

Javier Canon
Senior Policy Officer
Department of Planning, Industry & Environment
4 Parramatta Square, 12 Darcy Street
PARRAMATTA NSW 2150

4 September 2020

ERM Reference: 0470861

Dear Javier Canon

Subject: Bonshaw Solar Farm (SSD 9438) – Response to RFI Dated 31 July 2020

1. INTRODUCTION

GAIA Australia Pty Ltd (GAIA) are seeking approval to develop a large scale photovoltaic (PV) generation facility with a capacity of 200 megawatts (MW) and associated infrastructure, including a Lithium-ion Energy Storage System (ESS/Li-ion). The proposed development of the Bonshaw Solar Farm (the 'Project') is located at Bonshaw, within the Inverell Local Government Area in New South Wales (NSW). The Project is located approximately 66 km north of Inverell, with site access fronting Bruxner Highway.

1.1 Project Progress

The Project's Environmental Impact Statement (EIS) was exhibited over a 29 day period, from 6 November 2019 to 4 December 2019. There were 13 submissions received from government agencies and two public submissions during this period. A Response to Submissions (RTS) was submitted to the Department of Planning, Industry and Environment (DPIE) to address these comments.

Since exhibition and subsequent submission of the RTS, the Project was amended through the submission of an Amendment Report (AR) to provide details of the overhead connection.

On 8 April 2020 the DPIE provided a 'Request for Additional Information' for five (5) matters relating to the Project updates. These matters were addressed through the submission of a letter dated 16 April 2020.

On 1 May 2020, DPIE provided a 'Request for Additional Information', seeking further details to effectively address eleven (11) items raised, relating to traffic, biodiversity assessment, flooding and water supply. ERM submitted a letter to DPIE on 19 June 2020 to address these matters.

1.2 Purpose of Letter

The purpose of this letter is to provide details on items raised by Heritage NSW relating to the management of AHIMS 11-3-0083, and to address the glare impact item, in order to assist with the Department's assessment and determination of the Project. Details to address these items raised are provided in **Section 2** below.

2. PROVISION OF ADDITIONAL INFORMATION

Each item raised by DPIE (and Heritage NSW) have been outlined in **Table 2-1** below, with supporting details provided in the right column as a response to the request for information.

Table 2-1 Request for Information Details

Item	BCD and/or DPIE Comments	Details
Aboriginal Heritage		
1	<p>"[HNSW] strongly recommend that, prior to any final comment on conditions or determination of this project, the project archaeologist revisit the re-projected location AHIMS site 11-3-0038 and carry out detailed survey, which may require sub surface investigation, in order to accurately ascertain the dimensions of the site." (BCD, July 2020)</p>	<p>Everick Heritage were engaged to undertake an inspection of the site to relocate the AHIMS site. Subsequent to this, Everick Heritage have provided an addendum to the ACHA completed by ERM which is provided as Attachment A.</p> <p>We understand through correspondence issued on 27 August 2020 that Heritage NSW have now accepted the findings and endorsed the project, subject to specified Development Consent conditions.</p>
Glare Assessment		
2	<p>The Glare Assessment model was conducted using single-axis tracking system. Please clarify whether any glare impacts arise from the use of fixed tilt panel layout, as indicated as a design option in Section 2.2.1 of the EIS.</p>	<p>The original Visual and Glare Assessment (ERM, 2019) undertook a glare impact assessment which involved modelling in the ForgeSolar Assessment tool (as detailed in Section 6.4 of the Visual and Glare Assessment). The parameters for the modelling included the use of "single-axis rotation" as the Axis Tracking type.</p> <p>In order to understand any likely variation to glare impacts, the model was re-run. The result of the model indicated that there would be a minor glare impact experienced along the Bruxner Highway. To mitigate this glare impact, the proposal will adopt single-axis tracking system for solar panels.</p>

3. SUMMATION

This response has been prepared to address items raised in the Department's request for information, dated 31 July 2020. This response provides various updated details associated with the Bonshaw Project.

We trust the information provided is sufficient to address details requested by DPIE. Should you require any further details, please do not hesitate to contact the undersigned on (02) 4903 5535 or via email Lachlan.Giles@erm.com.

