Hand lens** – Even those with the best of vision can find it difficult to examine an artefact for retouch or usewear. As a minimum, a hand lens should be used to examine artefacts.

Information about the required details and how to complete the ACHRIS component form can be found below.

A Record in Stone by Holdaway and Stern, 2004 is used as a reference for most terms, and should be read in conjunction with this document as a guide to recording stone artefacts. For each artefact, ACHRIS will require information to be entered into each of the fields. The required fields are as follows:

- ***Easting***
- ***Northing***
- ***Zone***
- ***Depth (m)***
- ***Raw Material***
- ***Primary Form***
- ***Cortex %***
- ***% of edge with retouch/ usewear (flakes, blades and angular fragments only)***
- ***Flake Platform (complete and proximal flakes and blades only)***
- ***Flake Termination (complete, distal and longitudinal split flakes and blades only)***
- ***Number of complete scars (cores only)***
- ***Longest scar (axial mm) (cores only)***
- ***Formal Tool/ Core Type (if any)***
- ***Secondary Modification (if any)***
- ***Length - axial for flakes and blades (mm)***
- ***Width - axial for flakes and blades (mm)***
- ***Thickness (mm)***
- ***Maximum Dimension (mm)***

The following table explains what AAV requires to be recorded in each **field**. Next to the field column is a column that shows the **requirement** (or validation rules) in the ACHRIS system to accept a registration, and beside that a column that provides **guidance** on completing the field.

Note: When undertaking a detailed analysis of a stone assemblage, it is expected that many other attributes may be recorded for each artefact. Such information can be lodged in ACHRIS by attaching a data file.

FIELD	*REQUIREMENT*	*GUIDANCE*
Easting	*Mandatory* 6 digit number (and up to 3 decimal places)	The location where the artefact was discovered Coordinates must be provided in GDA 94. The Victorian Aboriginal Heritage Register has a target accuracy of 1 metre. This means professionals lodging data in ACHRIS need to use coordinates obtained from a DGPS or by direct survey.
Northing	7 digit number (and up to 3 decimal places)	
Zone	Either 54 or 55	
Depth (m)	*Mandatory* Number (can be up to 3 decimal places)	The depth of the artefact from the natural ground surface, when discovered For surface artefacts, this should be 0. For excavated artefacts (and others located below the natural ground surface) the depth must be provided in metres from the natural surface level. For example: 0.74 metres below the natural ground surface

FIELD	*REQUIREMENT*	*GUIDANCE*
Raw Material	*Mandatory* Must be one of the following: • Quartz • Chalcedony • Quartzite • Crystal Quartz • Hornfels • Silcrete • Coastal Flint • Chert • Basalt • Greenstone • Andesite • Trachyte • Phonolite • Rhyolite • Sandstone • Slate • Other	A general characterisation of the type of stone Recording the type of raw material allows an investigation of the spatial distribution of raw materials used, settlement systems, location of source, impact of distance to source on the composition of assemblages and manufacturing techniques. Changes in raw material use through time may provide chronological markers. Only the categories provided can be used. Some guidance about these raw materials is provided in Holdaway & Stern, 2004: 19-26. However, some other more 'Victoria specific' raw materials are also included: – Greenstone is widely used in Victoria. Originating mainly from a quarry near Mt William to the north of Melbourne, trading of this material for use as axe heads is well established (McBryde 1978). – Coastal Flint often dominates assemblages on the south-west coast of Victoria, and extends through into South Australia. Visually similar to other flints, this fine grained siliceous material is thought to originate from tertiary limestone outcrops off the coast of Victoria, with wave action and tidal currents moving cobbles to catchments onshore (Clark 1979; Scott-Virtue 1982).

FIELD	*REQUIREMENT*	*GUIDANCE*
Primary Form	*Mandatory* Must be one of the following: • Flake - Complete • Flake - Proximal • Flake - Medial • Flake - Distal • Flake - Longitudinal Split • Blade - Complete • Blade - Proximal • Blade - Medial • Blade - Distal • Blade - Longitudinal Split • Core - Unidirectional • Core - Bidirectional • Core - Bifacial • Core - Multidirectional • Core - Bipolar • Angular Fragment • Cobble or Pebble • Slab	A general characterisation of the form of the artefact Recording the primary form provides a good basic descriptor of the artefact, and can also help in examining other information such as onsite and offsite activities, reduction sequences, manufacturing techniques and some post-depositional processes. Flaked material should be identified here under the categories of Flake, Blade, Core or Angular Fragment. Other ground, pecked or battered artefacts etc should use the categories of cobble, pebble or slab of stone as the basic primary form. Further information should then be included under the field Formal Tool/Core Type and Secondary Modification. Where the recorder is able to identify that an artefact can fit into a number of these categories (such as the proximal end of a longitudinal split flake), the recorder will need to decide which they consider more predominant.

