

Anderson

ENVIRONMENTAL CONSULTANTS PTY LTD

INDIGENOUS AND NON- INDIGENOUS ARCHAEOLOGICAL HERITAGE FOR PROPOSED CROOKWELL 3 WIND FARM

Prepared for
Union Fenosa – Crookwell Development Pty Ltd

September 2010

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Executive Summary

Anderson Environmental Consultants Pty Ltd was commissioned to undertake an indigenous and non-indigenous cultural heritage assessment of the proposed Crookwell 3 Wind Farm between Crookwell and Goulburn.

The proposed development includes the construction of 30 new wind turbines along with their associated infrastructure including access roads, access tracks and power line connections.

In relation to non-indigenous heritage there were found to be no significant items, which would be disturbed as part of the proposal. As such there is limited discussion in this report in relation to non-indigenous heritage. None of the non-indigenous cultural heritage items located within the site are considered to be significant and none are listed under the Local Environmental Plan (LEP) or recent Cultural Heritage Study of the Upper Lachlan Shire.

In relation to indigenous heritage, the results of the surveys undertaken detected 10 new sites during the field assessments. Visibility was generally quite poor over much of the site as most of the paddock areas had good ground cover present which reduced the potential for detecting artefacts. The finds were surface finds and generally the potential for sub-surface material is assessed as low to moderate however a precautionary approach to further investigations is required.

The site surveys were undertaken before the final proposed internal connections of roads and electrical connections were available. As such additional surveys will be required in the form of surface surveys once the final locations of the roads are known. This would allow for changes to the final layout of roads if required. Further assessment is not deemed to be required in most paddock areas where there is a long history of soil disturbance and pasture improvement however consultation with Pejar Local Aboriginal Community representatives should be undertaken.

Due to the limited surface visibility, further archaeological assessment in the form of surface and sub-surface testing may be required where recorded sites overlap with proposed development areas if impacts cannot be avoided through the implementation of a Cultural Heritage Management Plan. Further surface assessment will also be required for the access tracks and other infrastructure areas once their final locations are pegged on the ground.

Careful road planning should be undertaken to utilise and upgrade existing roads where possible to achieve an overall plan to minimise soil disturbance.

All efforts should be made to design around known sites and further on-going consultation will be required with the Pejar Local Aboriginal Land Council in regard to the significance and management of the sites.

Acknowledgments

Anderson Environmental Consultants Pty Ltd wishes to acknowledge the contribution and assistance made by the Pejar Local Aboriginal Land Council including Delise Freeman, Justin Boney and Luke Burgess.

Acronyms

ALR Act means *Aboriginal Land Rights Act 1983 (NSW)*

AHIP means Aboriginal Heritage Impact Permit

DEC means Department of Environment and Conservation (NSW) (former name of DECCW)

DECCW means Department of Environment, Climate Change and Water (NSW)

EP&A Act means *Environmental Planning and Assessment Act 1979 (NSW)*

LALCs means Local Aboriginal Land Councils

LEP means Local Environmental Plan

NPW Act means *National Parks and Wildlife Act 1974 (NSW)*

NPW Regulation means *National Parks and Wildlife Regulation 2002 (NSW)*

NPWS means National Parks and Wildlife Service (now part of DECCW)

NSWALC means New South Wales Aboriginal Land Council

NT Act means *Native Title Act 1993 (Cth)*

Glossary

Aboriginal Heritage Impact Permit (AHIP)

The statutory instrument that the Director General of DECCW issues under s.87 and/or s.90 of the NPW Act:

- s.87 Aboriginal Heritage Impact Permits – required to disturb or move an Aboriginal object or disturb or excavate land for the purposes of discovering an Aboriginal object (including salvage); and
- s.90 Aboriginal Heritage Impact Permits – required to destroy, damage or deface an Aboriginal object or Aboriginal place.

Aboriginal object

A statutory term, meaning: ‘... any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises NSW, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains’ (s.5 NPW Act).

Aboriginal owners

Aboriginal owner is a term used under the ALR Act and the NPW Act. Aboriginal owners are defined as ‘persons whose names are entered on the Register of Aboriginal Owners because of the persons’ cultural association with particular land.’ (ALR Act)

Registration as an Aboriginal owner under the ALR Act provides statutory recognition of an Aboriginal person’s cultural associations with land.

Aboriginal place

A statutory term, meaning any place declared to be an Aboriginal place (under s.84 of the NPW Act) by the Minister administering the NPW Act, by order published in the NSW Government Gazette, because the Minister is of the opinion that the place is or was of special significance with respect to Aboriginal culture. It may or may not contain Aboriginal objects.

Cultural knowledge

Cultural knowledge is directly associated with Aboriginal lore. Aboriginal people connect to their land through their lore, and through lore, people acquire knowledge of all aspects of their environment along with responsibilities, obligations and behaviours that are required to sustain their survival. Cultural knowledge has been passed on through the generations in a complex system of stories, language, art, songs, dance, ceremonies and customs that have been practiced since the time of creation (Dreamtime). The lore continues to govern all aspects of life for Aboriginal people on their traditional land/Country and waters. While cultural knowledge can be interpreted to mean something that is ‘in the past’ or ‘fixed’ and ‘unchanging’, in the context of these requirements it is considered as a living, dynamic force that is adaptive and innovative and as belonging to living communities.

Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation

The "Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation, July 2005" prepared by the then DECC (now DECCW).

Local Aboriginal Land Councils

Local Aboriginal Land Councils, or LALCs, are corporate bodies constituted under the ALR Act. Under the ALR Act, LALCs have defined boundaries within which they operate.

Native title

Native title refers to those rights and interests in land and water of Aboriginal and Torres Strait Islander people that are derived from the traditional laws and customs of their nations (see s.223 of the NT Act for a detailed statutory definition).

NTSCORP Limited

NTSCORP, formerly NSW Native Title Services Ltd, is the body funded under s203FE of the NT Act to perform the functions of a native title representative body in NSW and the ACT.

Proponent

A person undertaking consultation which may lead to an application for an AHIP under the NPW Act.

Registered Aboriginal parties

Aboriginal people, Aboriginal organisations or their representatives who have registered an interest in being consulted in accordance with stage 1 of these requirements.

Registered native title claimant(s)

A person or persons whose name or names appear in an entry on the Register of Native Title Claims as the applicant in relation to a claim to hold native title in relation to the land and waters.

Note: The Register of Native Title Claims is administered by the National Native Title Tribunal.

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1. INTRODUCTION

1.1 BACKGROUND

Anderson Environmental Consultants Pty Ltd was engaged by Crookwell Development Pty Ltd (CDPL) to undertake an indigenous and non-indigenous cultural heritage assessment in relation to the proposed Crookwell 3 Wind Farm (**project**).

This assessment has been prepared to address the Director-General's Requirements issued in relation to the project and to determine the potential impacts of the project on items of both Aboriginal and European cultural heritage. This study will support the environmental assessment report being prepared in relation to the project.

A detailed description of the project is contained at section 1.4 of this report. In summary, the project involved the construction of 30 wind turbines and related infrastructure such as access roads, access tracks and electricity connections.

The assessment of non-indigenous cultural heritage involved assessment of the European built items located within the site. The assessment also utilised the Upper Lachlan LEP as well as the recent Upper Lachlan Shire Cultural Heritage Study 2007-2008.

The construction activities have potential to disturb any Aboriginal objects located on the surface of the ground or underground. Field assessments were initially undertaken by Jason Anderson to determine potential areas for Aboriginal artefacts. Once the site familiarisation was undertaken and potential landscape areas (such as important resource or topographic areas) for artefacts had been designated, further targeted surveys were undertaken. These targeted surveys involved the following persons; Justin Boney and Luke Burgess of Pejar LALC and Jason Anderson of Anderson Environmental Consultants Pty Ltd.

This assessment has been prepared in accordance with the Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation.

1.2 AIMS

The aims of this study were to assess the potential impacts of the project on indigenous and non-indigenous cultural heritage items and to make recommendations to reduce any significant impacts.

As part of this process background investigations were conducted, which included review of previous studies. The background assessment of the site was undertaken to identify potential sites of cultural significance prior to the targeted archaeological surveys being undertaken. The background assessment included site surveys followed by targeted surveys once landscape areas had been defined. The targeted surveys involved surveys of areas which were identified as being potential impacted by the project. The proposed access roads and electricity connections (as described at section 1.4 of this report) have been identified on a map only and had not been pegged at the time the targeted surveys were carried out.

Accordingly, the targeted surveys examined the areas of the proposed access roads and electricity connections. The assessment of the European Cultural Heritage entailed evaluation of items within the project site such as buildings and other potential items such as bottle dumps. The assessments were based on the potential age and significance of the buildings and the building styles.

Purpose of the Aboriginal Heritage Assessment

The Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation identify matters which are relevant in assessing whether the proposed development is likely to have an impact on Aboriginal cultural heritage.

The objective of the assessment process is to provide information to enable decision makers to ensure that developments have considered the following:

- Information regarding the significance to those Aboriginal people with a cultural association with the land of any Aboriginal cultural heritage values on which the proposed activity is likely to have an impact.
- The views of those Aboriginal people regarding the likely impact of the proposal on their Aboriginal cultural heritage.
- Any measures which could be implemented to avoid, mitigate or offset the likely impact(s).
- Any justification for any likely impact(s), including any alternatives considered for the proposal.
- Identify whether the study area has Aboriginal cultural heritage significance and identify appropriate measures to preserve any significance.
- Identify objects and places of significance to the Aboriginal community that may be impacted by the proposal so that these impacts can be avoided wherever possible.
- Identify any other items of heritage significance located in the study area and provide measures for conservation.
- Demonstrate that input by affected Aboriginal communities has been considered, when determining and assessing impacts.

Aboriginal Cultural Heritage

Aboriginal cultural heritage consists of places and items that are of significance to Aboriginal people because of their traditions, observances, customs, beliefs and history. It is evidence of the lives of Aboriginal people right up to the present. Aboriginal cultural heritage is dynamic and may comprise physical (or tangible) or non-physical (non-tangible)

elements. It includes items made and used in earlier times, such as stone tools, art sites and ceremonial or burial grounds, as well as more recent evidence such as old mission buildings, massacre sites and cemeteries. Evidence suggests that Aboriginal people have occupied Australia for at least 50,000 years. The evidence and important cultural meanings relating to this occupation are present throughout the landscape, as well as in documents and in the memories, stories and associations of Aboriginal people. This is reflected in their teachings through their Dreamtime stories.