Yours sincerely,



Lachlan Giles
Environmental Planner



Michael Rookwood
Senior Planner

ATTACHMENT A ACHA ADDENDUM

24 August 2020

EV.1067

Luke Kim
Managing Director/ Development Consulting and Execution
GAIA Australia
PO Box 1940
MACQUARIE CENTRE QLD 2113

Dear Luke,

**RE: RESPONSE TO REQUEST FOR INFORMATION
BONSHAW SOLAR FARM, BONSHAW NSW**

Thank you for the opportunity to provide advice on the request for information from the Department of Planning and Heritage NSW in regard to the Aboriginal Cultural Heritage Assessment ('ACHA') requirements for the Bonshaw Solar Farm (the 'Project'). This letter is provided to act as an addendum to the existing ACHA which has been completed by ERM and is subject to a request for additional information from Heritage NSW (11 June 2020 and 22 July 2020). We have included the following to assist the Department of Planning and Heritage NSW to better understand the nature and extent of Aboriginal archaeological sites within the Bonshaw Solar Farm project.

Scarred tree within site TD-OS14 (#11-3-0083)

A site inspection was undertaken on 19 August 2020 by myself and Archaeologist Matthew Finlayson to relocate the possible scarred tree noted in the AHIMS site card for the TD-OS14 site (#11-3-0083) utilising the original 'mud-map' drawing (see Appendix 1). The tree was easily visible from the farm track/ creek crossing as described by the AHIMS site. The tree is located at UTM E338510N 6768376 and comprised the trunk of a dead iron bark tree which is inferred to have fallen through natural causes. The dimensions of the scar are 1570 mm x 380 mm x 70 mm and the inferred height of the top of the scar from the ground is 1700 mm. The scar is symmetrical and while the lower scar termination has rotted out, based on a comparison with the NSW Scarred Tree Identification Manual it is concluded that the tree is an Aboriginal object (<https://www.environment.nsw.gov.au/research-and-publications/publications-search/aboriginal-scarred-trees-in-new-south-wales-a-field-manual>). However, having consideration for

the AHIMS site record, it is noted that the tree should be added as a discrete 'site feature' or as a new stand-alone AHIMS site (preferred).

Nature and extent of archaeological site (TD OS14 /#11-3-0083)

Based on the inspection of artefacts within the TD OS14 site and as mapped by ERM it is possible to make the following general comments on the nature and extent of artefacts within and nearby to the TD – OS14 (#11-3-0083) archaeological site;

- Artefacts identified on the ground during the Everick 2020 investigation are substantially consistent with the original mapped locations (Ozark Heritage 2011). However, it is noted that the northern and southern extents of the 'site' are considered to be incorrect. It is likely that the northern and southern boundaries of the site as mapped reflect the survey distance from the proposed easement centreline, as marked on the mud map, and not the actual extent of the site. This is a common problem when undertaking archaeological surveys of linear proposals and accounts for the discrepancy with the ERM mapping.
- The dam and on-contour swales have been constructed following the 2011 survey and the 'axe blank' could not be located. It is considered that the on-contour swales represent an increase in agricultural activity which has likely contributed to the loss of artefact density across the site.
- The density of artefacts is generally greater on the western, or 'larger watercourse'. The smaller eastern tributary of the watercourse is relatively much steeper than the larger western watercourse and cuts through stony or shale filled soils. This would account for the loss of some of the artefacts when compared to the original description of the site.
- The TD OS14 site as mapped includes parts of the following archaeological sites as identified by the ERM report;
 - a) BSF 22;
 - b) BSF 32;
 - c) BSF 27; and
 - d) BSF 28.
- All three investigations generally agree that Aboriginal stone artefacts are visible in low densities across the landscape and that the density of artefacts decreases with distance from the watercourses. Based on the relative density of artefacts on nearby knolls and nearby to the watercourse it is reasonable to conclude that the distribution of archaeological sites is

attributable to both deposition on key landforms by Aboriginal people as a result of cultural activities which consistently occurred near water or on hilltops *and* the removal of archaeological materials from the open spurlines, ridges and slopes by agricultural practices and sheet water erosion.

