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Denman Road Solar Park - Aboriginal Heritage Due Diligence Assessment

DPI Australia

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Project Manager	Andrew Butler
Prepared by	Daniel Claggett
Reviewed by	Tyler Beebe
Approved by	Kalya Abbey
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1. Introduction

1.1 Project background

Eco Logical Australia Pty Ltd (ELA) was engaged by DPI Australia Pty Ltd (DPI) through ASLAT Consulting to undertake an Aboriginal Heritage Due Diligence Assessment upon the site the proposed Denman Road Solar Park on Lot 400 DP 791860 Denman Road Muswellbrook, NSW. ELA understands that DPI require an Aboriginal Heritage Due Diligence Assessment to provide supporting information for the preparation of a Statement of Environmental Effects (SOEE) as part of a development application to Muswellbrook Shire Council (MSC). The application is for the development of a solar PV generation and storage facility (Solar Park) including network connection to the adjoining 66kv Ausgrid Power line.

The Project is located at Lot 400 Denman Road, Muswellbrook, NSW on a single 40ha site. The proposed development consists of:

- a photovoltaic (PV) Solar Park
- an on-site step-up transformer and associated facilities to connect to the Ausgrid Network
- a small control room and operation/maintenance facility with car parking for up to 5 vehicles
- the facility will have a potential peak power generation of up to 20 megawatts (MWAC).

The Aboriginal Heritage Due Diligence Assessment of Lot 400 Denman Road, (hereafter referred to as 'the study area') will identify if Aboriginal objects are likely to be located within the area of the proposed works and, if so, whether the proposed works have the potential to harm those objects.

This assessment outlines the findings of the Aboriginal Heritage Due Diligence Assessment of the study area, in accordance with the Department of Planning, Industry and Environment (DPIE) *Due Diligence Code of Practice for the protection of Aboriginal Objects in New South Wales* (DECCW 2010a).

1.2 Study area

The Study Area is located wholly within the Muswellbrook Local Government Area (LGA) approximately 13 km south-west of Muswellbrook and 10 km north-east of Denman (Figure 1).

The study area consists of 40 ha of cleared, grazing land, parts of which have been recently cultivated for agriculture. The infrastructure present on site consists of farm tracks, portable sheep yards and fencing. For the purposes of this study, it is assumed that the entire 40 ha will be impacted by the installation of solar panels and associated infrastructure.

1.3 Assessment process

The aims of this archaeological due diligence assessment are to:

- Undertake a search of the Aboriginal Heritage Information Management System (AHIMS) register maintained by the DPIE to establish if there are any previously recorded Aboriginal objects or places within the study area
- Undertake a search of the NSW State Heritage Inventory, the Australian Heritage Database, and the Muswellbrook Local Environmental Plan (LEP) 2009 Schedule 5 (Environmental Heritage) in

order to determine if there are any sites of archaeological significance or sensitivity located within the study area

- Undertake a desktop review of relevant previous archaeological assessments to understand the local archaeological context and assist in predicting the likely occurrence of unrecorded archaeological sites or objects
- Undertake a site inspection to identify any Aboriginal sites and areas of sensitive landforms
- Prepare an archaeological due diligence assessment determining if known objects or additional unrecorded objects are present within the study area, as well as indicate whether further assessment and/or an Aboriginal Heritage Impact Permit is required.

The DPIE process involves *“taking reasonable and practical measures to determine whether your actions will harm an Aboriginal object and, if so, what measures can be taken to avoid that harm”* (DECCW 2010a:4).

If an AHIP application is required, the DPIE necessitate that it is supported by an Aboriginal Cultural Heritage Assessment (ACHA) prepared in line with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (DECCW 2010b), and a copy of the approval for the development or infrastructure under Part 4 or Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act, New South Wales).

An archaeologically sensitive landscape is an area that has the potential for archaeological material to be present within it. According to the *Due Diligence Code of Practice* (DECCW 2010a), archaeologically sensitive landscapes can include areas:

- Within 200m of waters;
- Located within a sand dune system;
- Located on a ridge top, ridge line, headland;
- Located within 200m below or above a cliff face;
- Within 20m of or in a cave, rock shelter, or a cave mouth; and
- Is on land that is not disturbed land

The Due Diligence Code of Practice (DECCW 2010a:18) defines disturbed land as areas that have any land that:

“Has been the subject of a human activity that has changed the land’s surface, being changes that remain clear and observable. Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines, stormwater drainage and other similar infrastructure) and construction of earthworks.”

1.4 Due diligence assessment summary

ELA has undertaken an extensive search of the AHIMS database maintained by the DPIE and a review of available background reports discussing key Aboriginal archaeological assessments conducted in close

proximity to the study area, as well as in the wider Muswellbrook / Hunter Valley region. Background research identified that there is considerable potential for Aboriginal sites within proximity to the study area, which are typically associated with flat, terraced landforms and established drainage lines.

A site inspection undertaken by ELA Senior Archaeologist Tyler Beebe and ELA Ecologist Daniel McKenzie on 14 February 2020 identified a total of nine (9) Aboriginal sites within the study area (**Appendix B**), in addition to low levels of ground disturbance and a number of areas of archaeological potential across the study area. Based on the presence of surface artefacts and the potential for further surface and subsurface Aboriginal sites within the study area is considered to possess moderate to high potential for Aboriginal heritage. Therefore, further assessment in the form of an ACHA is required and an AHIP application will be necessary in order to impact upon any Aboriginal sites identified.

