ABORIGINAL DUE DILIGENCE ASSESSMENT

Uranquinty Solar Farm

December 2021

Project Number: 20-703

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ACRONYMS AND ABBREVIATIONS

AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AWE	Department of Agriculture, Water and the Environment (Cwth)
Cwth	Commonwealth
DPIE	Department of Planning, Industry and Environment (NSW)
EES	Department of Environment, Energy and Science (NSW) (formerly OEH, Office of Environment and Heritage)
ha	hectares
Heritage Act	*Heritage Act 1977* (NSW)
km	kilometres
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
m	metres
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NSW	New South Wales
OEH	See EES
PAD	Potential Archaeological Deposit

EXECUTIVE SUMMARY

NGH was commissioned by Habitat Planning, on behalf of Bison Energy, to undertake a Due Diligence assessment for Aboriginal heritage sites for the proposed Uranquinty Solar Farm. The proposal involves the construction, installation and ongoing maintenance of a solar farm including all associated infrastructure and laydown. The purpose of this Due Diligence assessment is to determine whether the construction of the proposed solar farm is likely to impact upon Aboriginal objects. The project area is 17 hectares (ha) in size, comprised of Lot 43 DP754565 within the Wagga Wagga Local Government Area (LGA), and is located approximately 1.5km south east of Uranquinty. The development is considered regionally significant and as such will be assessed by council and approved by the Regional Planning Panel.

A landform assessment, using satellite imagery and topographic data, indicated that there is moderate potential for Aboriginal Cultural Heritage to occur within the project area given the location within an archaeologically sensitive landform, a flat plain between two waterways.

The results of an Aboriginal Heritage Information Management System (AHIMS) register search and research into previous archaeological investigations in the region indicate that the most likely Aboriginal heritage site types to occur within the project area are culturally modified trees. There is also potential for *potential archaeological deposits* (PADs) and stone artefact sites to occur.

A visual assessment of the project area was undertaken by a qualified NGH archaeologist. There were no Aboriginal objects or areas of PAD identified during the visual inspection of the project area. This is largely due to the levels of ground disturbance and clearing associated with the historic land use of the area. While the project area is located on a flat plain landform associated with a waterway, it is more likely that any sites within the immediate region would be concentrated closer to Sandy Creek, or on the elevated high ground to the north of the project area.

IMPACT ASSESSMENT CONCLUSION

It is unlikely that the proposed development will impact upon Aboriginal objects. There were no mature trees located within the proposed development footprint, no areas of PAD identified and the levels of ground disturbance evident identified a low potential for stone artefacts to remain.

RECOMMENDATIONS

The following recommendations are based on a number of considerations including:

- Background research into the area;
- Landscape assessment;
- Field inspection;
- Consideration of the proposed works, and
- Legislative context for the development proposal.

Based on an assessment of the project, the location and previous level of disturbance, the proposed work can proceed with caution with the following recommendations.

1. All works must be constrained to the area assessed within this report and any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment.

2. All access to the site and laydown areas must be within existing tracks and disturbed areas otherwise visual inspection of the sites by a qualified archaeologist is required.
3. If any items suspected of being Aboriginal in origin are discovered during the work, all work in the immediate vicinity must stop and Heritage NSW notified. The find will need to be assessed and if found to be an Aboriginal object an AHIP may be required.

Bison Energy is reminded that it is an offence under the *NSW National Parks and Wildlife Act 1974* to disturb, damage or destroy and Aboriginal object without a valid Aboriginal Heritage Impact Permit.

1. INTRODUCTION

NGH was commissioned by Habitat Planning, on behalf of Bison Energy, to undertake a Due Diligence assessment for Aboriginal heritage sites for the proposed Uranquinty Solar Farm, located approximately 1.5 km south east of Uranquinty, NSW.

The proposal involves the construction, installation and ongoing maintenance of a solar farm including all associated infrastructure and laydown requirements. The project would involve significant ground disturbances to facilitate the solar farm. The due diligence assessment is undertaken to evaluate the presence or potential for Aboriginal objects to occur and be affected by the development activity. This Aboriginal Heritage Assessment has been prepared to consider the potential cultural heritage impacts associated with the proposed development of the Uranquinty Solar Farm.

1.1. PROJECT AREA

The project area for the proposed Uranquinty Solar Farm is located within Lot 43 DP754565 within the Wagga Wagga Local Government Area (LGA) (Figure 1-1). The works cover an area of approximately 18 hectares (ha) and are bounded by Uranquinty to the west, a vehicular track to the north, and cropping and grazing agricultural land to the east and south (see Figure 1-2 below).

The area is located within the Inland Slopes of the NSW South Western Slopes IBRA biogeographic region. The project area is zoned RU1 Primary Production under the Wagga Wagga Local Environment Plan (LEP 2010). The area has been largely cleared for agricultural purposes, with land use recorded as primarily cropping, with a small area of grazing native vegetation (OEH, 2017).

1.2. PROJECT PERSONNEL

The Due Diligence assessment was carried out by qualified archaeologist Bronwyn Partell of NGH. This included background research, field inspection and the completion of this report. Qualified archaeologist Jorge Fuenzalida Miralles completed the background research for this report and Jakob Ruhl reviewed the report. Post completion of the report, the project area was expanded by approximately one hectare. Updates to the report were completed by Jorge Fuenzalida Miralles and reviewed by Bronwyn Partell.

The due diligence process does not formally require consultation with Aboriginal community groups. No Aboriginal groups were contacted for this due diligence level assessment. The project area is within the boundaries of the Wagga Wagga Local Aboriginal Land Council.

1.3. APPROACH AND FORMAT OF THIS REPORT

This report has been drafted in keeping with the sequence of steps identified in the NSW Office of Environment and Heritage's *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (OEH 2010) (referred to as 'the Code of Practice'). The Code of Practice provides a five-step approach to determine if an activity is likely to cause harm to an Aboriginal object, as defined by the *NSW National Parks and Wildlife Act 1974*. The steps follow a logical sequence of questions, the answer to each question determines the need for the next step in the process.