For Aboriginal people, the significance of individual features is derived from their inter-relatedness within the cultural landscape. This means that features cannot be assessed in isolation, and that assessments need to consider the feature (artefact) and its associations in a holistic manner. This often requires a range of assessment methods with the close involvement and participation of Aboriginal people. Assessment includes lands, waterways, landscape features and native plants and animals that are culturally significant to Aboriginal people. As with the heritage of all peoples, Aboriginal cultural heritage provides essential links between the past and present for Aboriginal people. It forms their identity.

The social and cultural information leading to the establishment of social and cultural values includes the spiritual, traditional, historical and/or contemporary associations and attachments which a place or area has for the present-day Aboriginal community. Often places of social significance have associations with contemporary community identity. Such places can have strong traditional memories of the past and provide direct links to their ancestry. Communities often experience a sense of loss should a place of cultural heritage significance be damaged or destroyed.

Accordingly the Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation require consultation with the Aboriginal community because:

- Aboriginal heritage has a cultural and archaeological significance and that both should be the subject of assessment to inform its decision process;
- Aboriginal people are the primary determinants of the significance of their heritage;
- Aboriginal community involvement should occur early in the assessment process to ensure that their values and concerns can be taken into account and so that their own decision making structures can function; and
- the information arising from the assessment allows consideration of Aboriginal community views about significance and impact and allows for management and mitigation measures to be considered in an informed way (NSW DECC 2004).

Aboriginal people's association with the local landscape can be understood in the following ways:

Intangible (Non – Physical)

- Non-archaeological places (eg. Events/occupation/use associations)
- As places invested with cultural meaning (eg. Spiritual places)

Tangible (Physical)

As natural features (eg. Resources use/procurement places)
As material traces (eg. Archaeological sites, graves, shelters)

1.3 SITE DESCRIPTION

1.3.1 Location

The location of the proposed wind farm is approximately 18km South East of Crookwell, NSW. The project is proposed to be located on two separate land parcels known as Crookwell 3 East (with an area of 1100 Hectares) and Crookwell 3 South (with an area of 400 Hectares) (the **site**). Figure 1 shows the location of the site.

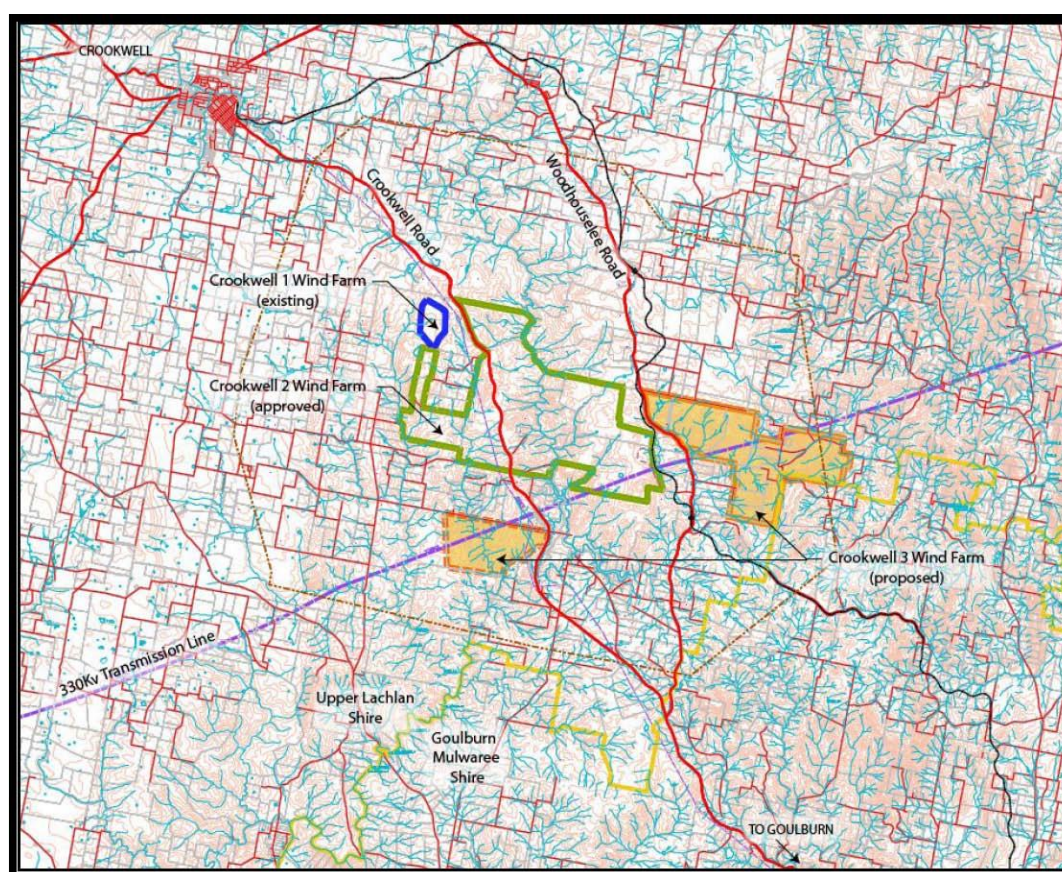


Figure 1: Site Location

1.3.2 Physical Environment

The site of the proposed wind farm is located within the Upper Lachlan Shire Local Government area. The site for the proposed wind farm was selected due to its topography and high wind levels being located on the Great Dividing Range.

Most of the site is cleared sheep and cattle grazing country with only limited native vegetation remaining. The wind turbines are proposed primarily on cleared grazing lands as are the access tracks and other associated infrastructure. The turbine sites vary in elevation from 799 mAHD to 933 mAHD.

The site contains Steeves Creek, which flows to Pejar Creek and then to Pejar Dam, First Creek and another smaller unnamed creek.

1.3.3 Geology

Both European and Aboriginal land use has been determined by the natural environment. The landscape provides resources by way of its geology and, to a lesser extent, climate. Geology is the important factor as Aboriginal people inhabited the whole of Australia throughout a range of different climates.

The geology of any area is influenced by past geological processes over millions of years. This forms the basis of the landscape and influences the topography, soil types, vegetation communities and fauna species. All of these are related to the underlying geology of the landscape. For aboriginal people the geology of an area provided the basis for much of their critical life resources. This was through the geology landscape features of topography and soil type influencing vegetation (through soil fertility) and thus providing resources through flora and fauna species for tools, shelter and medicine. The geology also formed features of special significance such as waterways and rocky outcrops, some of which provided a source of quarrying for stone tools along with their significance as ceremonial sites/sheltering and as a hunting resource. The soil types influenced the vegetation communities present which in turn influenced the fauna habitats. Geological landforms such as hills, mountains, valleys, creeklines and billabongs in combination with availability of food resources influenced land use intensity. Aboriginal people have a special understanding of the land and its resources and the combination of these aspects discussed above influenced land use intensity and significance.

The understanding of these factors is important when searching for heritage sites as it is the reading of the landscape and its resources which often leads to archaeological finds. The practicalities of living in the Australian bush influence choices such as campsite location (summer and winter) along with ceremonial sites (often on high ground). Generally well drained soft soils were preferred for camp sites although smaller campsites can be spread throughout the landscape. Waterways and billabongs provide a source of water and food such as fish, aquatic plants and mussels but also hunting for fauna such as macropods. Rocky areas provided sheltering sites for fauna and also provided sheltering sites where overhangs and caves were present. Vegetation areas and their resources provided bark for canoes, material for baskets and fish traps, yams, berries, and sheltering structures.

The combination of these resources concentrated land use due to the ease of living and areas where these resources were more readily available were used at higher intensities. When surveying for signs of Aboriginal use of a site a clear understanding of all these factors is critical for the background assessment of the site and therefore the targeted survey design.

The climatic conditions for the Crookwell area are diverse with temperatures ranging from below zero in winter to above 30 degrees in summer. As with most areas on the Southern Tablelands microtopography influences local temperatures with the higher points being cooler than the more sheltered lower areas.

The highest rainfall occurs in summer with an annual rainfall of 852 mm. The climate in the local area is not extreme enough to restrict hunter-gather occupation and the area was used on a year round basis. Water resource availability can be a factor which results in seasonal movement or shifts in land use. The local area however is well supplied with many creeks, the main Wollondilly River and Lake Edward.

The study area is predominantly basalt over Wologorang granite (McDonald & Garling 1997). In the Crookwell area topography is believed to have an equal impact on the nature of the soils as the underlying parent rock. The more rugged terrain with sideslopes of 25-70% inclines generally has shallow soil deposits and frequent rock outcrops. In the rolling terrain of sideslopes of between 5-25% Shallow Earths and Podzolic Soils dominate and in the gently undulating terrain (0-5%) much deeper soils are likely to be present.

The following general sub-divisions have been identified within the Crookwell 2 development area (by URS) and are consistent with the geotechnical assessment provided by the Coffey Geotechnical report for Crookwell 3:

1. Basalt Formation

Residual basalt consisting of clay, silty clay/clayey silt and gravelly clay/clayey gravel soils. The clay soils are predominantly hard. Soils often contain numerous high strength basalt cobbles and boulders. These conditions were generally encountered within the top 3 metres of the soil profile (URS 2004).

2. Granite Formation

Soils of the Granite Formation are generally residual to a depth of approximately 3 metres. The soils comprise sands, silty sands, clayey sands, sandy clays and silty clays. Clays were generally hard and sands medium dense to very dense (URS, 2004).

3. Phyllite Formation

The soils overlying the phyllite formation includes clay, silty clay, sandy clay and silty sand (URS 2004).

4. Sandstone/Siltstone Formation

Derived soils include sandy clay, clay, silty clay and gravelly clay to depths of at least 3 metres (URS 2004).