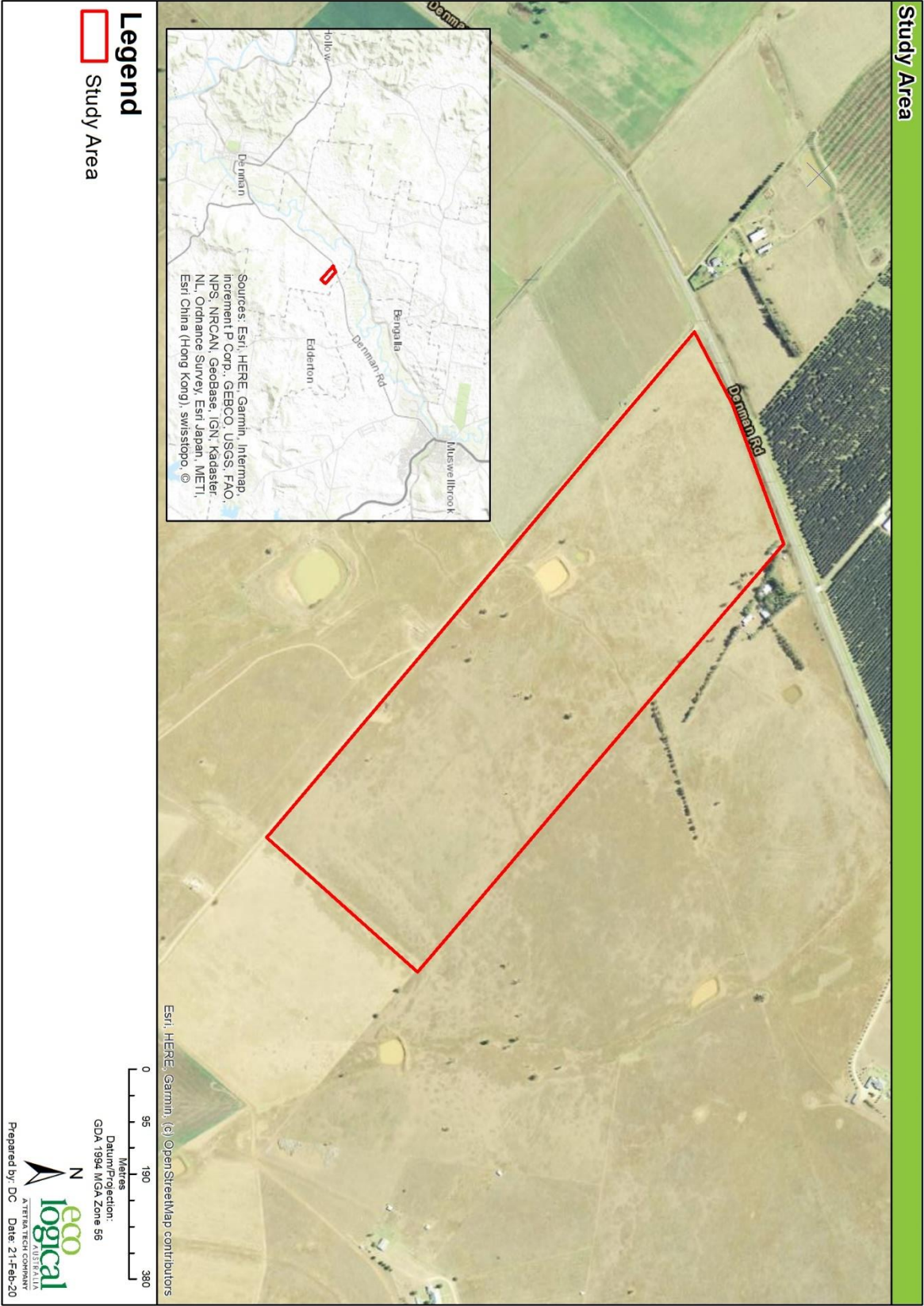


Figure 1: The Study Area

2. Basis for cultural heritage management

Places of cultural significance enrich people's lives, often providing a deep and inspirational sense of connection to community and landscape, to the past, and to lived experiences ... they are irreplaceable and precious (Australia ICOMOS Burra Charter 2013:1).

Traditionally, heritage and archaeological assessments have focused on the significance of the tangible elements of cultural heritage (Brown 2008). Items such as structures and archaeological artefacts have been considered predominantly in terms of their scientific/research potential and representativeness (New South Wales Heritage Office 2015:20-24). By focusing on the scientific qualities of heritage, many of the intangible qualities of heritage were not considered. This is especially crucial when participating in the management and protection of Aboriginal cultural heritage. By nature, Aboriginal cultural heritage is multi-faceted: it consists not only of tangible structures and objects of value for scientific investigations, but also of a deeply complex array of intangible expressions, such as stories, memories, and traditions. Many of the rights and interests of Aboriginal communities in their own heritage is formed on the basis of this intangibility. It stems from their spirituality, customary law, original ownership, and continuing custodianship (Australian Heritage Commission 2002:5). These intangible expressions often share a strong link with the landscape. Byrne *et al.* (2003:3) describe this connection in the form of a map, where individuals:

Carry around in [their] heads a map of the landscape which has all these places and their meanings detailed on it. When we walk through our landscapes the sight of a place will often trigger the memories and the feelings [that] go with them ... it is the landscape talking to us.

Crucially, those who are not connected to the landscape in question will not be able to discern these intangible meanings embedded in the landscape; they can only come to recognise the significance by consulting with local knowledge holders (Byrne *et al.* 2003:3), and even so, they may vary between individuals, reflecting unique experiences.

By recognising the rights and interests of Aboriginal knowledge holders and community members in their cultural heritage, all parties involved in the identification, conservation, and management of this cultural heritage must acknowledge that Aboriginal people (Australian Heritage Commission 2002:6):

- Are the primary source of information on the value of their heritage and how this is best conserved;
- Must have an active role in any heritage planning processes;
- Must have input into primary decision-making in relation to their heritage so that they can continue to fulfil their obligations towards this heritage; and
- Must control the intellectual property and other information relating specifically to their heritage, as this may be an integral aspect of its heritage value.