Table 1-1 Due Diligence Steps for this report

Due Diligence Steps
Step 1. Will the activity disturb the ground surface?
Step 2a. Search the AHIMS database and use any other sources of information of which you are already aware
Step 2b. Are activities proposed in areas where landscape features indicate the presence of Aboriginal objects?
Step 3. Can you avoid harm to the object or disturbance of the landscape feature?
Step 4. Undertake a desktop assessment and visual inspection. Is it likely that Aboriginal objects will be impacted by the proposed works?
Step 5. Further investigations and impact assessment

The Due Diligence Code of Practice sets out the steps which the Proponent is required to take in order to:

- Identify whether Aboriginal objects are, or are likely to be, present in the study area;
- Determine whether or not their activities are likely to harm Aboriginal objects (if present) in the study area; and
- Determine whether an AHIP application is required.

Each section within this report follows the relevant step outlined in the Code of Practice.

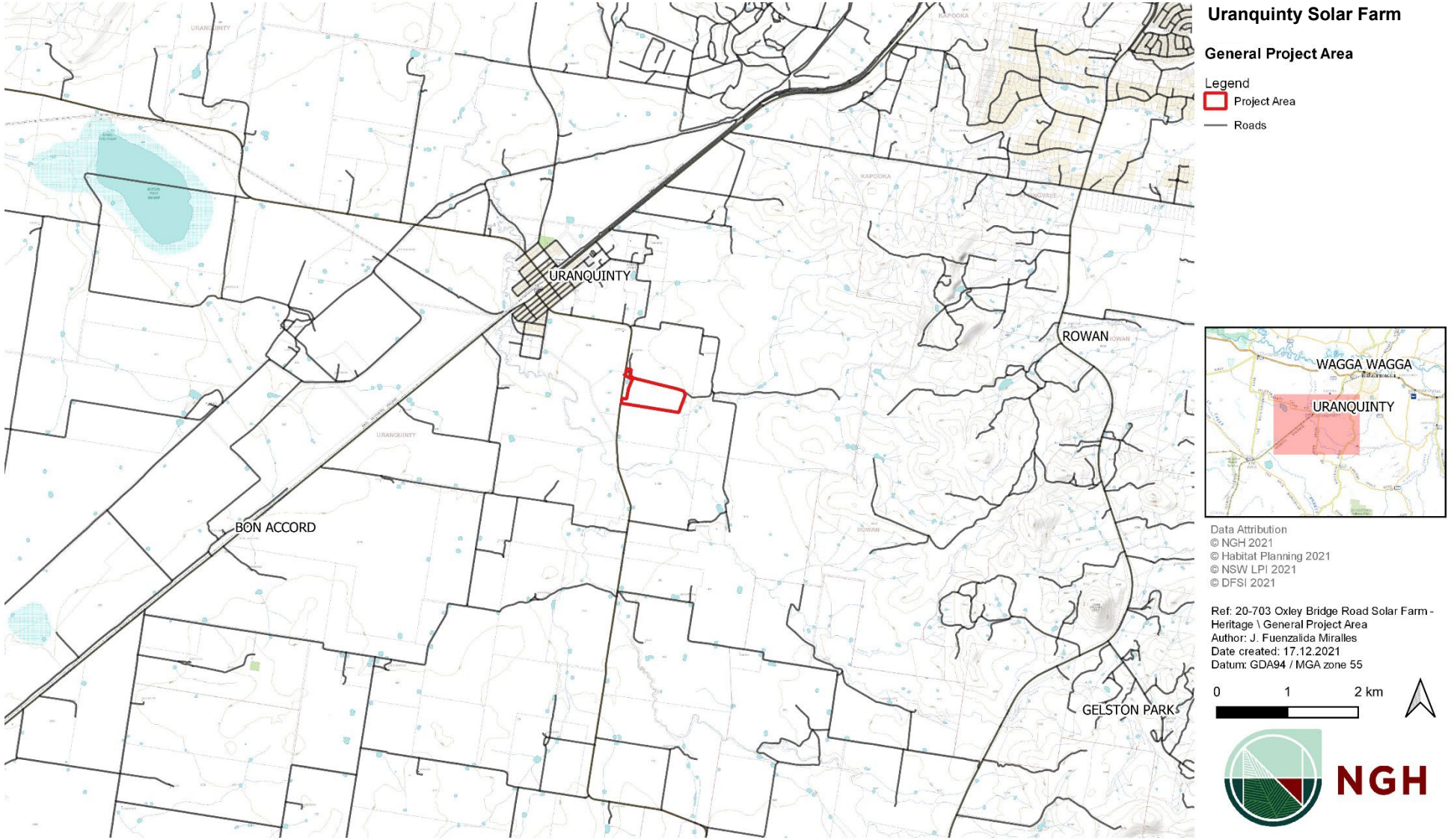

Figure 1-1 General Project Location

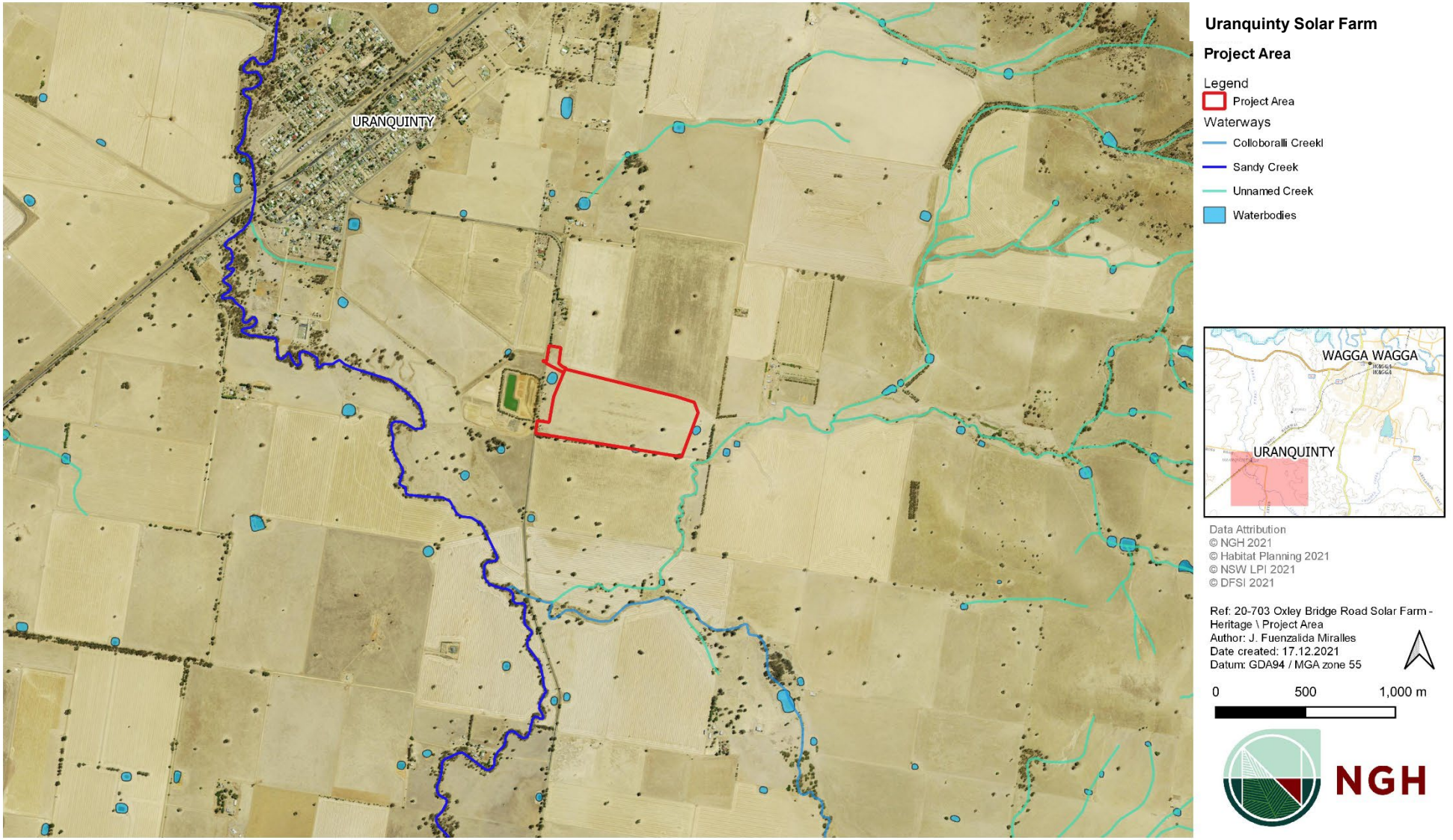

Figure 1-2 Uranquinty Solar Farm Project Area

2. LEGISLATION

In NSW, Aboriginal heritage is principally protected by two legislative acts:

- The National Parks and Wildlife Act 1974 (NSW) (NPW ACT); and
- The Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act).

Wagga Wagga City Council (WWCC) is the consent authority for the proposed development, which will be assessed under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

2.1 NATIONAL PARKS AND WILDLIFE ACT 1974

Part 6 of the NPW Act concerns Aboriginal objects and places and various sections describe the offences, defences and requirements to harm an Aboriginal object or place. All Aboriginal material receives blanket protection under the NPW Act of NSW. The main offences under section 86 of the NPW Act are:

- A person must not harm or desecrate an object that the person knows is an Aboriginal object.
- A person must not harm an Aboriginal object.
- For the purposes of this section, "circumstances of aggravation" are:
    - that the offence was committed in the course of carrying out a commercial activity; or
    - that the offence was the second or subsequent occasion on which the offender was convicted of an offence under this section.
- A person must not harm or desecrate an Aboriginal place.

Under section 87 of the NPW Act, there are specified defences to prosecution including authorisation through an Aboriginal Heritage Impact Permit (AHIP) or through exercising due diligence or compliance through the regulation.