Sources of stone suitable for making stone tools in the Crookwell area include quartz and quartzite, both of which occur in outcrops in the other rock formations. Chert quarry sites have also been found in the region. Around Crookwell stone tool manufacture is from basalt

(for axes), quartz, silcrete, phyllite, quartzite and mudstone. Other belts nearer to Goulburn have included tuff, chert and a quartz feldspar porphyry (McDonald & Garling 1997).

1.3.4 Ecological Setting

The vegetation and geological (landscape structural features) of the area provide a vast range of food and sheltering resources. There are records of bark huts being used by local Aboriginal people for shelters and of possum skins being used for clothing. A broad range of plants were available with stringybark for construction using the bark, Xanthorrhoea (grass trees) for the construction of baskets and fish traps (and resin) and edible plants such as Banksia, Hakea, Melaleuca and Grevillea.

The varied topography of the area enabled Aboriginal people to be responsive to the climate and resources for shelter and food which would have varied with seasonal influences. The diets of Aboriginal people of the local area is similar to Aboriginal people across Australia and contained a wide range of food items such as yams, seeds, possums, kangaroos and wallabies, fish, mussels, crayfish and insects.

Fire as a management and hunting tool would have influenced the landscape and lifestyle of the Aboriginal people of the local area. The combination of topography and soil types influencing fertile flats near water would have enabled the manipulation of foraging resources for key food items such as kangaroos and wallabies. Burning of these areas to bring on the growth of green sweet grasses would attract and concentrate these food items due to the food and nearby water thus making hunting easier.

1.4 DESCRIPTION OF THE PROPOSAL

CDPL, the proponent, is seeking project approval for the construction and operation of a wind energy facility to be known as the Crookwell 3 Wind Farm.

The project comprises a number of elements, including:

- 30 individual wind turbines standing up to 152m at top of blade tip with a capacity of up to 3.4MW each (some of the turbines may be fitted with obstacle lighting as required);
- 30 individual kiosks for the housing of 33kV Transformers and 33kV Switchgears and associated control systems to be located in the vicinity of the wind turbine towers (in some turbine models being considered the kiosk's equipment are integrated within the tower or nacelle);
- internal unsealed tracks for turbine access;
- upgrades to local road infrastructure as necessary to provide access to the site;
- An underground electrical and communication cable network linking turbines to each other within the site boundary and then using either an underground or overhead

connection between the Crookwell 3 site boundaries and the Crookwell 2 site boundary to reach the substation approved as part of the Crookwell 2 Wind Farm;

- up to 3 wind monitoring masts fitted with various instruments such as anemometers, wind vanes, temperature gauge and potentially other electrical equipment; and
- The project will also require a maximum of two temporary concrete batching plants during the construction phase only, to supply concrete for the foundations of the turbines and other associated structures;

Grid connection will be achieved via a connection to the 330kV transmission line which bypasses the site. The project will utilise and be connected to the single substation, control room and facilities for the grid connection, approved as part of the Crookwell 2 Wind Farm. Figure 2 shows the proposed indicative layout of the project and is subject to further detailed design.

Crookwell 3 East and Crookwell 3 South may be developed in stages.

A number of options have been considered and are being assessed for the internal unsealed tracks for turbine construction and access. Crookwell Development Pty Ltd is seeking approval for three options for access roads in Crookwell 3 East:

- Option 1 (Preferred) - An extension of the Greywood Siding Road using the road reserve to access the site;
- Option 2 – Use of the existing Boltons Road for site access; and
- Option 3 – Access off Woodhouselee Road approximately mid-way between to two homesteads of Leeston and Hillview Park.

Crookwell Development Pty Ltd is seeking approval for two options for access roads in Crookwell 3 South.

- Option 1 – This would utilise the existing access to the “Wollondilly” property. This access is part of the old Crookwell to Goulburn Road, which is a bitumen dual carriageway.
- Option 2 – An access from the approximate centre of the property through to the Crookwell to Goulburn Road.

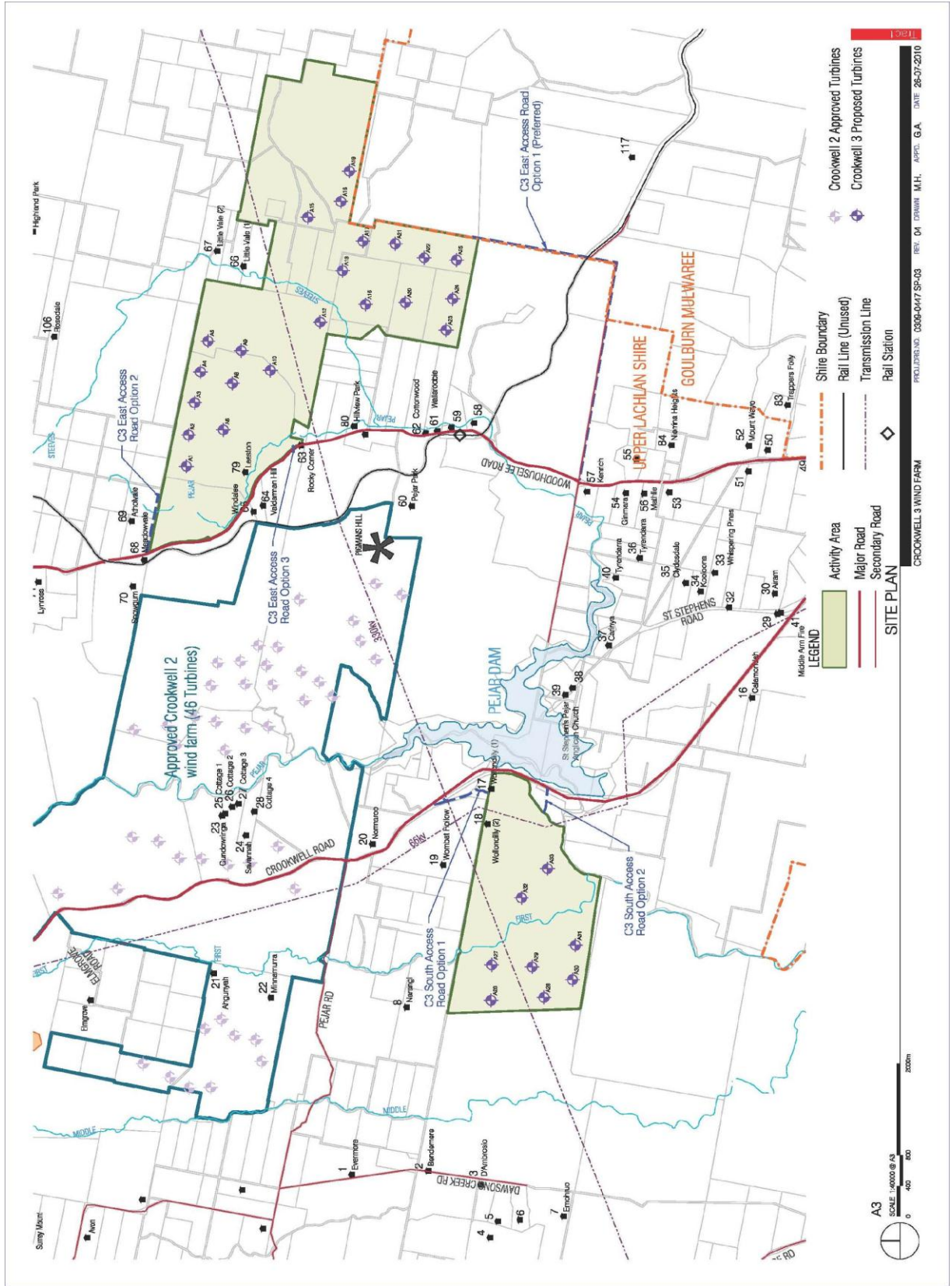



Figure 2: Proposed Project Layout

1.5 ABORIGINAL COMMUNITY CONSULTATION

The Pejar Aboriginal people are the traditional custodians of the lands which cover the site. As part of the project consultation process, Delise Freeman of the Pejar Local Aboriginal Land Council (**Pejar LALC**) was contacted early in the site assessment process and provided with an invitation for the Pejar LALC to be involved in this indigenous cultural heritage assessment. This invitation was accepted, and accordingly, Justin Boney and Luke Burgess of Pejar LALC, who are traditional owners and qualified Aboriginal site assessment officers, assisted with the targeted surveys which were undertaken once the initial scoping surveys were completed.

In addition to the invitation extended directly to the Pejar LALC, advertisements were placed in the Goulburn Post and the Crookwell Gazette for two consecutive weeks requesting expressions of interest in the proposal. The advertisement is shown below.



Aboriginal Community Involvement
Proposed Crookwell 3 Wind Farm
Anderson Environmental Consultants Pty Ltd on behalf of Union Fenosa – Crookwell Development Pty Ltd is seeking to identify Aboriginal Stakeholder Groups and/or people wishing to be involved in an Aboriginal Assessment at Crookwell 3 Wind Farm.

Consultation for the project will be conducted in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (Environment, Climate Change and Water) – Part 6 National Parks and Wildlife Act 1974.

Interested people or groups are invited to register in writing to:
Attn: Jason Anderson
Anderson Environmental Consultants Pty Ltd
PO Box 511
CHATSWOOD 2067

Applications must include all contact details including: name, contact number(s), email and/or fax. Telephone enquiries can be made by calling 1300 302 507. The closing date for applications is 28th May 2010.

There was one response to the advertisement from the Buru Ngunawal Aboriginal Corporation. Investigation however revealed that their traditional area and native title claim is outside the area of the site and, accordingly, they did not participate further in the indigenous cultural heritage assessment.

1.6 LEGISLATIVE REQUIREMENTS

Commonwealth Heritage Protection

The World Heritage List includes sites are important to all the peoples of the world, irrespective of the territory in which they are located. Sites nominated for World Heritage listing are inscribed on the List only after carefully assessing whether they represent the best examples of the world's cultural and natural heritage. Sites on the World Heritage List are listed under the *Convention for the Protection of the World Cultural and Natural Heritage (1972)*. No items included on the World Heritage List are located at the site or in the vicinity of the site. Accordingly, no assessment was required to be undertaken in relation to any such listed heritage items.

The *Environmental Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)* establishes:

- the National Heritage List, which includes natural, indigenous and historic places that are of outstanding heritage value to the nation;
- the Commonwealth Heritage List, which comprises natural, indigenous and historic places on Commonwealth lands and waters or under Australian Government control, and identified by the Minister for the Environment, Heritage and the Arts as having Commonwealth Heritage values.