As such, cultural heritage sites and objects are fundamental elements of Aboriginal peoples' identities, connections, and belonging to their communities. The careful protection and management of this heritage is essential for the preservation of connection between past, present, and future.

3. Assessment process

3.1 Identify if the proposed activity will disturb the ground surface

The construction of a Solar Park will require the installation of solar panels, access tracks and above / below ground electrical infrastructure, all of which will disturb the ground surface. Therefore, the due diligence process moves to the next stage.

3.2 Database searches and known information sources

3.2.1 AHIMS search

The Aboriginal Heritage Information Management System (AHIMS) is a database maintained by DPIE and regulated under Section 90Q of the *National Parks and Wildlife Act 1974*. AHIMS holds information and records regarding the registered Aboriginal archaeological sites (Aboriginal objects, as defined under the Act) and declared Aboriginal places that exist in NSW.

A search of the AHIMS database was conducted on 22 January 2020 to identify if any registered Aboriginal sites were present within, or adjacent to, the study area (**Appendix A**).

The AHIMS database search was conducted within the following lot/coordinates:

Table 1: Search Parameters for the AHIMS database search

Search Parameters	
GDA Zone	56
Eastings	288161 - 292161
Northings	6418647 - 6422647
Buffer	1 km

The AHIMS search result showed:

Table 2: Search results for the AHIMS database search

Search Results	
Aboriginal sites recorded	31
Aboriginal places declared	0

No Aboriginal sites had previously been recorded within the study area (Figure 2, Figure 3). Of these 31 sites, seven (7) are listed as having been destroyed. A full copy of the AHIMS results is included as **Appendix A** of this report.

All 31 Aboriginal sites identified during the AHIMS search are either isolated artefact sites or artefact scatter sites. The closest site to the study area is an isolated artefact (AHIMS #37-2-5940) located approximately 290 m to the south.

Table 3: Frequencies of site types and contexts

Site Context	Site Features	Number	%
Open Site	Artefact	23	74.2%
	Artefact Scatter	8	25.8%
	Total	31	100%

3.2.2 Local, state and national heritage registers

Searches of the Australian Heritage Database, the State Heritage Register (SHR) and Muswellbrook LEP 2009 utilising the term “Muswellbrook, NSW” were conducted on 21 February 2020 in order to determine if any places of archaeological significance are located within the study area.

No Aboriginal archaeological sites or heritage items were recorded on these databases within the study area.