Section 89A of the Act also requires that a person who is aware of an Aboriginal object, must notify the Director-General in a prescribed manner. In effect, this section requires the completion of AHIMS site cards for all sites located during heritage surveys.

The strict liability offence of harming Aboriginal objects has a number of defences and include the statutory defence of due diligence (Section 2.4) through complying with an adopted industry code of practice, or compliance with the conditions of an AHIP.

2.2 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is legislation for the management of development in NSW. It sets up a planning structure that requires developers (individuals or companies) to consider the environmental impacts of new projects. Under this Act, cultural heritage is considered to be a part of the environment. It provides for the identification, protection and management of heritage items through inclusion of these items into schedules off planning instruments, such as Local Environmental Plans (LEPs) or Regional Environmental Plans (REPs). This Act requires that Aboriginal cultural heritage and the possible impacts to Aboriginal

heritage that development may have are formally considered in land-use planning and development approval processes.

2.3 WAGGA WAGGA LOCAL ENVIRONMENTAL PLAN 2010

The study area is located within the Wagga Wagga LGA. Schedule 5 of the LEP 2010 details the included environmental heritage items covered by the plan. No Aboriginal sites or places are identified within close proximity to the project area in the Wagga Wagga LEP.

3. GROUND DISTURBANCE

Step 1. Will the activity disturb the ground surface or any culturally modified trees?

The proposed Uranquinty Solar Farm would involve the installation of solar panels and their associated infrastructure. The intended capacity of the solar farm is up to 7.4 MW DC/ 4.9 MW AC. The proposed development footprint for the project is approximately 18 hectares (ha), with the details highlighted in Figure 3-1.

- Installation of solar arrays
- Point of Connection compound, including Site office, secondary carpark, and MV power station
- Internal tracks within perimeter security fencing
- Car park (outside of security fencing)
- Lay-down area
- Waste area
- Water tanks (3)
- Main site entry/exit to Uranquinty
- Vegetation screening between solar arrays and Uranquinty
- Security fencing

These activities require moderate ground disturbance, the use of heavy machinery and laydown areas. Any Aboriginal sites within the disturbance footprint could therefore be subject to harm. The affirmation that ground disturbance will occur requires the next step in the due diligence process.