No items included on the National Heritage List or the Commonwealth Heritage List are located at the site or in the vicinity of the site. Accordingly, no assessment was required to be undertaken in relation to any such listed heritage items.

The Register of the National Estate lists places which are components of the natural environment of Australia or the cultural environment of Australia, that have aesthetic, historic, scientific or social significance or other special value for future generations as well as for the present community. The Register of the National Estate is maintained by the Australian Heritage Council under the *Australian Heritage Council Act 2003 (Cth)*. No items included on the Register of the National Estate are located at the site or in the vicinity of the site. Accordingly, no assessment was required to be undertaken in relation to any such listed heritage items.

New South Wales Non-Indigenous Heritage Protection

In NSW there are two types of statutory listings which afford protection to heritage items or places. A property is a heritage item if it is:

- listed in the heritage schedule of the relevant local council's Local Environmental Plan; or
- listed on the State Heritage Register maintained by the NSW Heritage Office under the *Heritage Act (1977) (NSW)*.

No items listed under the Upper Lachlan Local Environment Plan 2010 or the State Heritage Register are located within the site.

New South Wales Indigenous Heritage Protection

The National Parks and Wildlife Act (NPW Act) is the primary NSW legislation regulating the protection of Aboriginal heritage. DECCW administers the NPW Act. Part 6 of the NPW Act provides protection for Aboriginal objects and Aboriginal places. In particular, sections 87 and 90 of the NPW Act require IHAPs to be obtained to authorise the disturbance or destruction of Aboriginal objects. DECCW maintains the Aboriginal Heritage Information Management System which contains information about known significant sites and objects that the NPWS manages or regulates. No items included on this register are located at the site or in the vicinity of the site. Accordingly, no assessment was required to be undertaken in relation to any such listed heritage items.

The key NSW legislation relating to the assessment of the project is the EP&A Act. The project is a development to which Part 3A of the EP&A Act applies. If the project is granted project approval under Part 3A of the EP&A Act then section 75U of the EP&A Act will have the effect that a permit under section 90 of the NPW Act will not be required for the project.

However, the DGR's prepared under Part 3A of the EP&A Act provide that:

the EA must include an assessment of the potential impact of the project components on indigenous heritage values (archaeological and cultural). The EA must demonstrate effective consultation with indigenous stakeholders during the assessment and in developing mitigation options (including the final recommended measures) consistent with Guidelines for Aboriginal Cultural Impact Assessment and Community Consultation (DEC, July 2005).

This report has been prepared in accordance with the Guidelines for Aboriginal Cultural Impact Assessment and Community Consultation.

2. METHODOLOGY

2.1 DESKTOP REVIEW

A desktop review, including searches of the databases and heritage lists referred to at section 1.6 of this report were undertaken. The results of the desktop review indicated that there are no listed heritage items located at the site or within the vicinity of the site.

2.2 SURVEY METHODOLOGY

The approach to this study has been the identification of areas in which artefacts are predicted to be located based on initial field assessments undertaken to determine the possible past use of the land by Aboriginal people based on the lands topographical, vegetation, sheltering and historical hunting resources. This is a practical land use approach which through the use of the results of artefact finds in the landscape predicts land use in a local area. This allows for an indication of potential underground artefact locations as generally only a small percentage of potential artefacts are found on the surface.

Once the areas in which artefacts were predicted to be located were determined, field surveys were undertaken. These field surveys involved the surveying of potential map landscape units by walking transects approximately 10-20 metres apart. The areas surveyed on foot were all of the sites for potential turbine locations as well as the 3 access options. Other landscape areas where there was a high potential to find artefacts were surveyed and this included the area of site 1 near the dam. This methodology provides a good coverage of the site. Movement and hunting/food gathering areas within the landscape as well as surveys of potential impact areas was undertaken. Generally movement and food resource corridors are located along creeklines and low flat areas where traverse is easy and water is available.

2.3 LIMITATIONS

Visibility was a limitation as most of the site was vegetated as a result of pasture improvement and general farming. This limited the area of ground that was visible for the detection of artefacts. The background assessments identified areas where visibility was such that artefacts would be easily detected if they were present. These areas were based on landscape areas which generally have a higher probability of finding artefacts and as such the areas with good visibility were targeted. This proved quite successful with sites 1, 2, 4, 5, 6, 7, 8 and 9 being identified in the areas selected in the background site assessment.

3. RESULTS

The results of the field surveys detected 10 sites (based on landscape and topographical features), as having good potential for artefact finds, which are mapped on the plan in Appendix 1. A total of 10 sites were detected during the surveys. The details of each site and its contents are provided in Appendix 2.

The general descriptions of each site are provided below. Locations are provided in the map in Appendix 1.

SITE 1

Location: Adjacent to a dam which is filled from a low level gully line. The site is located above the dam on the upstream side.

UTM: 0743957 (East), 6173026 (North)

Size: The size of this site was 50 metres by 40 metres.

Contents: The site contained a total of 17 stone fragments.

Description: The site occurs on the upstream side of the dam. The dam has been located in a natural drainage line. The area where the artefacts were detected has been eroded approximately 200mm above the other vegetated areas surrounding it. The area is in the lower portions of the site where the soil type is generally sandy loam and slightly more fertile. This drainage line joins with Steeves Creek. It is likely that all of this drainage line and the area along Steeves Creek were used. The level of use at this site is low-moderate based on the current findings. These small creekline, low flat gullies would be useful as movement corridors due to the relatively easy walking combined with the availability of water and shelter from winds during periods of inclement weather.

Archaeological Potential: There is moderate potential for other artefacts below the surface in this location. The location within and adjacent to a drainage/small creekline represents a good location for occupation. The levels of artefacts found indicate that this area was used as a transient site.

Site Significance

The site is considered to be of low-moderate significance due to the numbers and type of artefacts found. Pejar LALC reviewed the draft report and agrees with this assessment of significance. This site could be avoided as part of the design.

Site Photographs



Site 1: Showing area above the dam with high soil exposure and some sheet erosion where 17 artefacts were found. This area is fed from a gully upstream to the right of the photo.



Site 1: View towards cleared area where artefacts found.



Site 1: Showing gullyline/creekline which feeds the dam and the area where the artefacts were located.



Site 1: Artefacts found.

SITE 2

Location: Up the hill approximately 300 metres from site 1 along existing farm track.

UTM: 743842 (East), 6172861 (North)

Size: The site is a linear based site on and around a small farm access track near to site A17. The size of the site is approximately 100 metres in length and 15 metres wide.

Contents: A total of 8 artefacts were detected within this area. The artefacts were detected around the farm track to its immediate south where there is some cleared ground with good visibility near to a small group of trees. The artefacts detected were represented by quartz and Grey Silcrete fragments. There was a general mix of cores, flakes and a small tool.

Description: The site is small and the artefacts were detected in the cleared areas. The area is not far from site 1 and as such it appears that this local area was used in conjunction with site 1. The area is slightly elevated and has a northerly aspect while being sheltered. The area where the artefacts were located was clear with good ground visibility, however the area surrounding generally has very low visibility due to a good groundcover layer of grasses.

Archaeological Potential: It appears that this site was most likely used as a transient site due to the level and size of artefacts detected.

Site Significance

The site is considered to be of low-moderate significance due to the numbers and type of artefacts found. Pejar LALC reviewed the draft report and agrees with this assessment of significance. It is likely that micrositeing may allow for amelioration of impacts on any heritage items.

Site Photographs



Site 2: Showing the track where the artefacts were located.



Site 2: Showing adjoining woodland and track of where artefacts were located.



Site 2: Near to proposed turbine site A17. Peg in photo showing marked location of A17. Site within 25 metres of peg.



Site 2: Artefact 1.



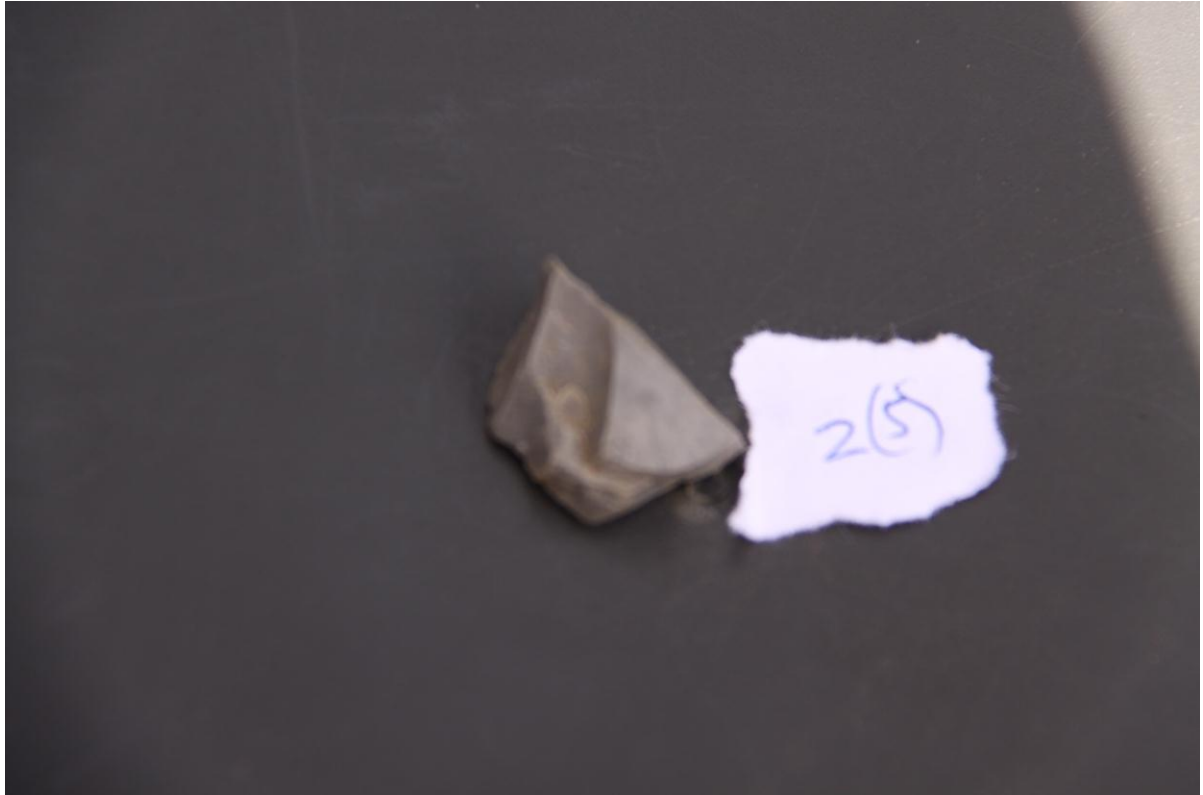
Site 2: Artefact 2.