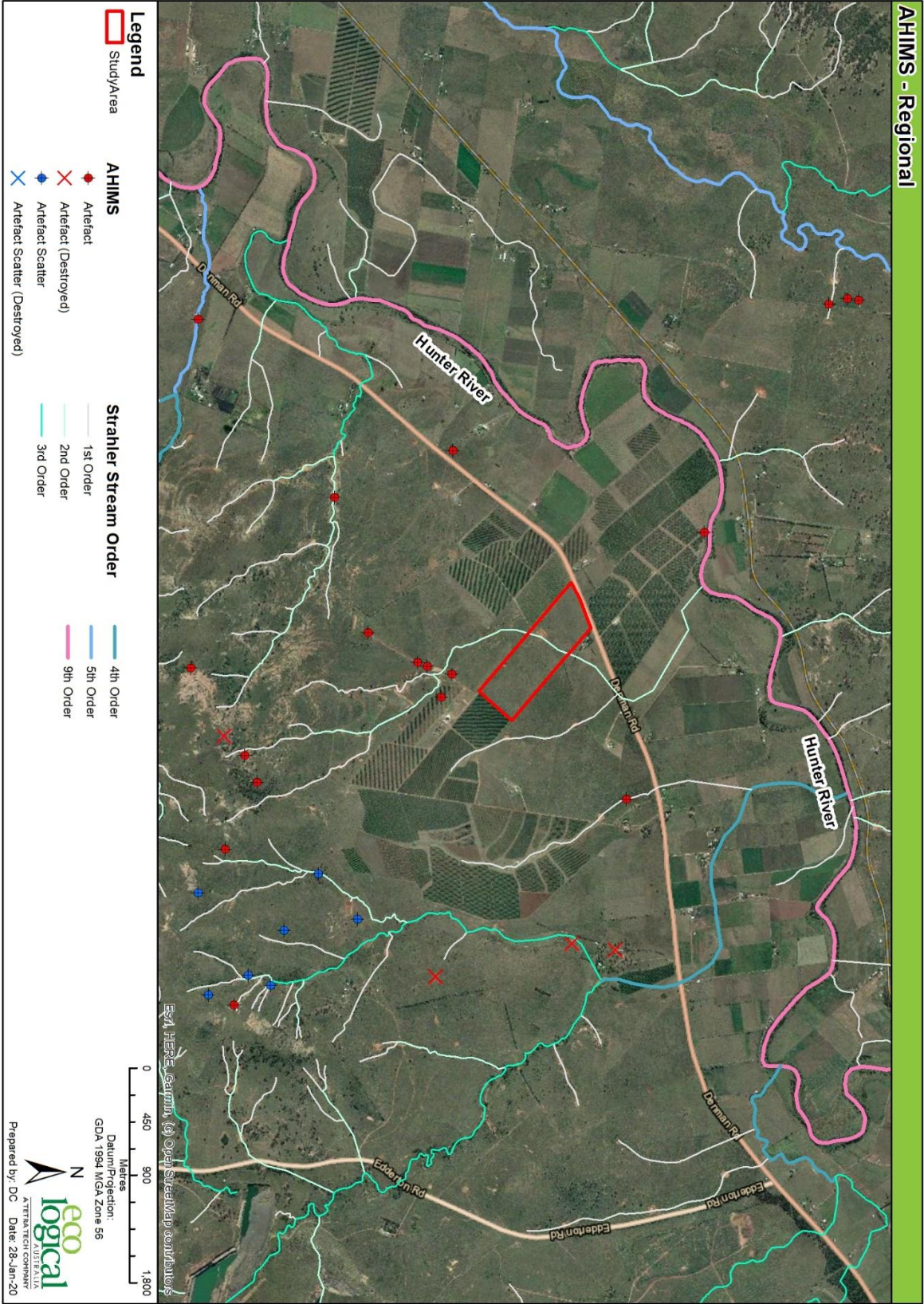


Figure 2: Overview of AHIMS registered sites in the region



Figure 3: Detail of AHIMS registered sites in the vicinity of the study area

3.2.3 Previous archaeological investigations

There have been several Aboriginal archaeological assessments within the Muswellbrook area and wider Hunter Valley region within the last four decades, usually associated with large energy and mining projects situated outside population centres such as the Muswellbrook township. A review of key studies undertaken within the region are provided below and help to establish a predictive model for the likelihood of Aboriginal sites to occur within the Muswellbrook region.

Dyall, L. 1981. *Report on Aboriginal Relics from Mt Arthur South Coal Lease, Muswellbrook*. Prepared for the NSW National Parks and Wildlife Service.

Dyall (1981) was previously commissioned to prepare an Aboriginal heritage report for the proposed development of an open cut mine within the Mt Arthur South lease. The Mt Arthur mine lease in its entirety constitutes a large portion of land which, at its closest point, comes within 2 km of the current study area. Dyall's heritage investigation of the southern portion of the Mt Arthur mining lease included a four-day long site inspection in order to inspect creek lines, ridges, paddocks and other areas with the potential to contain Aboriginal sites. In addition to background research and site inspection, anecdotal evidence from local landowners were sought out by Dyall in order to garner further information regarding Aboriginal sites in the area.

Twenty-four 'open campsite' areas were identified within the southern lease, all of which were associated with creek lines. Two campsites identified by Dyall contain over 500 artefacts, the densest artefact scatter identified during site survey. Artefacts identified included artefact types that had not at that point been identified within the Hunter Valley. Dyall recommended that, as some of the artefacts identified had not previously been found in the Hunter Valley, that further assessment and investigation be conducted into the Aboriginal sites located on the lease.

South East Archaeology Pty Ltd, 1999. *An Aboriginal Archaeological Assessment of the Proposed Mt Arthur North Coal Mine, near Muswellbrook, Hunter Valley NSW*. Prepared for Dames and Moore.

South East Archaeology was previously commissioned by Coal Operations Australia Pty Ltd (C/- Dames and Moore) to undertake an Aboriginal archaeological assessment as part of an Environmental Impact Statement (EIS) for the proposed exploration and expansion of the northern portion of the Mt Arthur Coal Mine, the portion of the mine site situated closest to the current study area. The Aboriginal heritage assessment included targeted site inspection and the development of a predictive model designed to locate sites based on data from previous surveys, background research, known Aboriginal sites in the area, traditional Aboriginal land use patterns and information garnered from the local Aboriginal community.

Site survey was undertaken by archaeologists from South East Archaeology and Aboriginal community representatives and resulted in the identification of 17,330 artefacts across 294 sites. This large artefact assemblage was dominated by flaked artefacts, suggesting that artefact types in the area were indicative of 'casual, opportunistic behaviour, meeting requirements of stone tools on an as needed basis'. Although it was noted that the integrity of most sites identified had been partially compromised by modern land-use, enough site integrity remained for the area to be of significant research value. South East Archaeology recommended that prior to development, a Consent to Destroy and permit to salvage be obtained, and that Aboriginal heritage conversation zones be established for sites situated outside of areas of direct impact.

Upper Hunter Wonnarua Council, 2002. Muswellbrook Coal Company No 1 Open Cut Extension – Aboriginal Cultural Heritage Assessment. Prepared for Muswellbrook Coal Company.

The Upper Hunter Wonnarua Local Aboriginal Land Council (LALC) was previously involved in the preparation of an ACHA for the proposed expansion of the Muswellbrook Coal Company mine, located approximately 15 km northeast of the current study area and located directly to the northeast of the Muswellbrook township. Site survey of the proposed expansion area by members of the Upper Wonnarua LALC and archaeologists from HLA Envirosiences resulted in the identification of five (5) Aboriginal sites, four of which were isolated artefact or artefact scatter sites, with the fifth site being a scarred tree site. One area of Potential Archaeological Deposit (PAD) was identified by Upper Hunter Wonnarua LALC; a low terraced area which contained one of the artefact sites.

It was recommended by Upper Hunter Wonnarua LALC that impacts on the Aboriginal artefact sites would be acceptable when done under a Consent to Destroy, but that no harm should come to the scarred tree site, which was recommended to be conserved.

RPS, 2013. Aboriginal & Non-Indigenous Cultural Heritage Assessment – Mt Arthur Coal Open Cut Modification. Prepared for Hunter Valley Energy Coal.

RPS Australia was previously commissioned by Hunter Valley Energy Coal (HVEC; a subsidiary of BHP Billiton) to prepare an Aboriginal and Historical Cultural Heritage Assessment for the proposed extension of Mt Arthur Coal Mine. The Aboriginal heritage component of the assessment included consultation with Aboriginal stakeholder groups relevant to the area, and site inspection was undertaken in partnership with Aboriginal stakeholder groups who registered for the project. Site survey aimed to ground truth Aboriginal sites identified in previous surveys and archaeological assessments, and to ascertain the archaeological sensitivity of the mine extension area.

Twenty-eight (28) new Aboriginal sites were identified during site survey. In addition to existing Aboriginal sites within the expansion area, it was determined that a majority of the sites possessed low archaeological significance, while 12 sites were identified as being moderately significant. Culturally, the expansion site was identified by multiple Aboriginal stakeholder groups as being highly significant. RPS recommended that as many Aboriginal objects remain *in situ* as possible, unless impacts were unavoidable. In areas where impact was unavoidable, it was recommended that sites be salvaged through surface collection, and that areas of PAD be subject to a program of test excavation. It was also recommended that all salvage and mitigation works be undertake in partnership with Aboriginal stakeholder groups.