- Having consideration for the potential that the archaeological sites contain sub-surface deposits it is Everick's opinion that the potential for artefacts to have been buried as a result of erosion and downstream movement of soils is possible. However, it is not considered likely that the completion of a sub-surface archaeological excavation program would significantly inform or change the management of archaeological values for the following reasons;
 - i. Having consideration for the Due Diligence Code of Practice the lands meet the definition of 'disturbed lands'. The history of soil disturbance from agricultural practices is such that the spatial integrity of the archaeological sites has been significantly compromised. Any results from a random or systematic sampling strategy would likely not reflect the original discard of Aboriginal objects.
 - ii. While the archaeological sites may result from deposition of artefacts over time there are no temporal controls within a standard test-pit excavation program that could inform our understanding of the relative age of portions of the site. However, based on the nature of artefacts visible on the ground surface there is no reason to specifically conclude that the 'site' dates to early Holocene or Pleistocene.
 - iii. It is likely that distribution of artefacts within the Bonshaw Solar Farm is secondary to occupation along the Dumaresq River to the north. It is considered likely that archaeological sites with significant artefact density/ diversity are located along the river and at the confluence of the river and larger creek lines to the east and west.
 - iv. The proposed solar panel frames will utilise a pile solution which has a significantly reduced footprint when compared to standard concrete footings. The pile solution will result in minor downward movement of soils, however it is expected that artefacts, should they occur, would move laterally in the softer topsoils.
 - v. The proposal does include burial of High Voltage cables underground which will result in disturbance of topsoils which have the potential to contain Aboriginal objects. While this may result in harm to sub-surface objects the soils will be retained and used as backfill. The High Voltage cables can be designed to substantially avoid the archaeological sites. As such, it is reasonable to proceed on the basis that management strategies to ameliorate this potential harm can be negotiated through the ACHMP process.

Scarred Tree Assessment

It is noted that the ERM study did not make conclusive comment on scarred trees. As such we have additionally undertaken an inspection of the scarred trees identified by the ERM report to inform the ACHMP. The below table provides a summary of scarred trees based on Everick's site inspection. This includes the 'possible scar tree' from #11-3-0083 and an additional scar tree to the immediate north of BSF 22 that was either missed or discounted by the ERM survey. Everick considers that this is an Aboriginal scarred tree.

Table 1: Scarred Tree Assessments

Site ID	Easting	Northing	Notes
BSF 5	338890	6769381	Requires additional consultation with Aboriginal community. Includes smaller scars consistent with shield shape. However, tree is outside development footprint.
BSF 6	338872	6769384	Includes smaller scars consistent with shield shape. Requires additional consultation with Aboriginal community. However, tree is outside development footprint.
BSF 11	338904	6769128	Requires additional consultation with Aboriginal community. Scar is large and canoe-esque but the upper and lower terminations are not clearly identifiable. However, tree is outside development footprint.
BSF 18	338844	6768446	The scar is not consistent with Aboriginal scarred trees.
BSF 19	339024	6768461	Requires additional consultation with Aboriginal community. The lower section of the scar is somewhat consistent with a shield scar however the upper termination has been significantly damaged.
BSF 29	337927	6768055	Is identified as a scarred tree. Note, the marks on the overgrowth are consistent with ring barking.
BSF36 (additional find).	338513	6768591	Scar is on west facing side of trunk near small stock yards. Scar dimensions are 1570 mm x 380 mm x 70 mm. The top of the scar is 1700 mm and the DBH is 700 mm. The tree is dead and has been ringbarked but is in reasonable condition. The scar tree is outside the development footprint and south of ERM site BSF-24.

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Site ID	Easting	Northing	Notes
BSF37 (#11-3-0083)	338510	6768376	The scar was previously identified by Ozark Heritage and is immediately south, or within, BSF22.

Based on the above it is Everick's opinion that there is sufficient information on Aboriginal heritage to successfully negotiate an Aboriginal Cultural Heritage Management Plan for the Bonshaw Solar Farm. The nature and extent of the stone artefact scatters and scar trees are generally consistent with the archaeological record of the north-western slopes and tablelands. The consultation and investigations to date has not identified any sites of a ceremonial or restricted nature where the value of the site to the Aboriginal community which would be inconsistent with the development proposal. Finally, the nature of the Solar Farm is such that archaeological sites can be substantially avoided using engineering solutions or managed through relocation/ reburial in partnership with Aboriginal stakeholders.

If you have any questions, please feel free to contact me at t.hill@everick.net.au or by mobile on 0422 309 822.