Figure 3-1. Development Footprint – Uranquinty SF.

4. REGISTER SEARCH AND LANDSCAPE ASSESSMENT

Step 2a. Search the AHIMS Database and other information sources

A search of relevant heritage registers for Aboriginal sites and places provides an indication of the presence of previously recorded sites. A register search is not conclusive however, as it requires that an area has been inspected and any sites are provided to the relevant body to add to the register. However, as a starting point, the search will indicate whether any sites are known within or adjacent to the investigation area. The Aboriginal Heritage Information Management System (AHIMS) provides a database of previously recorded Aboriginal heritage sites. A search provides basic information about any sites previously identified within a search area. The results of the search are valid for 12 months for the purposes of a due diligence level assessment.

On 30th October 2020 a search of the AHIMS database was undertaken over an area, including the project area with an approximate 1 km buffer, from:

- Latitude: -35.2387 to -35.166
- Longitude: 147.2081 to 147.3224

The AHIMS Client Service Number was 546443. There were 81 Aboriginal sites recorded within this search area and no declared Aboriginal Places. Table 4-1 below shows the breakdown of site types from the October 2020 AHIMS search.

On 16th December 2021 a second search of the AHIMS database was undertaken due to the lapsing of the previous searches validity. The search was undertaken of an area, including the project area, from:

- Latitude: -35.2387 to -35.166
- Longitude: 147.2081 to 147.3224

The AHIMS Client Service Number was 647843. There were 67 Aboriginal sites recorded within this search area and no declared Aboriginal Places. This search was, however, completed without the 1km buffer so is missing 16 Aboriginal sites that were not captured in the search. Since the October 2020 search, an additional two Aboriginal sites were recorded within the search area. Both sites consisted of stone artefact(s) with one being approximately 665m southeast of the project area and the other approximately 785m southwest. Both sites were also notably closer to the perennial (permanent) water sources of Sandy Creek and Colloboralli Creek.

None of the archaeological sites currently recorded on AHIMS are located within or directly adjacent to the project area. However, five sites occur within 2.5 km with the closest being within 660 m. Table 4-2 below shows the breakdown of site types from the December 2021 AHIMS search while Figure 4-1 and Figure 4-2 show the difference between the October 2020 and December 2021 AHIMS searches. Figure 4-3 shows all AHIMS sites within proximity to the project area, and sites within 2.5km are summarised in Table 4-3 below.

Table 4-1 Breakdown of previously recorded Aboriginal sites in the region from the October 2020 AHIMS Search.

Site Type	Number
Modified Tree	51
Artefact	28
Artefact, Potential Archaeological Deposit (PAD)	2
TOTAL	**81**

Table 4-2 Breakdown of previously recorded Aboriginal sites in the region from December 2021 AHIMS Search.

Site Type	Number
Modified Tree	39
Artefact	26
Artefact, Potential Archaeological Deposit (PAD)	2
TOTAL	**67**

Table 4-3 Sites within 2.5 km of the project area.

Site Number	Site Name	Site Type	Distance to Project (m)	Site Status on AHIMS
56-1-0107	UW-ST-1	Modified Tree (Carved or Scarred)	Approximately 1900m north-east of the project area.	Valid
56-1-0108	UW-05-1	Artefact, PAD	Approximately 2045m north-east of the project area.	Valid
56-1-0114	Wagga Wagga Transmission Line 2	Artefact	Approximately 2180m north-east of the project area.	Valid
56-1-0685	PEC-E-89	Artefact	Approximately 735 m south by south-west of the project area.	Valid
56-1-0686	PEC-E-90	Artefact	Approximately 660 m south east of the project area.	Valid