3.3 Landscape assessment

The study area is situated within the Hunter sub-bioregion, which forms one of the northernmost portions of the Sydney Basin bioregion. A summary of landforms, soil types and vegetation common to this sub-bioregion is presented in Table 4 below.

Table 4: Landscape and geological characteristics of the Hunter sub-bioregion

Subregion	Geology	Characteristic landforms	Typical soils	Vegetation
Hunter	A complex of Permian shales, sandstones, conglomerates, volcanics and coal measures. Bounded on the north by the Hunter Thrust fault and on the south by cliffs of Narrabeen Sandstone. Pleistocene coastal barrier system in Newcastle bight.	Rolling hills, wide valleys, with a meandering river system on a wide flood plain. River terraces are evident, the highest with silicified gravels. Streams can be brackish or saline at low flow. Numerous small swamps in upper catchment, extensive estuarine swamps behind the coastal barrier of beach and dunes.	A variety of harsh texture contrast soils on slopes and deep sandy loam alluvium on the valley floors. Small number of source bordering dunes on southern tributaries of the Hunter. Deep sands with podsol profiles in dunes on the barrier, saline, organic muds in the estuary. Soil salinity is common on some bedrocks in the upper catchment.	Patches of rainforest brush in the lower valley. Forest and open woodland of white box, forest red gum, narrow-leaved ironbark, grey box, grey gum spotted gum, rough-barked apple and extensive of stands of swamp oak in upper reaches and foothills. River oak and river red gum along the streams. Coastal dune vegetation of blackbutt, smooth-barked apple, coast banksias and swamp mahogany. Mangroves, salt marsh and freshwater reed swamps in the estuary.

The study area is located within two different soil landscapes. The northwest portion of the study area is situated in the Hunter soil landscape (A-hu), while the southeast portion of the study area is situated in the Dartbrook soil landscape (BC-db). Soils within the Hunter soil landscape are typically well-drained, with low to moderate levels of acidity and low to moderate erodibility, allowing for the retainment of intact stratigraphic layers and archaeological deposits. The Dartbrook soil landscape possesses similar characteristics, with well-draining soils that are slightly more acidic than Hunter soils and slightly more prone to eroding (Kovac 1988).

One second-order drainage line runs north to south through the north-eastern portion of the study area. At its closest point, the study area is situated approximately 800 m from the Hunter River, a major river system in the Hunter Valley and focal point of Aboriginal activity in the past (**Figure 4**).

3.4 Predictive model

Based on the material evidence and range of archaeological sites across the region, it is clear that Aboriginal people have been utilising the land and resources within the Cumberland Plain for thousands of years. The predictive model outlined in Table 5 below has been developed for the study area based on the AHIMS search results, landscape assessment and regional and local Aboriginal archaeological context outlined above.

Table 5: Predictive model

Site Type	Description	Likelihood to occur
Open camp sites/stone artefact scatters/isolated finds	Open camp sites represent past Aboriginal subsistence and stone knapping activities, and include archaeological remains such as stone artefacts and hearths. This site type usually appears as surface scatters of stone artefacts in areas where vegetation is limited and ground surface visibility increases. Isolated finds may represent a single item discard event or be the result of limited stone knapping activity. The presence of such isolated artefacts may indicate the presence of a more extensive, in situ buried archaeological deposit, or a larger deposit obscured by low ground visibility.	Moderate – Past disturbances within the study area and the presence of a second-order drainage line indicates that there is potential for this site type to occur.
Potential Archaeological Deposit	Potential Archaeological Deposits (or PADs) are areas where there is no surface expression of stone artefacts, but due to a landscape feature there is a strong likelihood that the area will contain buried deposits of stone artefacts.	Moderate - Past disturbances within the study area and the presence of a second-order drainage line indicates that there is potential for this site type to occur.
Scarred or carved trees	Tree bark was utilised by Aboriginal people for various purposes, including the construction of shelters (huts), canoes, paddles, shields, baskets and bowls, fishing lines, cloaks, torches and bedding, as well as being beaten into fibre for string bags or ornaments (sources cited in Attenbrow 2002: 113). Trees may also have been scarred in order to gain access to food resources (e.g. cutting toe-holds so as to climb the tree and catch possums or birds), or to mark locations such as tribal territories. Such scars, when they occur, are typically described as scarred trees.	Nil. There are no mature growth trees within the study area.