Yours sincerely,



Tim Hill
Principal Consultant (Northern NSW)
Everick Heritage Pty Ltd



APPENDIX 1: 'Possible' Scar Tree AHIMS Site 11-3-0083

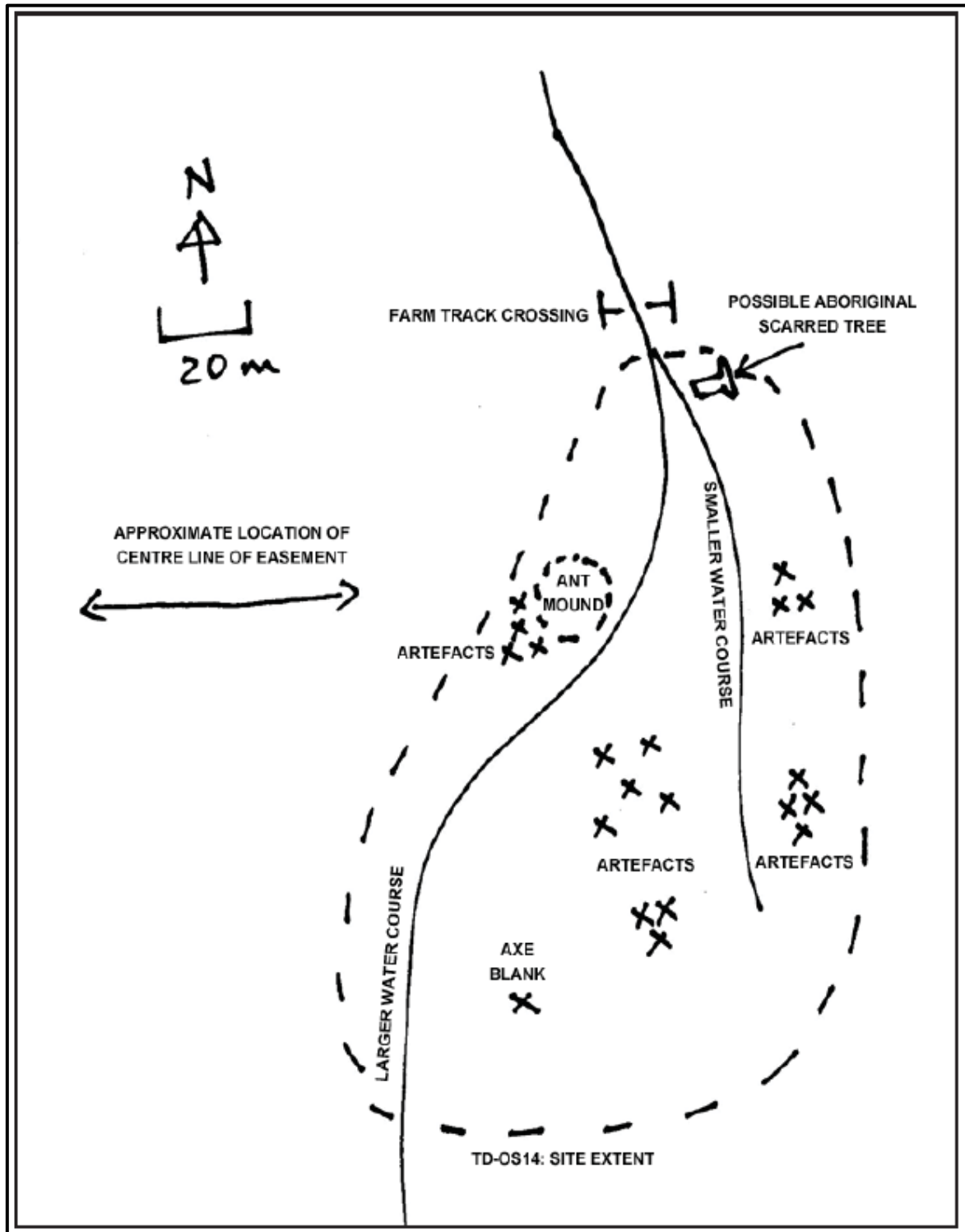


Figure 1: TD-OS14 'Site Extent' (source AHIMS site card / Ozark Heritage 2011).