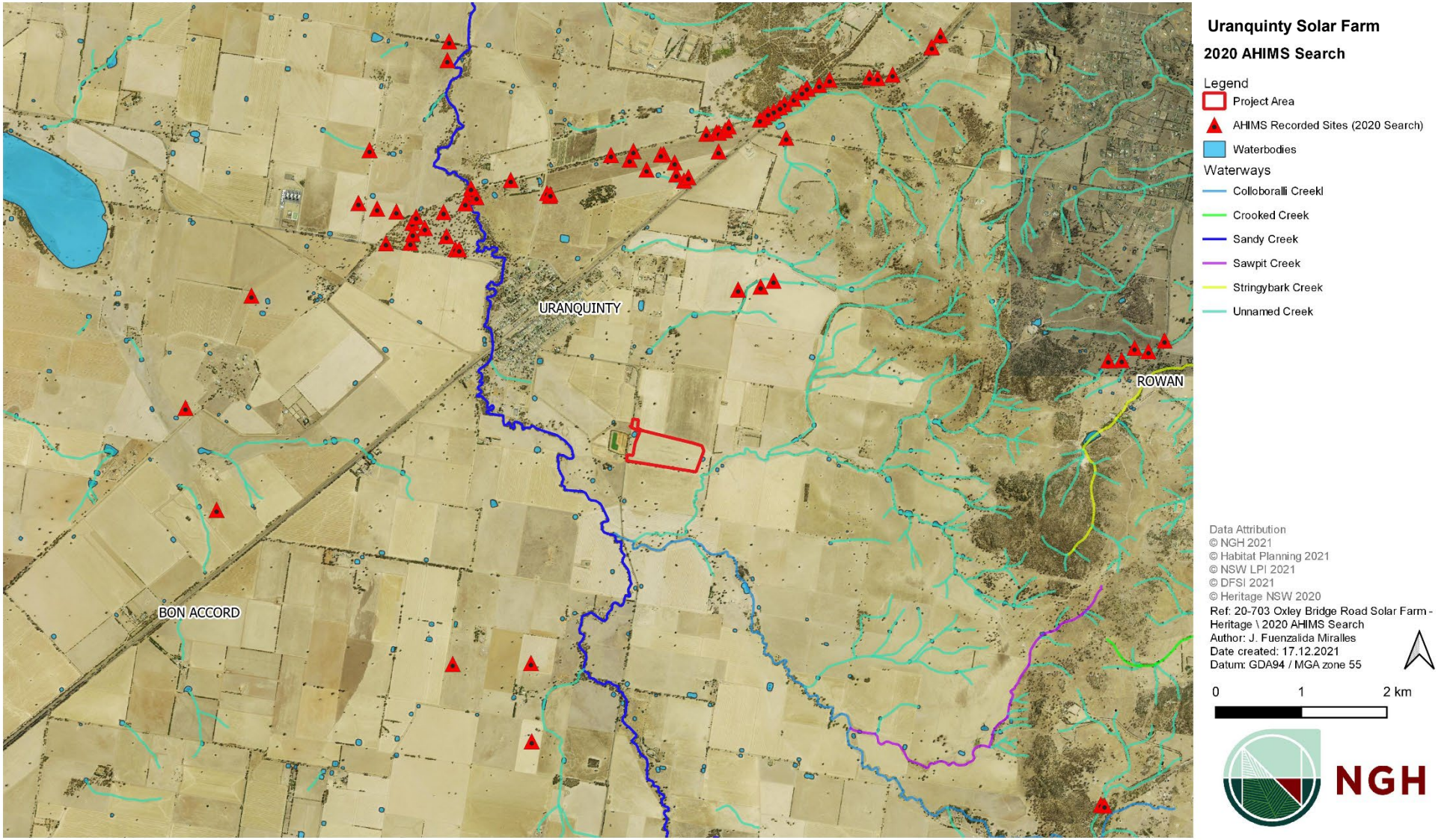

Figure 4-1 Results of the October 2020 AHIMS search surrounding the project area.

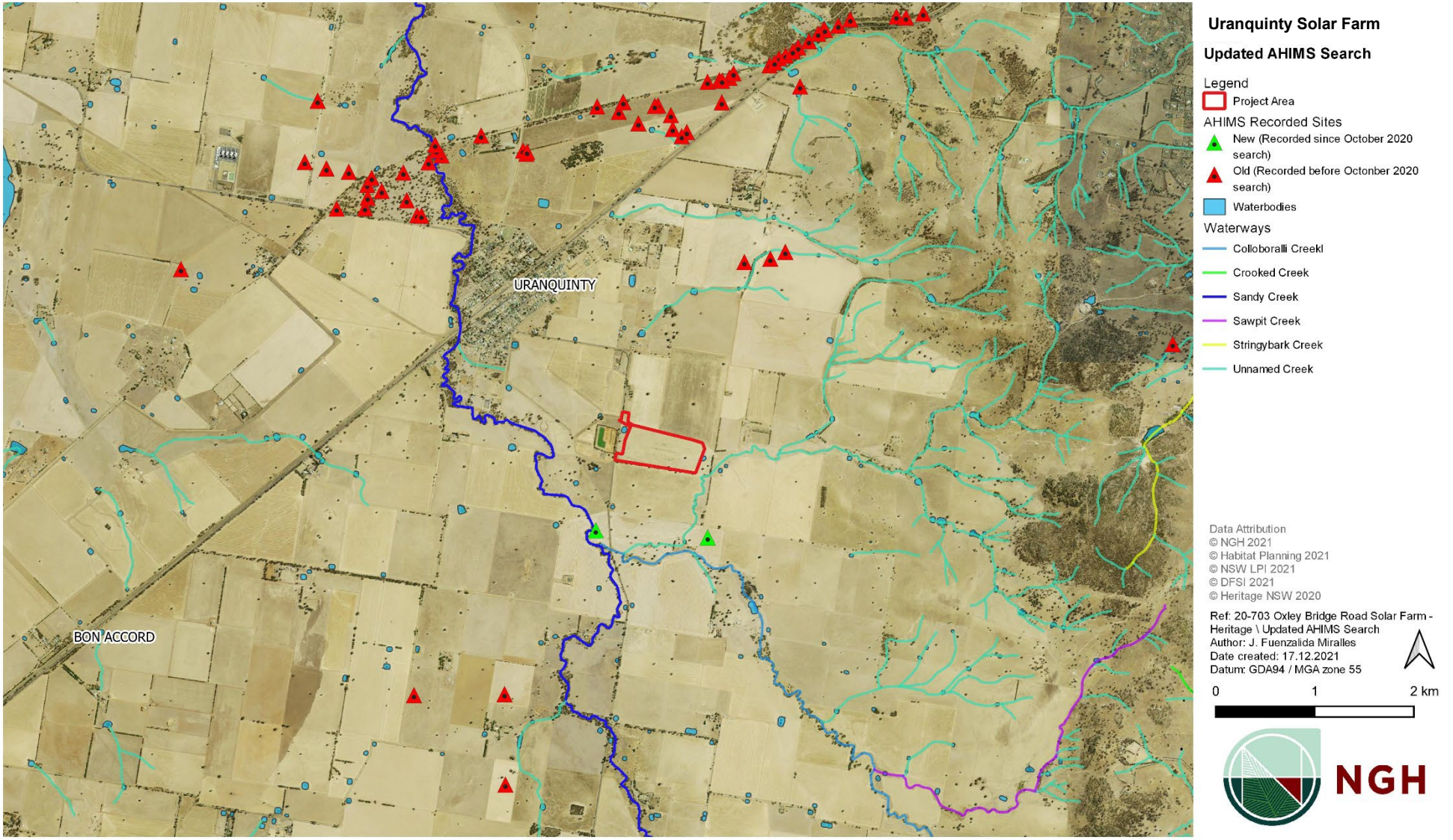

Figure 4-2 Results of the December 2021 AHIMS search surrounding the project area.

Figure 4-3 AHIMS sites within proximity to the project area.

4.1 ARCHAEOLOGICAL CONTEXT

4.1.1. Regional Context

Aboriginal people have occupied what we now know as the Australian continent for at least 40,000 years and perhaps 60,000 years and beyond (Hiscock 2007; Mulvaney and Kamminga 1999). While no regional synthesis of the archaeology has been completed for the Wagga Wagga region, a number of archaeological surveys have been completed in proximity to the project area and there have been numerous other studies in the wider Wagga Wagga region, which are detailed below. Most studies in the Wagga Wagga area have been primarily driven by development and infrastructure requirements. The majority of these studies are within approximately 10 km from the project area and provide a broad overview of archaeology in the region.