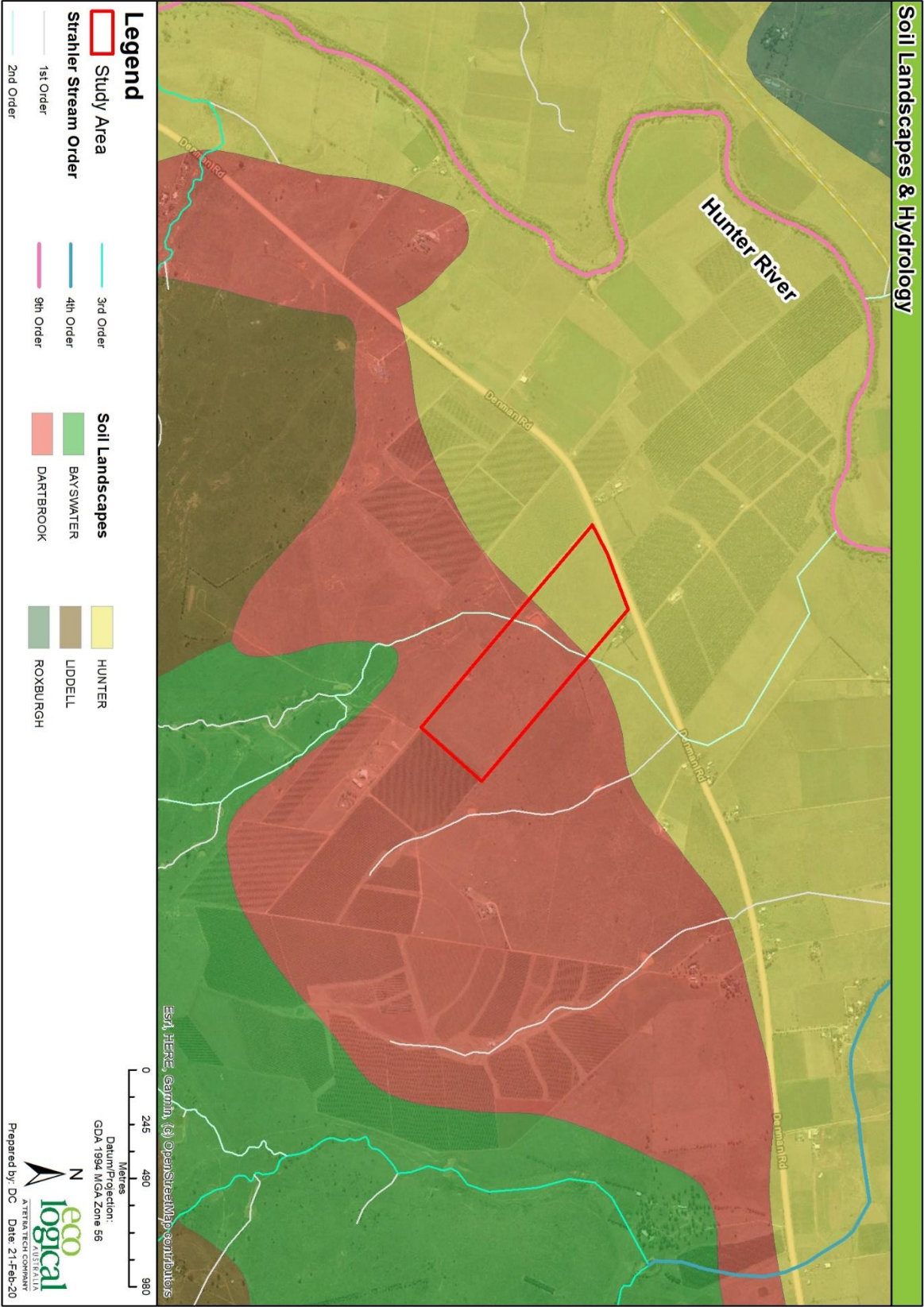


Figure 4: Soil landscapes and hydrology of the study area

3.5 Visual inspection

A site inspection of the property was carried out on 14 February 2020 by ELA Senior Archaeologist Tyler Beebe and ELA Ecologist Daniel McKenzie. Site survey covered the entirety of the property, targeting areas identified as possessing archaeological potential.

A total of nine (9) Aboriginal sites were identified within the study area, with a majority of these sites identified on a gently sloping landform located approximately 850 m southeast of the Hunter River. The Aboriginal sites identified consist of eight (8) isolated artefact finds and one (1) artefact scatter site (Figure 5 to Figure 18; Figure 21). The identification of the nine artefact sites was aided by high ground exposure across the site due to drought and livestock grazing. It is likely that additional surface artefact sites are present across the property but were unable to be identified due to time and personnel constraints. Ground disturbance within the study area was considered low to moderate, with visible disturbances associated with land used for pastoral grazing (Figure 19), low intensity crop cultivation (Figure 20) and the construction of dams within the central portion of the property.

Due to the low levels of ground disturbance identified within the property, the second-order drainage line that runs through the central portion of the study area and the nearby presence of the Hunter River, a major landscape feature of the region and a permanent waterway, the study area is considered to possess moderate to high archaeological potential, as defined in the DPIE *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010).



Figure 5: Denman Road Isolated Artefact 1, dorsal surface



Figure 6: Denman Road Isolated Artefact 1, ventral surface



Figure 7: Denman Road Isolated Artefact 2



Figure 8: Denman Road Isolated Artefact 2



Figure 9: Denman Road Isolated Artefact 3, ventral side



Figure 10: Denman Road Isolated Artefact 3, dorsal side



Figure 11: Denman Road Isolated Artefact 4, ventral surface



Figure 12: Denman Road Isolated Artefact 4, dorsal surface



Figure 13: Denman Road Isolated Artefact 5, ventral surface



Figure 14: Denman Road Isolated Artefact 5, dorsal surface



Figure 15: Denman Road Isolated Artefact 6 (possible hammerstone)



Figure 16: Denman Road Isolated Artefact 7, ventral side



Figure 17: Denman Road Isolated Artefact 8, dorsal side



Figure 18: Denman Road Artefact Scatter 1



Figure 19: Portion of the study area pocketed with ground exposures, likely due to livestock grazing



Figure 20: Shallow furrow lines within the ground surface, suggesting past crop cultivation within this portion of the study area

3.6 Impact avoidance assessment

The proposed Solar Park development will require bulk earthworks, landscaping and the installation of solar panels and associated energy infrastructure. These works will impact the ground surface; therefore, the due diligence process moves to the next stage.