FIELD	*REQUIREMENT*	*GUIDANCE*
Cortex %	*Mandatory* Must be one of the following: • None • 1-32% • 33-66% • 67-99% • 100%	Indicate the percentage of cortex on the artefact Indicating the presence and amount of cortex is useful in determining origin of the raw material used and stage of reduction. The cortex is the original weathered outer surface of the rock which has been naturally, chemically or mechanically altered. The recorder must decide approximately how much cortex is on the artefact, considered as a whole, deviding the artefact into thirds. Example: a complete flake with the entire dorsal surface (~50% of the total artefact) made up of cortex, will have 33-66% cortex overall. If no cortex is present then 'none' must be chosen.
% of edge with retouch/ usewear	Mandatory if the primary form is: *Flake - Complete* *Flake - Proximal* *Flake - Medial* *Flake - Distal* *Flake - Longitudinal Split* *Blade - Complete* *Blade - Proximal* *Blade - Medial* *Blade - Distal* *Blade - Longitudinal Split* *Angular Fragment* Must be one of the following: • None • 1-32% • 33-66% • 67-99% • 100%	Indicate the percentage of the artefact's margin with retouch or usewear This is the main indicator of whether the artefact is a tool. Identifying retouch or usewear on an artefact indicates the artefact was specifically prepared or used for a particular purpose. In artefact analysis, artefacts with retouch or usewear provide the principal way of examining people's activities and behaviour. As a minimum, a hand lens should be used to examine each artefact for retouch or usewear. If there is no retouch or usewear evident then 'none' must be chosen.

FIELD	*REQUIREMENT*	*GUIDANCE*
Flake Platform	Mandatory if the primary form is: *Flake - Complete,* *Flake - Proximal,* *Blade - Complete, or* *Blade - Proximal* Must be one of the following: • Plain • Flaked • Facetted • Abraded (ground) • Cortex • Crushed	The platform type for complete and proximal Flakes and Blades The platform is a remnant of the core from which the blade or flake was removed, and can provide useful information about how a core has been worked (Holdaway and Stern, 2004:119). This must be recorded for complete and proximal flakes and blades. 'Plain' exhibits only the natural 'inner' parts of the stone, without multiple flake scars, impact points or cortex. 'Flaked' exhibits two or more flake scars without impact points or cortex. 'Facetted' includes one or more flake scars that exhibit impact points. Note: Input into this field for other primary forms will not be accepted, and must be left blank. Longitudinal split flakes/blades have not been included here, as the platform is not complete.
Flake Termination	Mandatory if the primary form is: *Flake – Complete* *Flake – Distal* *Flake - Longitudinal Split* *Blade – Complete* *Blade – Distal* *Blade - Longitudinal Split* Must be one of the following: • Feather • Hinge • Plunge • Step • Axial • Crushed	The flake termination for complete, distal, and longitudinal split flakes and blades This information can be used to consider such matters as the skill of the knapper (when looking at entire assemblages) and to identify the tool blanks being produced (Holdaway and Stern, 2004:129&133). This must be recorded for complete, distal and longitudinal split flakes and blades. Note: Input into this field for other primary forms will not be accepted, and must be left blank.

FIELD	*REQUIREMENT*	*GUIDANCE*
Number of complete scars	Mandatory if the primary form is: Core - Unidirectional Core - Bidirectional Core - Bifacial Core - Multidirectional Core - Bipolar Must be one of the following: • 1 • 2 • 3 • 4 • 5 • 6 • > 6	Indicate the number of complete flake scars on a core A complete flake scar retains a negative bulb of percussion and fracture path through to the termination, as determined by the recorder's best judgement. Note: Input into this field for other primary forms will not be accepted, and must be left blank.
Longest scar (axial mm)	Mandatory if the primary form is: Core - Unidirectional Core - Bidirectional Core - Bifacial Core - Multidirectional Core - Bipolar Number (can be up to 3 decimal places)	The length of the longest complete scar on a core This can provide an estimate of the size of flakes being removed from a core (Holdaway and Stern, 2004:182). Measurements should an axial measurement from the impact point to the farthest distal point on the scar along the flaking axis. Note: Input into this field for other primary forms will not be accepted, and must be left blank.

FIELD	*REQUIREMENT*	*GUIDANCE*
Formal Tool/ Core Type	At the discretion of the recorder Must be one of the following: • Adze - Flake • Adze - Tula • Backed - Bondi Point • Backed - Elouera • Backed - Geometric Microlith • Burin • Notched Tool • Nuclear Tool - Bifacial Chopper • Nuclear Tool - Unifacial Chopper • Point - Bifacial • Point - Engraver, Drill or Piercer • Point - Unifacial • Scraper - Amorphous • Scraper - Concave and Nosed • Scraper - Flat-edged • Scraper - Round-edged • Scraper - Steep-edged • Scraper - Thumbnail • Core - Horsehoof • Core - Blade • Core - Microblade • Core - Burin blade • Anvil • Axe - Ground Edge • Axe - Preform • Chisel • Wedge • Grinding Slab • Grinding Stone • Grinder • Hammerstone • Manuport	The artefact is an established formal tool or core type This allows the recorder to indicate if they have identified that the artefact conforms to an established tool or core type. Identifying whether the artefact conforms to one of these formal tool or core types relies on the experience and ability of the recorder, and is at the discretion of the recorder. Recorders should ensure that they are familiar with these formal tool and core types. Detailed description and photographs can be found in Holdaway and Stern 2004. If the artefact does not conform to any of these formal tool or core types, the field must be left blank.
FIELD	*REQUIREMENT*	*GUIDANCE*