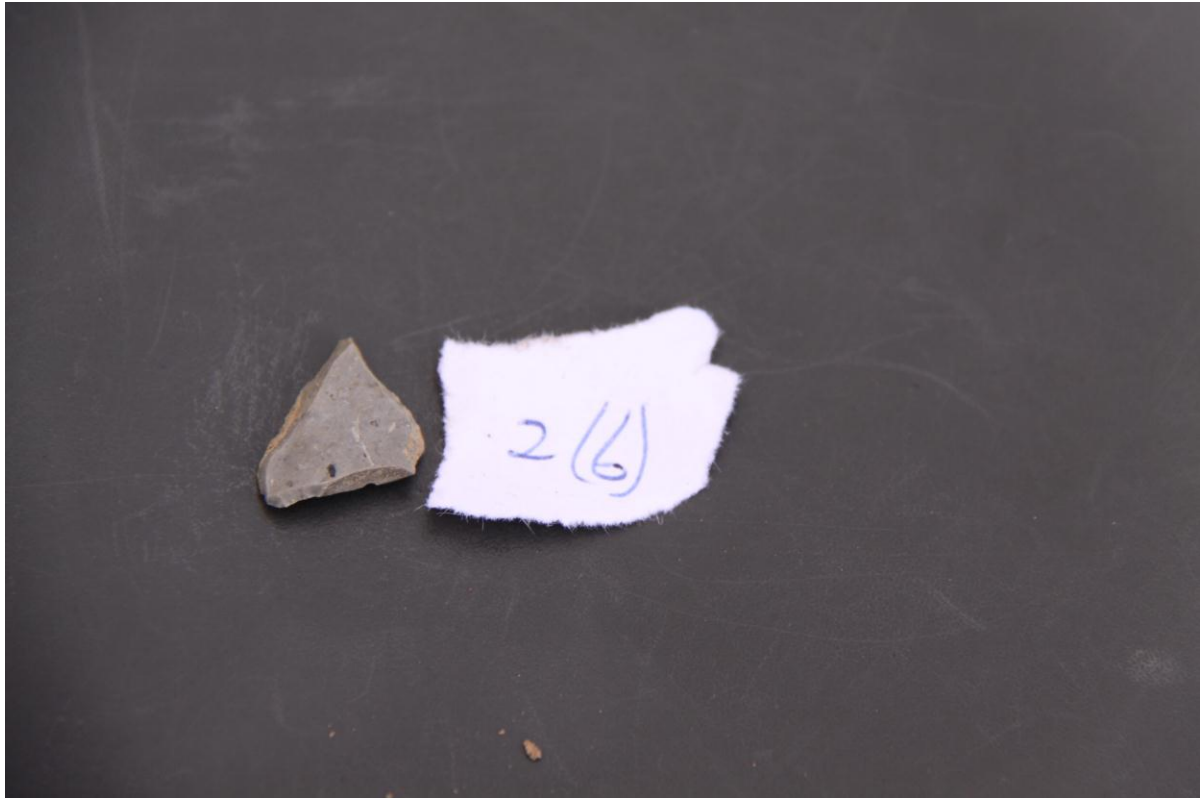
Site 2: Artefact 3.



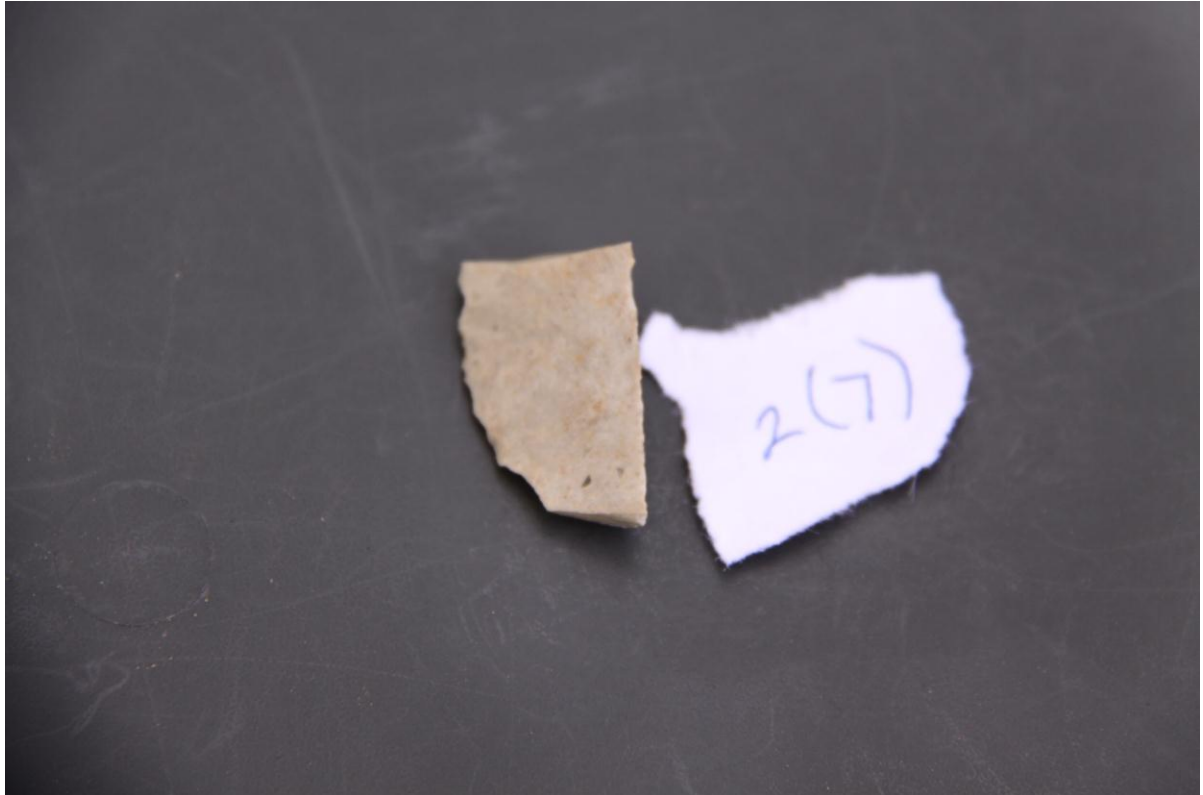
Site 2: Artefact 4.



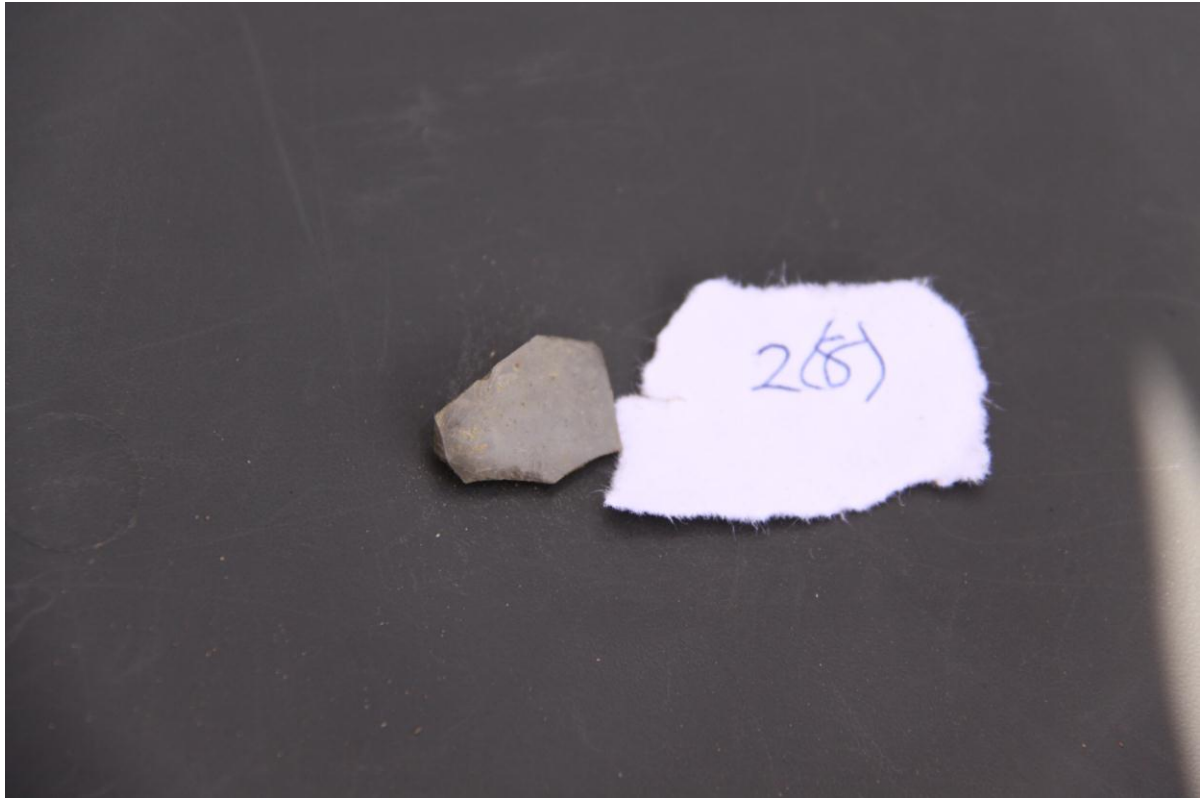
Site 2: Artefact 5.



Site 2: Artefact 6.



Site 2: Artefact 7.



Site 2: Artefact 8.