Djekic (1978) undertook an archaeological survey for a proposed transmission line from the Wagga Wagga substation to Albury. The route covered approximately 120 km across well-established farming land and passed approximately 8 km north east of the current project area. During the survey, six scarred trees were located, four of which were most likely the result of Aboriginal use in the area. Stone artefacts were also recorded on a property just outside Culcairn. The artefacts recorded included a small grinding stone, a hammer stone, a broken pebble and a small round stone of local material that appeared to have been pecked on either side. Djekic concluded that the small number of sites located during the survey was a direct result of over 100 years of environmental modification through the intensive development of agriculture in the region.

CWAHS (2007) surveyed approximately 40 ha for the proposed extension to the Wagga Quarry on Roach Road, Wagga Wagga, approximately 9 km north by north west of the current project area. The quarry is on an alluvial floodplain on the southern side of the Murrumbidgee River and while noted as an archaeologically sensitive area no sites or PADs were identified. The area was extensively disturbed and CWAHS concluded that the flood prone nature of the survey area would have not been ideal for Aboriginal occupation on a regular basis.

Kelleher Nightingale Consulting (2008) completed an Aboriginal heritage assessment as part of the Wagga Wagga City Council's Local Environmental Study to implement the strategic planning of the Wagga Wagga Spatial Plan 2007. As part of this study, assessments were undertaken for eight sites which were subject to rezoning. These included Lloyd, Bomen, Estella West, Edison Road, Hammond Avenue, Copland Street, Boorooma East and Moorong Street. Predictive modelling for each location was proposed with areas of high archaeological sensitivity being associated with elevated flats near drainage lines and low to moderate sensitivity associated with ridgeline crests, spurline crests, upper/mid and lower slopes. Granite outcroppings were also assessed as having moderate to high archaeological sensitivity. The Murrumbidgee alluvial floodplain was assessed as having low sensitivity, particularly south of the river.

Navin Officer Heritage Consultant's (2002) conducted a survey for the Lloyd Neighbourhood Land Release Area, approximately 6 km north east of the current assessment area. Five Aboriginal sites were located during the survey, including three artefact scatters, one isolated artefact and one probable culturally modified tree. The sites with artefacts were considered common and representative of those in the region, with areas surrounding these sites deemed unlikely to be associated with in situ subsurface deposits. Three PADs were however noted to be associated with raised landforms adjacent to ephemeral creeks or drainage lines.

Kelton (2006) conducted an Aboriginal archaeological heritage assessment for the proposed Lloyd Residential Subdivision. Kelton noted that five of the sites and three PADs previously recorded by NOHC (2002) were within the project area, but that several inconsistencies were present between the AHIMS database, site cards and reported site locations. As a result of these inconsistencies, only one of the five previously recorded sites was located during the 2006 survey. Kelton identified a total of eight additional Aboriginal site locations, including two isolated stone artefacts and six scarred tree sites. Four PAD area were also recorded.

NGH (2020) completed a subsurface test excavation program for the proposed Lloyd residential subdivision. Four archaeologically sensitive PADs associated with elevated flats on the east and west banks of an unnamed creek line were tested with a total of 36 test pits at intervals of 10 to 20 m spacing. A total of 118 artefacts were retrieved, predominantly manufactured from quartz (n=114, 96.6%). Despite previous disturbance to portions of the deposit, high densities of subsurface finds were identified in PAD 7 (n=84, 71.2%), bordering a quarry that is currently undergoing rehabilitation to facilitate the next stage of proposed subdivision construction. Due to the high number of artefacts retrieved from this area on the eastern bank and elevated flat of the unnamed creek line additional salvage excavation was recommended following the completion of the quarry stockpile removal and rehabilitation, as the stockpile was encroaching on the boundary of the PAD. Discussions between the landowners, Aboriginal stakeholders and archaeologists concluded that this area would be declared a heritage exclusion zone and no construction would be permitted in this archaeologically sensitive location.

4.1.2. Local Context

The following are summaries of archaeological investigations that have been completed in nearby town of Uranquinty and the surrounding area.

Williams (1993) (as cited in OzArk EHM 2011, p.22) completed a survey between Albury and Wagga Wagga of a proposed optic fibre cable route and provided confirmation that proximity to water was a factor in open site location. Williams recorded one scarred tree and three open sites in close proximity to a creek and suggested that sandy water retaining substrates were more likely to contain sites. Williams study passed within 1.5 km to the north west of the current project area, however there are no sandy water retaining substrates within the current project area.

NOHC (1996) completed an assessment of a natural gas pipeline extending from Wodonga to Wagga Wagga passing approximately 4 km north west by west of the current project area. A total of 23 Aboriginal sites, including 17 artefact scatters, nine isolated finds and six scarred trees were identified across the proposed 146 km of pipeline. Eight potential archaeological deposits (PADs) were also identified. The area surveyed in close proximity to the current assessment boundary contained two artefact scatters and one isolated artefact.

Dearling and Evans (1997) conducted a cultural resource assessment of the Kapooka Military Area (KMA), approximately 4 km north by north east of the current project area (Dearling and Evans 1997). They recorded 12 artefact scatters and 5 isolated artefacts, with a total of 92 artefacts recorded in all. The largest site contained 17 artefacts, and all the open scatters were of low density. Quartz was the predominate lithology making up 97.8% of the artefacts recorded. Most of the artefacts were associated with drainage lines at the foot slopes of the Pomingalarna Ridge which was the main ridge in their study area.

Biosis Research Pty Ltd (2006) completed an archaeological survey for Aboriginal and European heritage sites for the North-South Rail Corridor Albury to Junee Passing Lane Project. The passing

lane travelled through Uranquinty approximately 2 km north west of the current project area. Variations to Passing lane 16 were also surveyed in subsequent stages of assessment in the same year. No sites of Aboriginal cultural heritage or areas of archaeological potential were identified during the survey, due to the heavy ground disturbance evident in the rail corridor (Biosis 2006:49). Potential cultural significance relating to the Wiradjuri Walking Track, to the west of the railway line and north of the overbridge, was noted during this assessment, but confirmation was not sought as to the extent of significance associated with this public recreation track.