Secondary Modification	At the discretion of the recorder Must be one of the following: • Grinding • Pecking • Battering • Heating • Waisted • Grooved	
Length - axial for flakes and blades (mm)	*Mandatory* Number (can be up to 3 decimal places)	The length of the artefact Where a flake or blade can be oriented, measurements are to be from the impact point to the distal point on the flaking axis. The flaking axis is taken to be a line bisecting the impact point and oriented at a right angle to the flake/blade platform (see figure 1). For other artefacts the length should be measured using an orientation determined by the recorder's best judgement using the general measurements as shown in figure 1. Example: the length is 12.5 millimetres.
Width - axial for flakes and blades (mm)	*Mandatory* Number (can be up to 3 decimal places)	The width of the artefact Where a flake or blade can be oriented, measurements are to be taken at the mid-point along the axial length, as determined by the recorder's best judgement (see figure 1). For other artefacts the width should be measured using an orientation determined by the recorder's best judgement using the general measurements as shown in figure 1.

FIELD	*REQUIREMENT*	*GUIDANCE*
Thickness (mm)	*Mandatory* Number (can be up to 3 decimal places)	The thickness of the artefact Where a flake or blade can be oriented measurements should be the width at the mid-point along the axial length for flakes and blades that can be oriented, as determined by the recorder's best judgement.
Maximum Dimension (mm)	*Mandatory* Number (can be up to 3 decimal places)	The maximum dimension measurable This is the most basic measurement of an artefact. It can provide a quick way to examine a large volume of artefacts, and can be used to undertake various types of assessment. Note: This measurement will sometimes be the same as the length.

References

Clark, D. 1979 *The Gambieran Stone Tool Technology* Honours Thesis, La Trobe University

Holdaway, S. and Stern, N. 2004 *A Record in Stone* Museum Victoria, Melbourne and AIATSIS, Canberra

Scott-Virtue, L. 1982 *Flint: The Foundation for an Hypothesis* Honours Thesis, La Trobe University

McBryde, I. 1978. "Wil-im-ee Moor-ring: Or, where do axes come from?: Stone axe distribution and exchange patterns in Victoria" *Mankind* 11(3):354-382.

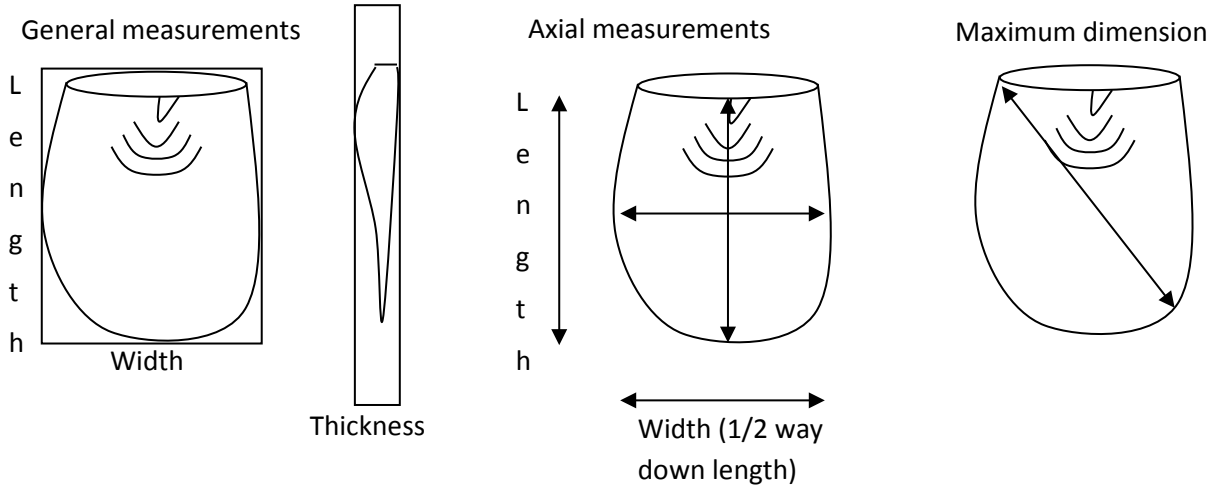

Figure 1. General measurements, axial measurements and the maximum dimension