SITE 3

Location: Approximately 40 metres to the east of the marked peg A13. Peg shown in the photograph below.

UTM: 0743498 (East), 6173108 (North) (approximately 40 metres east of peg shown A13)

Size: The site represents a potentially small site and perhaps just a tool that was discarded.

Contents: One single Brown Silcrete flake (tool).

Description: The site is located within a paddock area with generally low visibility due to the area containing nearly 98% ground cover of pasture.

Archaeological Potential: The archaeological potential of the site is likely to be low. A determination in relation to its potential however is difficult due to the high level of ground cover and low visibility thus making detection of artefacts difficult. There is potential for more artefacts below the surface however the overall significance of the site is low.

Site Significance

The site is considered to be of low significance due to the numbers and type of artefacts found. Pejar LALC reviewed the draft report and agrees with this assessment of

significance.

Site Photographs



Site 3: Local Area

SITE 4

Location: Towards the northern extremity of the proposed Greywood Siding Road Access.

UTM: 0743997 (East), 6172593 (North)

Size: This site is small and is located near a fenceline. It consists of 2 artefacts. The size of the artefacts was up to 40mm. They consisted of Grey Silcrete. They were located on cleared ground with good visibility along a vehicle track.

Contents: Two Grey Silcrete flakes.

Description: This site is located near a fenceline on the eastern boundary of the property of Hillview Park to the south-east of A17.

Archaeological Potential: The archaeological potential is generally low based on its location within the landscape. Only two flakes were detected and while there is always potential for other artefacts below the surface it is unlikely that there are large amounts

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present based on the stony geology of this local area. Artefacts would tend to be on top of the soil as the soil type is stony and artefacts would not tend to be covered by erosion or sink into the soil.

Site Significance

The site is considered to be of low significance due to the numbers and type of artefacts found. Pejar LALC reviewed the draft report and agrees with this assessment of significance.

Site Photographs



Site 4: Local Area

SITE 5

Location: Towards the northern extremity of the proposed Greywood Siding Road Access. Close to site 4 and just to its south.

UTM: 0744013 (East), 6172005 (North)

Size: This was a small site on a track not far from site 4.

Contents: Two Grey Silcrete flakes with a maximum size of 31mm.

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Description: The site is represented by a track and thus had good ground visibility.

Archaeological Potential: The archaeological potential is generally low based on its location within the landscape. Only two flakes were detected and while there is always potential for other artefacts below the surface it is unlikely that there are large amounts present based on the stony geology of this local area. Artefacts would tend to be on top of the soil as the soil type is stony and artefacts would not tend to be covered by erosion or sink into the soil.

Site Significance

The site is considered to be of low significance due to the numbers and type of artefacts found and the highly modified environment. Pejar LALC reviewed the draft report and agrees with this assessment of significance.

Site Photographs



Site 5: Local Area

SITE 6

Location: Along the proposed Greywood Siding Road access

UTM: 0743805 (East), 6170977 (North)

Size: Single core flake of Grey Silcrete. The site is located on the Greywood Siding Road proposed access where the road is cleared.

Contents: A single flaked core of Grey Silcrete.

Description: A disturbed site which represents a road. The visibility was good in the location of the road however the surrounding areas had less visibility.

Archaeological Potential: The archaeological potential is generally low based on its location within the landscape. Only one artefact was detected and while there is always potential for other artefacts below the surface it is unlikely that there are large amounts present based on the stony geology of this local area. Artefacts would tend to be on top of the soil as the soil type is stony and artefacts would not tend to be covered by erosion or sink into the soil.

Site Significance

The site is considered to be of low significance due to the numbers and type of artefacts found and the highly modified environment. Pejar LALC reviewed the draft report and agrees with this assessment of significance.

Site Photographs



Site 6: Local Area

SITE 7

Location: Along the proposed Greywood siding Road Access near to site 8

UTM: 0743722 (East), 6170517 (North)

Size: A small site with only a single artefact found. Size 30mmX25mmX14mm

Contents: One Brown Silcrete Flake.

Description: A small site located near to the fence line on the existing track as shown on the map in Appendix 1.

Archaeological Potential: The archaeological potential is generally low based on its location within the landscape. Only one flake was detected and while there is always potential for other artefacts below the surface it is unlikely that there are large amounts present based on the stony geology of this local area. Artefacts would tend to be on top of the soil as the soil type is stony and artefacts would not tend to be covered by erosion or sink into the soil.

Site Significance

The site is considered to be of low significance due to the numbers and type of artefacts found. Pejar LALC reviewed the draft report and agrees with this assessment of significance.

Site Photographs



Site 7: Local Area

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SITE 8

Location: On the eastern side of the proposed Greywood Siding Road access.

UTM: 0743695 (East), 6170209 (North)

Size: Site size is 80 metres by 60 metres.

Contents: A total of 41 fragments were found of Brown Silcrete. These were mainly very small reflecting flaking for tools and waste flake material from tool construction.

Description: This site represents a creekline site which has been eroded to a depth of approximately 200-300mm. The site is a low flat area which has eroded. The site is located approximately 10 metres from the vehicle location (see photo below) and extends upslope along the eroded gully line. The eroded areas are due to sheet erosion and resulted in approximately 80% soil exposure for this site. The fragments were spread throughout this area. Outside the site size area there is vegetation and the land does not appear to be eroded. As such it appears that most of the artefacts which were detected were previously below the ground surface. This is likely to be due to the historical clearing of the land at the time of European settlement which would have caused sedimentation with the sediments being deposited in this low lying open area. This would have covered any artefacts and since the erosion has occurred to a depth of 200-300mm this has once again exposed these artefacts.

Archaeological Potential: This is a moderate quality site with a moderate number of artefacts collected. Most of the items were small and were not representative of tools so it appears that time was spent in this area for perhaps a few days however there were no signs of permanent or semi-permanent use were detected. The significance of the fragments found is considered to be low as they are flakes from tool construction and not tools.

Site Significance

The site is considered to be of moderate significance due to the numbers and type of artefacts found. Pejar LALC reviewed the draft report and agrees with this assessment of significance.

Site Photographs



Site 8: Showing low flat drainage line where artefacts were located.



Site 8: Artefacts found at site 8.



Site 8: Looking towards proposed Greywood Siding Road Access (at vehicle location running from left to right of photo).

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SITE 9

Location: Creek crossing on the property Wollondilly. High disturbance.

UTM: 0736295 (East), 6170883 (North)

Size: Site size is approximately 50 metres by 10 metres.

Contents: A total of 1 fragment was found being Grey Silcrete being 37mm X 27mm X 12mm.

Description: This site is near to First Creek on the property Wollondilly. The artefact was found on the western side of the creek adjacent to the road. The site itself is highly disturbed as part of a road and the soil could have been transported from another part of this farm or off site to repair this section of road.

Archaeological Potential: This site is not considered to be significant.

Site Significance

The site is considered to be of low significance due to the numbers and type of artefacts found. Pejar LALC reviewed the draft report and agrees with this assessment of significance.

Site Photographs



Site 9: Showing creekline crossing on Wollondilly property. A single Grey Silcrete artefact detected. This area is likely to be spanned with box culverts resulting in

minimal disturbance.

SITE 10

Location: Wollondilly Property

UTM: 0733951 (East), 6171398 (North)

Size: Site size is approximately 150 metres by 150 metres.

Contents: A total of 7 fragments of quartz were found. These were mainly found generally scattered around this site area.

Description: This site represents a high point on the property. It is a scatter of remnant overstorey species with no understorey and heavy sheep grazing. The fragments were consistent with quartz flakes. The site provides a good vantage point to other areas in the landscape.

Archaeological Potential: This is a low quality site with a low number of artefacts collected. The items were found readily on the surface and due to the general nature of the site it is unlikely that artefacts would be covered in soil from erosion. Ground cover was sparse with visibility being approximately 80%.

Site Significance

The site is considered to be of low significance due to the numbers and type of artefacts found. Pejar LALC reviewed the draft report and agrees with this assessment of significance.

Site Photographs



Site 10: Hill location amongst remnant trees. Artefacts found in this area.



Site 10: Quartz artefacts.

4. DISCUSSION AND SIGNIFICANCE ASSESSMENT

4.1 ASSESSMENT OF SIGNIFICANCE CATEGORIES

NPWS (1997) defines significance as relating to the meaning of sites: “meaning is to do with the values people put on things, places, sites, land”. The ICOMOS Burra Charter and NSW Department of Urban Affairs and Planning’s ‘State Heritage Inventory Evaluation Criteria and Management Guidelines’ also define assessment criteria and significance. The assessment of Aboriginal significance is provided for under the guidelines from DEC – DEC Guidelines for Aboriginal Heritage Impact Assessment (2005).

Aboriginal archaeological sites are assessed under the following categories of significance;

- cultural value;
- research potential/archaeological value;
- aesthetic value;
- representativeness;
- educational value;

Aboriginal cultural significance

Aboriginal people value their cultural heritage and links with past ancestral use. The value of a place is determined by its history and significance with the local Aboriginal people.

Research Potential/Archaeological value

The research potential of a site relates somewhat to its archaeological value. Recently research is being evaluated in relation to the broader cultural life of Aboriginal people in the landscape. A broader sense of Aboriginal cultural heritage significance is usually examined in relation to the research potential of a site. Usually research potential is related to the potential for large numbers of artefacts of high quality and diverse nature often below the surface.

Representativeness

Representative value is the degree to which a “class of sites are conserved and whether the particular site being assessed should be conserved in order to ensure that we retain a representative sample of the archaeological record as a whole” (NPWS 1997). Factors defined by NPWS (1997) for assessing sites in terms of representativeness include defining variability, knowing what is already conserved and considering the connectivity of sites.

Educational value

The educational value of a site relates to Aboriginal cultural heritage. The educational value of sites and artefacts is highly important to local Aboriginal communities and often artefacts are kept for teaching purposes. In regard to development applications often artefacts that will be impacted are removed from site or moved to another part of the site.

Aesthetic value

Aesthetic value relates to the visual appreciation of Aboriginal cultural heritage items. This value is usually in relation to rock art and highly significant cultural items such as ceremonial sites and tree scars.