OzArk (2011) completed an Aboriginal heritage assessment for the Kapooka Bridge Replacement Project, approximately 3 km north west of the current assessment area. One scarred tree and one archaeologically sensitive landform were identified during the survey and it was recommended that both these locations be avoided by the proposed bridge replacement works. The scarred tree was located on a crest and the sensitive landform was described as high ground surrounding an intermittent north-west flowing drainage feature (OzArk EHM 2011, p.35).

A recent assessment by NGH (2020b) for the Sandy Creek Solar Farm has been undertaken approximately 3 km to the north of the current project area. The survey identified two artefact scatters, 13 isolated finds and two scarred trees and an area of PAD. The PAD was identified as an elevated area associated with a nearby ephemeral creek line. Subsurface investigations were subsequently undertaken, and twenty-six 50 cm x 50 cm test pits were excavated. One subsurface quartz artefact was located during the testing. The lack of subsurface material was attributed to the distance from Sandy Creek (over 800 metres).

Another assessment by NGH (2020c) for the Sandy Creek Stabilisation Works was undertaken approximately 2 km to the north-west to the current project area. The survey identified no new Aboriginal sites due to historical disturbance that had taken place within the project area.

4.1.3. Archaeological Context Summary

The previous archaeological investigations undertaken regionally and more locally in relation to the proposed Oxley Bridge Solar Farm indicate that:

- Scarred trees are the most commonly found Aboriginal site type;
- Flat, elevated ground within a few hundred metres of a waterway has the highest archaeological sensitivity for surface and subsurface stone artefacts, most likely to consist of quartz artefacts; and
- agricultural practices have significantly lessened the archaeological potential in the region.

4.2 LANDSCAPE ASSESSMENT

Step 2b. Are there undisturbed landscape features likely to contain Aboriginal objects?

The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales outlines a range of landscape features that have higher potential to contain Aboriginal objects. It is also necessary to consider whether there are landscape features of undisturbed land that may contain Aboriginal objects. These include land that is:

- within 200m of water;
- located within a sand dune system;
- located on a ridge top, ridge line or headland;
- located within 200m below or above a cliff face; or

- within 20m of a cave, rock shelter or cave mouth.

While the project area is further than 200m from Sandy Creek, it is still located in proximity to this waterway and two tributaries that feed Sandy Creek. The area does, however, appear to have been subjected to historic land disturbance which reduces the potential for intact Aboriginal cultural heritage to be present within the project area.

4.2.1 Geology

The project area is located within Quaternary alluvial deposits, containing current and recent mud, silt, sand, and gravel deposited by river and creek systems (DPIE 2020). As a result, the underlying geology is not conducive to the procurement of lithic materials for stone tool production. However, the project area is within one kilometre of the Ordovician sedimentary rocks geological formation, which contains quartz-rich sandstone, siltstone and mudstone as well as some deep water chert; these were deposited in turbidity currents along the continental slope and deeper ocean water (DPIE 2020). This geological formation suggests that there is potential for the presence of stone artefacts within the project area due to its proximity to a region containing valuable lithic material.

4.2.2 Topography

The project area is within the Brokong Plains Mitchell Landscape (DECCW 2002:91) which is described as:

- Quaternary alluvial plains, general elevation 170m, local relief <10m. Red-brown texture-contrast soils, extensively cleared and cropped, formerly grey box (*Eucalyptus microcarpa*), yellow box (*Eucalyptus melliodora*), Blakely's red gum (*Eucalyptus blakelyii*) and white cypress pine (*Callitris glaucophylla*) woodland to open forest.

The project area is located in a relatively flat area with an elevation between approximately 210m and 220m, giving a local relieve of 10m. Furthermore, it is located between 400m and 700m away from the tributaries which feed into the Murrumbidgee River more than 10km away.

4.2.3 Soils

The project area is within two soil landscapes as identified by eSpade (DPIE 2020). The majority of the project area is represented by Becks Lane while the remainder is within Belfrayden. Both soil landscapes are described in Table 4-4 below.

Table 4-4 Soil landscapes present within the project area (DPIE 2020).

Soil Landscape	Description
Becks Lane	Moderately deep Haplic and Bleached Red and Brown Chromosols on slopes, and moderately deep Bleached Mottled and Bleached Brown Dermosols near drainage lines. The soil ranges from a slightly acidic to neutral (pH 5.5 - 6.5) throughout the topsoil and subsoil horizons. This landscape is also known for its high erosion hazards.
Belfrayden	Characterised by moderately deep Mesotrophic Red Chromosols and Eutrophic Red Dermosols on plain

moderately deep Eutrophic Red Chromosols near drainage lines. The soil ranges from moderately acidic to neutral (pH 5.0 – 6.5) in the topsoil, A1, and A2 horizons, and increases to alkaline (pH 6.0 – 9.0) in the remaining subsoil horizons. This landscape is also known for localised waterlogging.

The moderate to slight acidity present within the soil landscapes, along with a high erosion hazard of the Becks Lane soil landscape suggests that there is a low to moderate potential for subsurface archaeological deposits to remain intact.

4.2.4 Vegetation

The vegetation of the Becks Lane and Belfrayden soil landscapes has been almost completely cleared with some trees and tall open-woodland along some roads. The most common species of tree include white box, grey box, yellow box, and white cypress pine (DPIE 2020). These tree species are common for Aboriginal scarring and modification and as such, if any remain there is potential for scarred trees to be present within the project area.

4.2.5 Historic Land Use

The project area has been subject to significant historical vegetation clearance for farming practices. As a result, most surface material and old growth trees are likely to have been disturbed or destroyed by farming practices.

5. ABORIGINAL SITE PREDICTION

The project area for the proposed Uranquinty Solar Farm does not have any known and recorded Aboriginal heritage sites within and has not been subject to any prior archaeological investigations. The landscape analysis and historical land use indicate potential disturbances across the project area; however, the levels of disturbance are not accurately gauged through desktop analysis.