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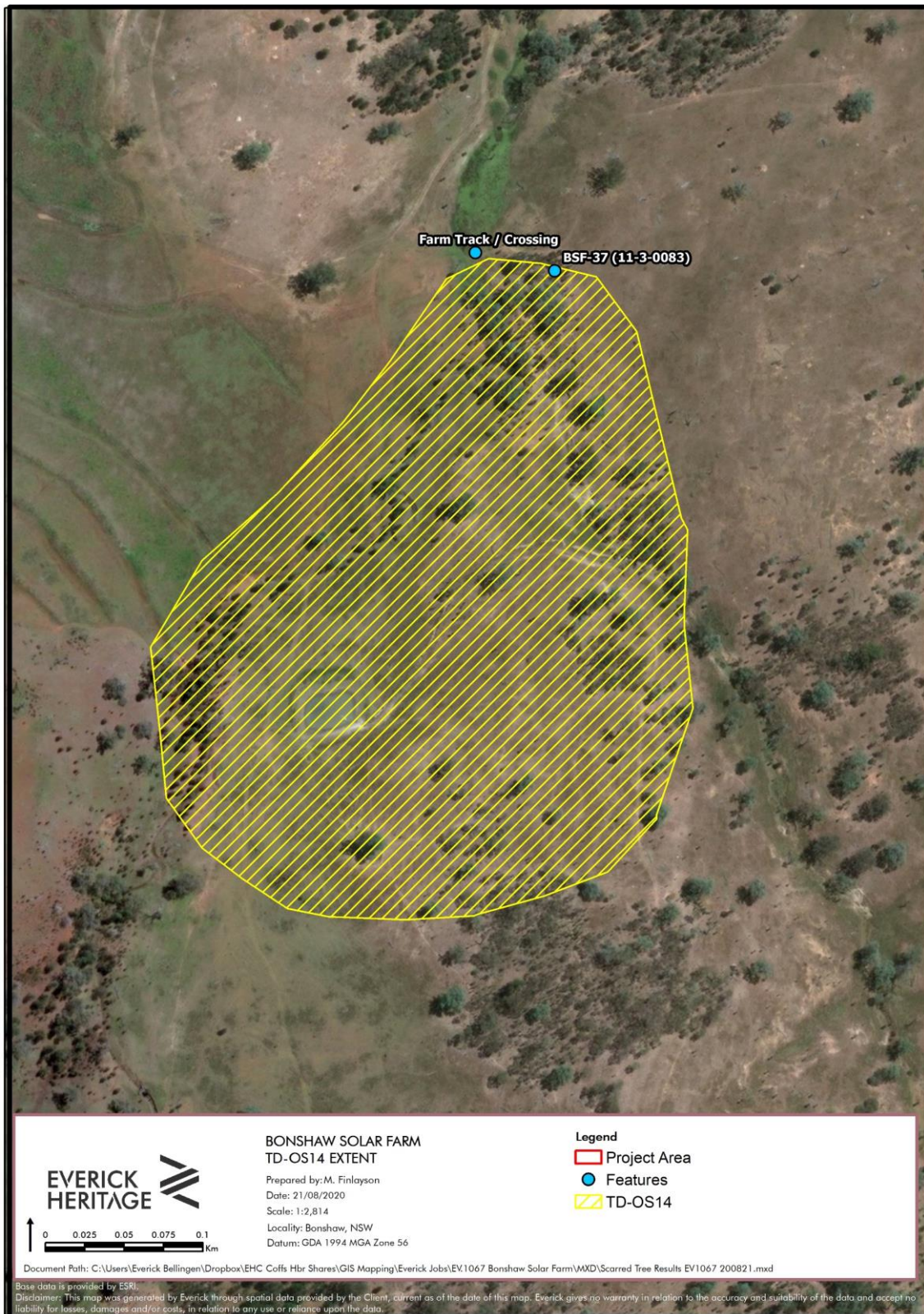


Figure 2: Location of possible scarred tree #11-3-0083 (Everick Heritage Site Investigation 19 August 2020).

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Figure 3: Photo of 11-3-0083 scarred tree (Everick Heritage 19 August 2020).



Figure 4: Detail of 11-3-0083 scarred tree (Everick Heritage 19 August 2020).