4.2 ASSESMENT OF SIGNIFICANCE

Non-Indigenous Heritage

The non-indigenous heritage items located at the site are limited to the Hillview Park Property homestead and its surrounding buildings and the Leeston homestead. These two properties are shown in the photos below. These items and their surrounds would not be disturbed by the proposed development, and are not listed under the Upper Lachlan LEP or any other heritage list. They are typical on farms throughout the LGA representing items of European Settlement and farming. The district of Crookwell was first settled in 1828 with farming having progressed well by 1840 with potatoes and wheat being grown in the district.



Leeston Homestead



Hillview Park Homestead

Indigenous Heritage

The targeted surveys revealed that indigenous artefacts were not at high levels within the study site. The artefacts that do exist within the landscape are distributed generally close to drainage lines.

The targeted surveys involved surveys of areas which were identified as being potentially impacted by the project. The proposed access roads and electricity connections (as described at section 1.4 of this report) have been identified on a map only and have not been pegged at the time the targeted surveys were carried out. Accordingly, the targeted surveys examined the indicative areas of the access roads and electricity connections only. All of the proposed turbine locations have been pegged and were assessed during the targeted surveys. The proposed turbine locations are generally located in disturbed paddock environments most of which have been cultivated. No artefacts were located in these areas and the potential for artefacts is considered low. The only exceptions are turbine A17 which is located approximately 20-25 metres from site 2. Although further surveys are recommended it is likely that impacts can be avoided through micrositing of this turbine. The only other site with high numbers of artefacts is site 8 which occurs on the proposed Greywood Siding Road proposed access.

Site 1

This site contained 17 artefacts. The site is located near to a drainage line where a dam has been built. The area is not located near to any proposed infrastructure and as such can be avoided as part of the proposal. The site is likely to have been used as a transitory site and does not appear to have represented a permanent site due to the type and number of artefacts detected. There is some potential for sub-surface material however it is unlikely to be in large amounts based on the other sites in the area and the site is not a quarrying site. The site is likely to have been used when passing through the area due to its sheltered location near to water.

Site 2

This site contained 8 artefacts with a combination of quartz (cores and tools) along with Grey Silcrete. The site occurred on a road and objects were found on the surface. The site was near to A17. In general the significance of this site is low to moderate as it contains objects commonly found in the landscape. The site is a reminder of the past and a link with the Aboriginal community who traditionally inhabited this area. The site is likely to have been used as a transitory site and does not appear to have been a permanent site. There is some potential for sub-surface material however it is unlikely to be in large amounts based on the other sites in the area and the site does not represent a quarrying site.

Site 3

Only a single artefact of a Brown Silcrete flake was recorded. Ground visibility was hindered by vegetation growth of pasture however this artefact was found on the surface. The significance of this site is of low research and cultural significance. The artefact is typical of artefacts found in this area and the region.

Site 4

Only two artefacts of a Grey Silcrete flake were recorded. Ground visibility was generally good due to the presence of a vehicle track. The ground was also very hard and stony making it likely that most potential artefacts would be located on the surface. The significance of this site is of low research and cultural significance. The artefact is typical of artefacts found in this area and the region. The site would have been transitory only.

Site 5

Only two artefacts of a Grey Silcrete flake were recorded. Ground visibility was generally good due to the presence of a vehicle track. The ground was also very hard and stony making it likely that most potential artefacts would be located on the surface. The significance of this site is of low research and cultural significance. The artefact is typical of artefacts found in this area and the region. The landform location is not within close proximity to water sources and the site would have been transitory only.

Site 6

Only one Grey Silcrete flake was recorded. Ground visibility was generally good due to the presence of a vehicle track. The ground was also very hard and stony making it likely that most potential artefacts would be located on the surface. The significance of this site is of low research and cultural significance. The artefact is typical of artefacts found in this area and the region. The landform location is not within close proximity to water sources and the site would have been transitory only.

Site 7

Only Brown Silcrete flake were recorded. Ground visibility was generally good due to the presence of a vehicle track. The ground was also very hard and stony making it likely that most potential artefacts would be located on the surface. The significance of this site is of low research and cultural significance. The artefact is typical of artefacts found in this area and the region. The landform location is not within close proximity to water sources and the site would have been transitory only.

Site 8

This site represents a moderately significant site in regard to its research and cultural significance. It contained 41 fragments of Brown Silcrete. They were distributed over a large eroded area. The area appears to have been used as a transitory site where people would have potentially passed through or stayed a few days in the local area. While there were a relatively large number of artefacts found the erosion makes it likely that there are few (if any) artefacts left below the surface. The fragments were small and the site is representative of other sites in the region.

Site 9

Only one artefact of a Grey Silcrete flake was recorded. Ground visibility was generally good due to the presence of a vehicle track. The site is over a creekline which is eroded and has had what appears to be a moderate to high level of soil disturbance. The significance of this site is of low research and cultural significance. The artefact is typical of artefacts found in this area and the region. There is potential that this artefact may have been brought in from another area in fill for this farm track.

Site 10

Seven artefacts of quartz were recorded. Ground visibility was generally good due to the high levels of grazing. The significance of this site is of low-moderate research and cultural significance. The artefact is typical of artefacts found in this area and the region. The landform location is not within close proximity to water sources and the site would not be disturbed by the proposal. The site is in a high location in the landform for viewing of the surrounding area however no other signs of occupation were detected.

4.3 SUMMARY

Non-Indigenous Heritage

There are no listed non-indigenous heritage items which would be impacted by the proposal. The non-indigenous heritage items within the site are not included on any heritage list or register and are not considered to be significant heritage items as they are typical of dwellings in the local district on farms.

Indigenous Heritage

Each of the 10 sites identified are considered to be of some cultural significance to the local Pejar LALC. Comments from Pejar LALC have been received based on the draft report and they agree with the assessments of significance for the sites detected. The study of these sites contributes to the local knowledge of the occupation of the land by Aboriginal people both at a local and regional scale. The study area has been extensively disturbed by farming and clearing since European occupation. Generally impacts can be avoided on most of the sites (see section 5 of this report for details).

5. IMPACT ASSESSMENT

Non-Indigenous Heritage

There would be no impacts on any non-indigenous heritage items. The items are well outside any proposed development areas. In any case the heritage significance of these items is low and they are typical of many of the items on many farms in the LGA. These items are not listed on any heritage register.

Indigenous Heritage

This study has identified 10 locations where artefacts occur. Sensitive locations are drainage lines and their surrounds within this landscape along with nearby sheltered saddles and low rises.

The proposed turbine locations are unlikely to impact any sites other than A17 which is close to site 2. Impacts on site 2 can be mitigated or avoided through further micrositing of the turbine.

Site 8, which is located in the proposed Greywood Siding Road access, has moderate significance. However, on the sites 4, 5, 6 and 7 located on the Greywood Siding Road proposed access only 1-2 artifacts per site were found.

In addition, site 9 occurs near to the creek crossing proposed for Crookwell 3 South which represents a highly disturbed environment. Only one artefact was detected at this location. The site is of low significance and no special considerations are deemed to be required. The soil profile has been highly disturbed from the construction of the farm road crossing the creek and potentially the artefact could have been even brought from off site in fill for the road.

The significance of the impacts of the project are likely to be relatively low. It is recommended that artefacts present at sites 2, 4, 5, 6, 7, 8 and 9 be either collected and provided to Pejar LALC for either safekeeping or relocation on site. The artefacts identified at these sites, particularly at site 8, may have already been moved by water action and erosion to their present position.

Any avoidance of sites equates to avoidance of impacts on Aboriginal cultural heritage values. Micrositing of turbine locations such as A17 can avoid cultural impacts. Keeping the access road close to the boundary fence along the proposed Greywood Siding Road access would also minimise potential impacts. If the impact cannot be avoided, it is expected that a Cultural Heritage Management Plan will be required for the proposed Greywood Siding Road access and potentially site 2 (proposed turbine site A17).

6. RECOMMENDATIONS

It is recommended that the development aims as far as possible to avoid impacts on the known archaeological sites. It is recommended that a Cultural Heritage Management Plan be prepared in collaboration with the Pejar Local Aboriginal Land Council to reduce and mitigate the impacts of the project on artefacts. If artefacts cannot be avoided then co-operation with Pejar LALC should be undertaken to determine the management of these artefacts (ie collection for education purposes or moving the artefacts slightly outside the zone of disturbance). In relation to the movement of objects the distances would not be significant and many of the objects may have been moved in the past via water movement, erosion and vehicle/tractor movements such as road grading and cultivation of the ground.

The Cultural Heritage Management Plan should also outline management strategies for the management of unrecorded sites within the site. This is important as the exact access track and electrical infrastructure locations were not available at the time when the field surveys were conducted. Potential deviations during the construction phase may occur to reduce impact(s) on the land.

If impacts cannot be avoided then further investigation is recommended for sites 2 and 8. This would enable the mapping of the sites in order to determine the spread of artefacts and their density. It is however quite likely that these sites were used as transitory sites by the hunters or some as short term stay sites. The recommended further investigation for sites 2 and 8 involve sub-surface excavation in the form of 20cm deep and 20cm square shovel test pits near to the sites (in the areas of potential disturbance only).