Based upon the initial desktop assessment, using satellite imagery and topographic data, there is moderate potential for Aboriginal Cultural Heritage to occur within the project area given the location between two waterways, however the desktop assessment indicated that there are levels of disturbance across the project area.

The results of the AHIMS register search and archaeological investigations in the region indicate the most likely site types to occur are culturally modified trees. There is also a potential for PAD and stone artefact sites to occur within the project area.

The desktop assessment, therefore, indicates that there are landscapes present within the project area that have the potential to contain Aboriginal sites, in areas that remain undisturbed. The nature of the works being undertaken at this site will involve significant ground disturbance and it is therefore important that a visual inspection was undertaken.

Table 4-1. Aboriginal Site Prediction Statements.

Site Type	Site Description	Potential
Stone artefact scatters and isolated artefacts	Artefact scatter sites can range from high-density concentrations through to isolated finds.	Moderate potential to occur in low to moderate densities. High density sites are unlikely to occur due to the history of agricultural practices, which would have displaced and moved any artefacts across the landscape.
Potential Archaeological Deposits (PADs)	Potential subsurface deposits of archaeological material	Moderate potential to occur within the project area in areas of elevated flat land associated with ephemeral drainage lines.
Modified trees	Trees that have undergone cultural modification.	High potential to occur within the project area in areas where there are remnant mature native trees.

6. IMPACT AVOIDANCE

Step 3. Can any AHIMS listed objects, or landscape features be avoided?

The proposed location of the Solar Farm is located in an area of landscape potential due to the proximity to Sandy Creek and the potential for old growth native trees to remain.

The project activity is not able to be amended to avoid archaeologically sensitive landforms. The desktop assessment alone is not sufficient to conclusively appraise the archaeological potential of the landscape or the location of any sites, the next step in the process, a visual inspection, must be conducted to properly appraise the presence and potential for Aboriginal sites to occur.

7. DESKTOP ASSESSMENT AND VISUAL INSPECTION

Step 4. Does the desktop assessment confirm that there are likely to be Aboriginal objects present or below the ground surface?

The assessment process is primarily a desktop exercise, using available information such as the AHIMS search results and relevant archaeological reports that have been previously completed in the area. Visual inspection is also required where landscape features are present that may contain sites.

A visual inspection of the project area was undertaken on the 10th November 2020 by NGH archaeologist Bronwyn Partell. The project area consists of one main paddock and some fringe areas extending into the surrounding fenced paddocks. The area is a low and flat plain landform, approximately 380m west of the closest waterway, Sandy Creek. The area was open and exposed, providing no natural shelter. The area was also largely cleared as a result of the farming practices, with the only trees remaining in the south west corner along Uranquinty, however these trees are new growth and hold no potential for cultural modifications. Although the recent use of the area appears to be for cattle grazing, historic records show the prior land use being agricultural, with exposures showing signs of disturbed topsoil as a result. This, therefore, indicates a low likelihood for archaeological subsurface deposits to remain with in the project area.

The visibility levels were low across the site, averaging only 10%. The only exposures (~5%) were found along vehicle and animal tracks, and also around water troughs and gate access areas. The soil profile consisted of a dry, orange red silty clay that was consistent with the described Belfrayden Soil Landscape.

The visual inspection highlighted a low archaeological potential of the project area, largely due to the historic land use, but also because of the nature of the landform as an open and unsheltered plain. While the area would likely have been traversed when travelling or resource gathering, the project area does not provide any suitable habitation locations (either short or long term). It is more likely that areas closer to the waterway (Sandy Creek) and surrounding elevated flats (including the rise to the north of the project area) would contain Aboriginal objects.

During the visual inspection there were no Aboriginal objects or areas of PAD identified within the project area.

Site photographs below taken during field work:

Plate 1. The centre of the project area, facing south.

Plate 2. Exposure within the project area caused by vehicle tracks. Picture taken from the north west of the project area, facing east.

Plate 3. Typical visibility within the project area.

Plate 4. North eastern corner of the project area, facing south.

Plate 5. Western perimeter of the project area, facing east.

Plate 6. South western section of the project area, facing east.

SUMMARY

There were no Aboriginal objects or areas of PAD identified during the visual inspection of the project area. This is largely due to the levels of disturbance and clearing associated with the historic land use of the area. While the project area is located on a flat plain landform associated with a waterway, the proposed development is over 380m from the closest waterway. It is more likely that any sites within the immediate region would be concentrated closer to Sandy Creek, or on the elevated high ground to the north of the project area.

8. FURTHER ASSESSMENT

Step 5. Is further investigation or impact assessment required?

The Due Diligence Code of Practice states that if, after the desktop research and visual inspection is completed, it is evident that harm will occur to Aboriginal objects or heritage places then further and more detailed assessment is required. However, if the research and inspection conclude that there are no, or unlikely to be any, objects impacted by the proposed activity, then the activity can proceed with caution.

The field assessment concludes that the area does not require further investigation and assessment. It is unlikely that the proposed development will impact upon Aboriginal objects. There were no mature trees located within the proposed development footprint, no areas of PAD identified and the levels of ground disturbance evident identified a low potential for stone artefacts to remain.

9. RECOMMENDATIONS

The following recommendations are based on a number of considerations including:

- Background research into the area;
- Landscape assessment;
- Field inspection;
- Consideration of the proposed works, and
- Legislative context for the development proposal.

Based on an assessment of the project, the location and previous level of disturbance, the proposed work can proceed with caution with the following recommendations.

1. All works must be constrained to the area assessed within this report and any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment.
2. All access to the site and laydown areas must be within existing tracks and disturbed areas otherwise visual inspection of the sites by a qualified archaeologist is required.
3. If any items suspected of being Aboriginal in origin are discovered during the work, all work in the immediate vicinity must stop and Heritage NSW notified. The find will need to be assessed and if found to be an Aboriginal object an AHIP may be required.

Bison Energy is reminded that it is an offence under the *NSW National Parks and Wildlife Act 1974* to disturb, damage or destroy and Aboriginal object without a valid Aboriginal Heritage Impact Permit.

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