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APPENDIX 2: Nature and Extent of TD-OS14 (#11-3-0083) Site

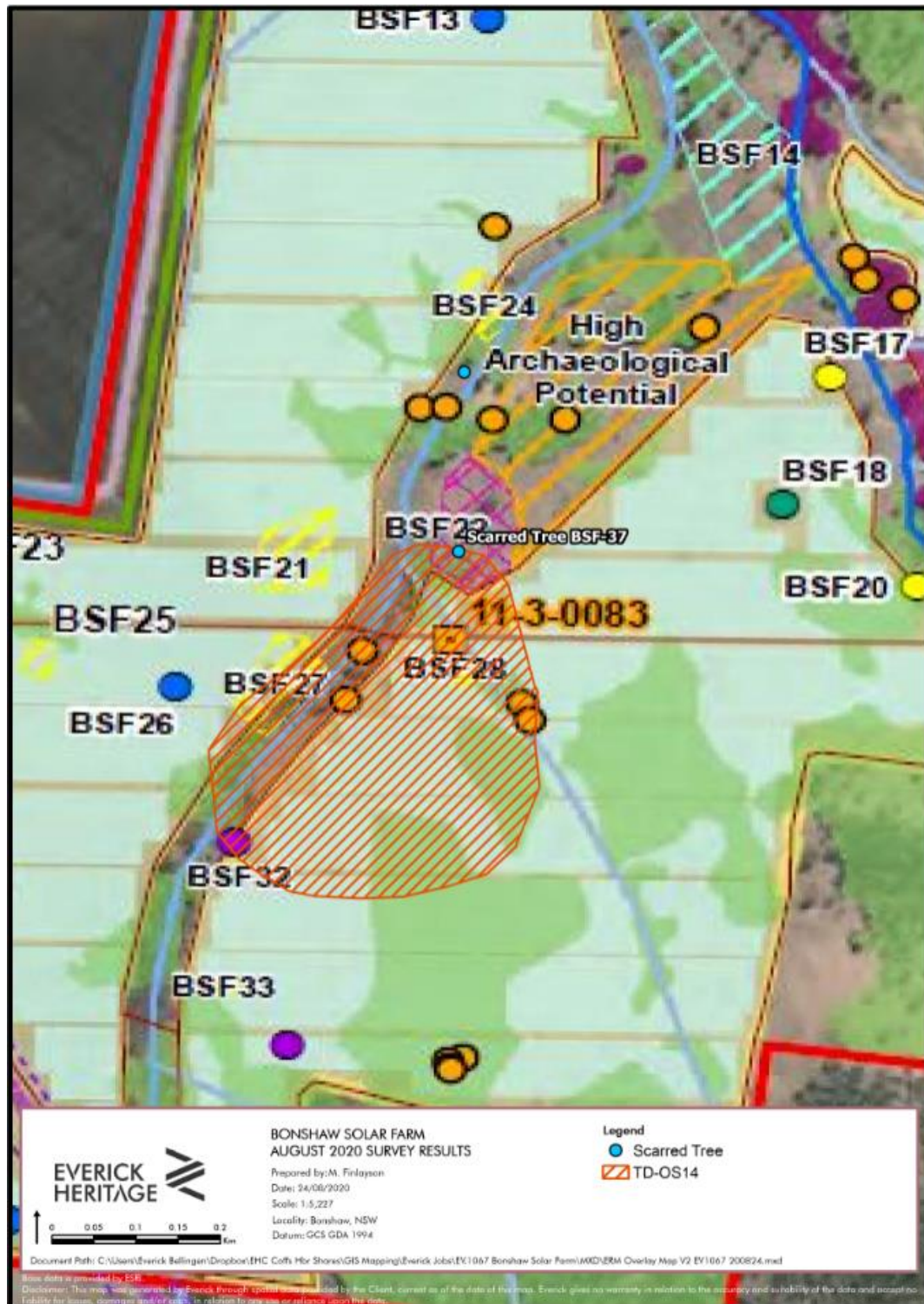


Figure 5: TD-OS14 extent.



Figure 6: Core on eastern bank of eastern watercourse.



Figure 7: Primary flake / blade with smooth cortex on western watercourse.

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Figure 8: Erosion and GSV on eastern watercourse.



Figure 9: View north to the confluence of the watercourses from the small spur termination.



Figure 10: Contour swale through the lower slope.



APPENDIX 3: Scarred Tree Assessment



Figure 11: Scarred Tree Results.

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Figure 12: BSF-5 Scarred Tree.



Figure 13: BSF-6 Scarred Tree.



Figure 14: BSF-11 Scarred Tree.



Figure 15: BSF-18 Scarred Tree.

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Figure 16: BSF-19 Scarred Tree.



Figure 17: BSF-29 Scarred Tree.



Figure 18: BSF-36 Scarred Tree.