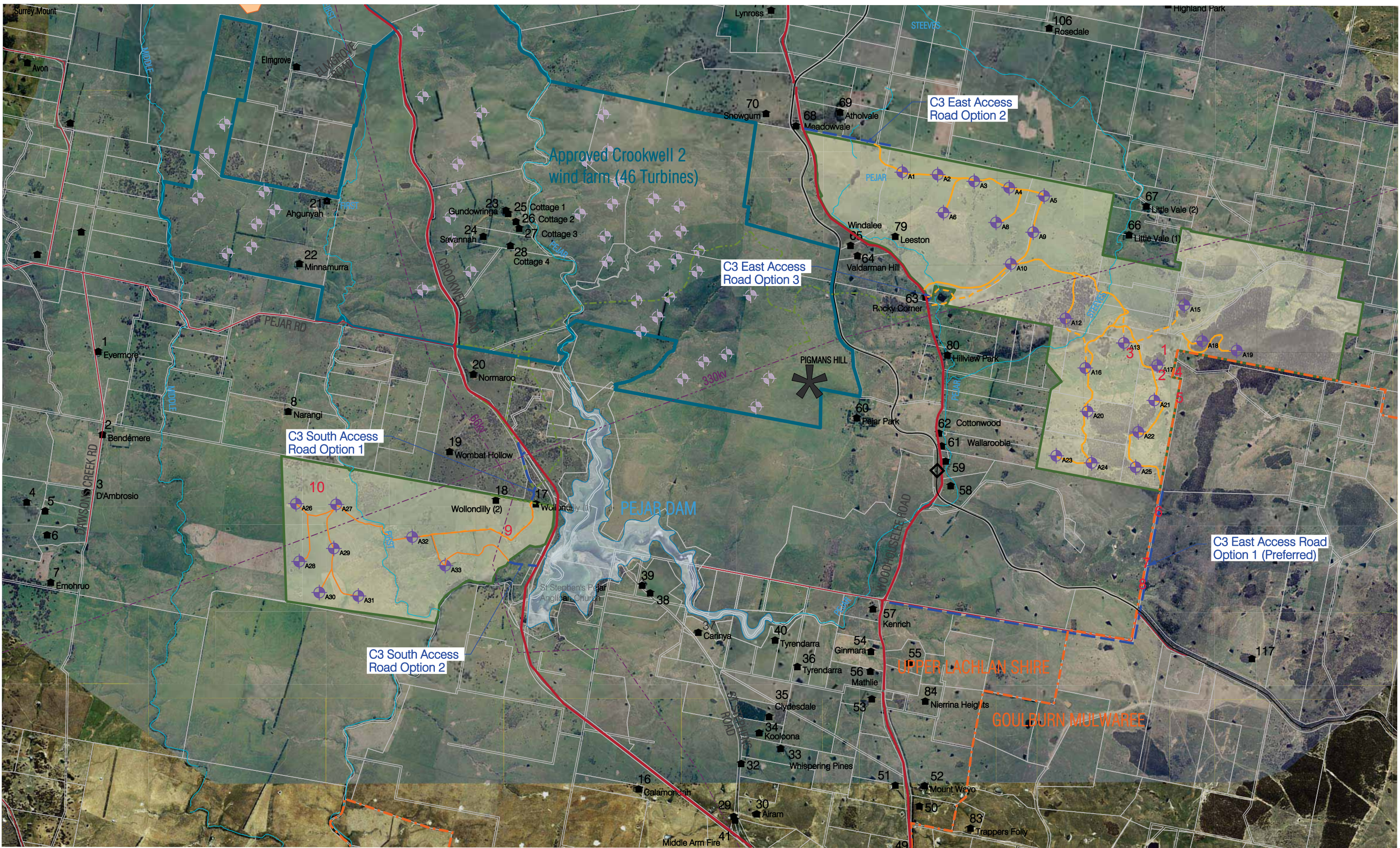
Once the proposed access track extents and other disturbance areas are pegged on the ground additional targeted surveys of these areas should be undertaken. Where sites are found test pits should be undertaken in order to determine the extent of significance of any sites which would be potentially impacted.

Careful road planning should be undertaken to utilise and upgrade existing roads where possible to achieve an overall plan to minimise soil disturbance.










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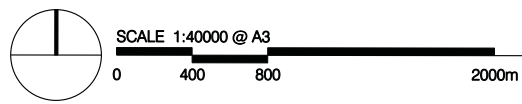
8. APPENDIX 1 – SITE MAPS



LEGEND

- | | | | | | |
|---|----------------|---|--------------------|---|-------------------------------|
|  | Activity Area |  | Shire Boundary |  | Crookwell 2 Approved Turbines |
|  | Major Road |  | Rail Line (Unused) |  | Crookwell 3 Proposed Turbines |
|  | Secondary Road |  | Transmission Line |  | Rail Station |

SITE PLAN



9. APPENDIX 2 – SITE AND ARTEFACT INFORMATION

Site	UTM East	UTM North	Artifact Type	Material	LXWXB
1	0743957	6173026	Broken Flake	Grey Silcrete	23x11x6
1	0743957	6173026	Broken Flake	Grey Silcrete	8x8x8
1	0743957	6173026	Broken Flake	Grey Silcrete	23x18x9
1	0743957	6173026	Broken Tool	Grey Silcrete	38x37x15
1	0743957	6173026	Broken Flake	Grey Silcrete	10x11x10
1	0743957	6173026	Flake Tool	Grey Silcrete	30x21x9
1	0743957	6173026	Broken Flake	Grey Silcrete	26x19x8
1	0743957	6173026	Broken Flake	Grey Silcrete	33x19x12
1	0743957	6173026	Broken Flake	Grey Silcrete	18x15x16
1	0743957	6173026	Broken Flake	Grey Silcrete	10x8x8
1	0743957	6173026	Broken Flake	Grey Silcrete	11x9x7
1	0743957	6173026	Broken Flake	Grey Silcrete	10x10x7
1	0743957	6173026	Broken Flake	Grey Silcrete	12x11x5
1	0743957	6173026	Broken Flake	Grey Silcrete	11x8x4
1	0743957	6173026	Broken Flake	Grey Silcrete	12x11x6
1	0743957	6173026	Broken Flake	Grey Silcrete	14x6x4
1	0743957	6173026	Broken Flake	Grey Silcrete	38x24x9
2	0743842	6172861	Core	Quartz	42x37x25
2	0743842	6172861	Core	Quartz	39x35x26
2	0743842	6172861	Flake Tool	Quartz	42x39x15
2	0743851	6172845	Broken Flake	Grey Silcrete	15x8x4
2	0743851	6172845	Broken Flake	Grey Silcrete	17x12x9
2	0743851	6172845	Broken Flake	Grey Silcrete	12x9x4
2	0743851	6172845	Broken Flake	Grey Silcrete	18x14x4
2	0743851	6172845	Broken Flake	Grey Silcrete	12x9x3
3	0743498	6173108	Broken Flake	Brown Silcrete	37x26x14
4	0743997	6172593	Broken Flake	Grey Silcrete	40x35x12
4	0743997	6172593	Flake Tool	Grey Silcrete	40x38x14
5	0744013	6172005	Broken Flake	Grey Silcrete	25x19x6
5	0744013	6172005	Broken Flake	Grey Silcrete	31x19x8
6	0743805	6170977	Broken Flake	Grey Silcrete	40x37x15
7	0743722	6170517	Broken Flake	Brown Silcrete	30x25x14
8	0743695	6170209	Broken Flake	Brown Silcrete	32x14x25
8	0743695	6170209	Broken Flake	Brown Silcrete	33x26x9
8	0743695	6170209	Broken Flake	Brown Silcrete	12x7x4
8	0743695	6170209	Broken Flake	Brown Silcrete	16x12x5
8	0743695	6170209	Broken Flake	Brown Silcrete	16x9x7
8	0743695	6170209	Broken Flake	Brown Silcrete	17x12x4
8	0743695	6170209	Broken Flake	Brown Silcrete	12x7x4
8	0743695	6170209	Broken Flake	Brown Silcrete	19x19x8
8	0743695	6170209	Broken Flake	Brown Silcrete	21x17x6
8	0743695	6170209	Core	Brown Silcrete	24x19x16
8	0743695	6170209	Broken Flake	Brown Silcrete	14x11x3
8	0743695	6170209	Broken Flake	Brown Silcrete	18x14x9
8	0743695	6170209	Broken Flake	Brown Silcrete	11x10x3
8	0743695	6170209	Broken Flake	Brown Silcrete	17x12x4
8	0743695	6170209	Broken Flake	Brown Silcrete	12x8x3
8	0743695	6170209	Broken Flake	Brown Silcrete	11x9x2
8	0743695	6170209	Broken Flake	Brown Silcrete	14x12x4
8	0743695	6170209	Flake Tool	Brown Silcrete	19x16x4
8	0743695	6170209	Core	Brown Silcrete	18x17x12
8	0743695	6170209	Broken Flake	Brown Silcrete	21x17x8
8	0743695	6170209	Broken Flake	Brown Silcrete	14x11x7
8	0743695	6170209	Broken Flake	Brown Silcrete	12x9x4
8	0743695	6170209	Broken Flake	Brown Silcrete	12x8x2
8	0743695	6170209	Broken Flake	Brown Silcrete	9x6x3
8	0743695	6170209	Broken Flake	Brown Silcrete	12x9x4
8	0743695	6170209	Broken Flake	Brown Silcrete	12x9x4
8	0743695	6170209	Broken Flake	Brown Silcrete	11x8x3
8	0743695	6170209	Flake Tool ?	Brown Silcrete	26x17x9

Site	UTM East	UTM North	Artifact Type	Material	LXWXB
8	0743695	6170209	Broken Flake	Brown Silcrete	16x11x4
8	0743695	6170209	Broken Flake	Brown Silcrete	19x14x4
8	0743695	6170209	Broken Flake	Brown Silcrete	21x14x3
8	0743695	6170209	Broken Flake	Brown Silcrete	28x17x9
8	0743695	6170209	Broken Flake	Brown Silcrete	16x15x10
8	0743695	6170209	Broken Flake	Brown Silcrete	14x11x4
8	0743695	6170209	Broken Flake	Brown Silcrete	12x11x11
8	0743695	6170209	Broken Flake	Brown Silcrete	17x12x9
8	0743695	6170209	Broken Flake	Brown Silcrete	23x14x11
8	0743695	6170209	Broken Flake	Brown Silcrete	14x11x4
8	0743695	6170209	Broken Flake	Brown Silcrete	12x9x3
8	0743695	6170209	Broken Flake	Brown Silcrete	12x14x7
8	0743695	6170209	Broken Flake	Brown Silcrete	17x14x7
9	0736295	6170883	Broken Flake	Grey Silcrete	37x27x12
10	0733951	6171398	Broken Flake	Quartz	18x12x12
10	0733951	6171398	Broken Flake	Quartz	19x16x12
10	0733951	6171398	Broken Flake	Quartz	28x25x14
10	0733951	6171398	Broken Flake	Quartz	24x14x9
10	0733951	6171398	Broken Flake	Quartz	17x16x7
10	0733951	6171398	Broken Flake	Quartz	21x12x9
10	0733951	6171398	Broken Flake	Quartz	14x11x7