Figure 21: Aboriginal sites identified within the study area during site survey

4. Statutory requirements

Aboriginal objects and places in New South Wales are afforded protection under the NPW Act irrespective of whether they are registered on AHIMS. Strict penalties apply for engaging in activities that inflict harm to an Aboriginal cultural heritage site or object without consent for activities under the NPW Act. Under Part 6 of the NPW Act, consent or authorisation for harmful activities may be given under an AHIP. Should harm be inflicted upon an Aboriginal site or object, there are five defences:

- The harm was authorised under an AHIP;
- The proponent exercised due diligence prior to causing the harm and is able to demonstrate this;
- The harm was caused during activities that complied with a code of practice as described in Part 6A of the *National Parks and Wildlife Regulation 2009* (New South Wales). For example, undertaking archaeological test excavations in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010c);
- The harm was caused as part of a low-impact activity or omission under the regulation, and the proponent was not aware of the presence of Aboriginal cultural material; or
- The harm caused during activities that are exempted under Section 87A of the NPW Act. For example, emergency fire-fighting or bushfire hazard reduction work, as defined by the *Rural Fires Act 1997* (New South Wales).

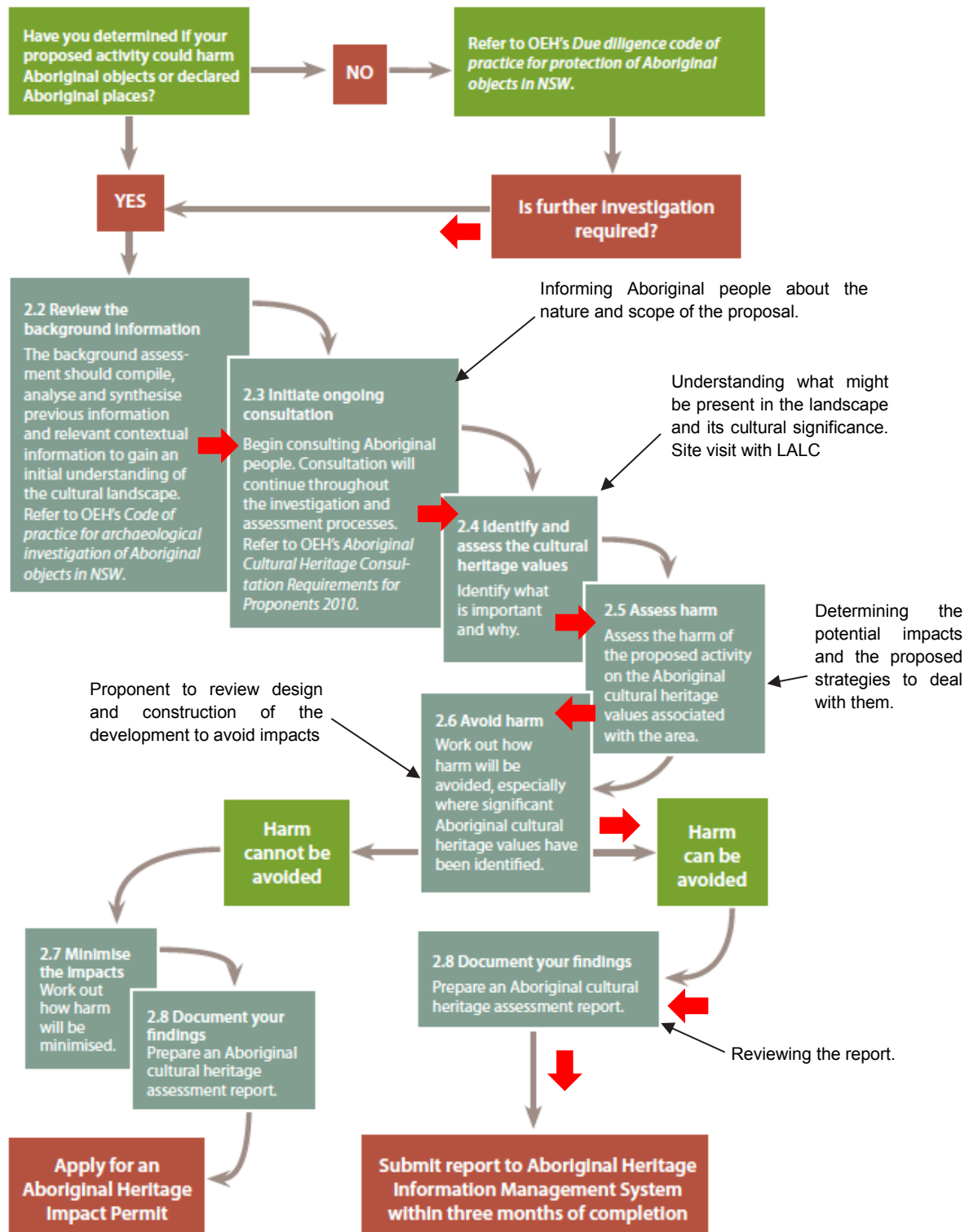
To assess the requirement of an AHIP, the DPIE necessitates that an ACHA is prepared in accordance with the *Guide to Investigating, Assessing, and Reporting on Aboriginal Cultural Heritage in New South Wales* (DECCW 2010b) and the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010a). These two guides establish a set of guidelines to aid land users in being aware of how their activities could damage Aboriginal cultural heritage sites and archaeologists in the requirements that must be followed during the investigation of Aboriginal cultural heritage sites. If an AHIP is required, the DPIE necessitates that it is further supported by a copy of the approval for the development or infrastructure issued under Part 4 or Part 5 of the EP&A Act.

5. Conclusions

The purpose of the Aboriginal heritage due diligence is to identify if there are registered Aboriginal sites and/or sensitive landforms which may indicate the presence of Aboriginal sites and may therefore require further assessment and approval under Part 6 of the *National Parks and Wildlife Act 1974*.

ELA has undertaken an extensive search of the AHIMS database maintained by the DPIE and a review of available background reports discussing key Aboriginal archaeological assessments conducted in close proximity to the study area, as well as in the wider Muswellbrook / Hunter Valley region.

A site inspection undertaken by ELA Senior Archaeologist Tyler Beebe and ELA Ecologist Daniel McKenzie on 14 February 2020 identified a total of nine (9) Aboriginal sites within the study area, in addition to low levels of ground disturbance and a number of areas of archaeological potential across the study area (**Appendix B**). Based on the presence of surface artefacts and the potential for further surface and subsurface Aboriginal sites within the study area, Lot 400 Denman Road is considered to possess moderate to high potential for Aboriginal heritage. Therefore, further assessment in the form of an ACHA is required and an AHIP application will be necessary in order to impact upon any Aboriginal sites identified.

Figure 1: The process for investigating and assessing Aboriginal cultural heritage

5.1 Recommendations

Based on the findings of this due diligence and the requirements of the NP&W Act the following is recommended.

Recommendation 1 –ACHA, Community Consultation and Test Excavation

- Based on the archaeologically sensitive nature of the study area and the identification of multiple Aboriginal sites, an Aboriginal Cultural Heritage Assessment (ACHA) should be prepared which would include an impact assessment of the proposed development. The ACHA would entail Aboriginal community consultation following the '*Aboriginal cultural heritage consultation requirements for proponents 2010*' (DECCW 2010) to identify Aboriginal cultural heritage values through consultation with Aboriginal stakeholders. The consultation requirements allow for mandatory timeframes for Aboriginal stakeholders registering their interest with the proponent to enter into consultation, and the allowance of time for the registered Aboriginal parties to review and comment on the project methodology and draft reporting. Due to these statutory guidelines an ACHA takes a minimum 16 weeks to complete.
- Further archaeological assessment including detailed field survey with Aboriginal stakeholders should be undertaken to inform archaeological values across the developable area. This would consist of a single day with 2-3 representatives of the registered Aboriginal parties walking set transects across the project area in order to identify additional Aboriginal objects and/or areas of archaeological potential.
- If harm to any Aboriginal objects identified from the pedestrian survey can't be avoided, an AHIP approval is required and the objects will be collected with the assistance of the registered Aboriginal parties prior to any proposed impacts.
- Subsurface archaeological excavation may be required And would be a recommendation of the ACHA The ACHA can be prepared in advance of any DA and inform areas of opportunity and constraint for development. An archaeological test excavation can be conducted prior to AHIP application.

Recommendation 2 – Aboriginal Heritage Impact Permit (AHIP) Application

- The ACHA can be used to support a future Aboriginal Heritage Impact Permit (AHIP) application to the DPIE if Aboriginal sites cannot be avoided by future development. The DPIE require that AHIP applications are supported by an approval under Part 4 or Part 5 of the Environmental Planning and Assessment Act 1979 (such as a DA) as a supporting document.

Recommendation 3 – Areas Set Aside for Conservation

- Aboriginal sites should be considered for conservation where possible. Areas of high archaeological and cultural significance, which will likely include following Aboriginal consultation. Consultation with the Aboriginal community will assist in identifying priority areas for conservation.

Recommendation 4 – Aboriginal Sites Registered on the AHIMS Database

- Aboriginal sites identified during site inspection must be registered on the Aboriginal Heritage Information Management System (AHIMS) database by ELA Archaeologists. These Aboriginal sites, and any others identified during the recommended ACHA process, will require an AHIP before works can commence.

Recommendation 5 – General measures

- Aboriginal objects are protected under the NPW Act regardless if they are registered on AHIMS or not. If suspected Aboriginal objects, such as stone artefacts are located during future works, works must cease in the affected area and an archaeologist called in to assess the finds. If the finds are found to be Aboriginal objects, the DPIE must be notified under section 89A of the NPW Act. Appropriate management and avoidance or approval under a section 90 AHIP should then be sought if Aboriginal objects are to be moved or harmed.
- In the extremely unlikely event that human remains are found, works should immediately cease, and the NSW Police should be contacted. If the remains are suspected to be Aboriginal, the DPIE may also be contacted at this time to assist in determining appropriate management.

References

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- Kovac, M. 1988. *Soil Landscapes of the Singleton 1:250,000 Sheet*. Sydney: Soil Conservation Service of New South Wales.
- New South Wales Heritage Office. 2015. *Assessing Heritage Significance*.
- RPS, 2013. *Aboriginal & Non-Indigenous Cultural Heritage Assessment – Mt Arthur Coal Open Cut Modification*. Prepared for Hunter Valley Energy Coal.
- South East Archaeology Pty Ltd, 1999. *An Aboriginal Archaeological Assessment of the Proposed Mt Arthur North Coal Mine, near Muswellbrook, Hunter Valley NSW*. Prepared for Dames and Moore.
- Upper Hunter Wonnarua Council, 2002. *Muswellbrook Coal Company No 1 Open Cut Extension – Aboriginal Cultural Heritage Assessment*. Prepared for Muswellbrook Coal Company.

Appendix A AHIMS Search Results



AHIMS Web Services (AWS)
Extensive search - Site list report

Your Ref/PO Number : 14425
Client Service ID : 478851

SiteID	SiteName	Datum	Zone	Eastings	Northings	Context	Site Status	SiteFeatures	SiteTypes	Reports
37-2-3993	Denman Rd 1 (DR1)	GDA	56	291375	6421397	Open site	Valid	Artefact:-		
	Contact	Recorders	Doctor-Alan Williams							
37-2-4025	SC67	GDA	56	287222	6423098	Open site	Valid	Artefact:- 1		Permits
	Contact	Recorders	Umwelt (Australia) Pty Limited, Miss. Nicola Roche							
37-2-4026	SC68	GDA	56	287173	6423254	Open site	Valid	Artefact:-		Permits
	Contact	Recorders	Umwelt (Australia) Pty Limited, Miss. Nicola Roche							
37-2-4027	SC69	GDA	56	287190	6423344	Open site	Valid	Artefact:-		Permits
	Contact	Recorders	Umwelt (Australia) Pty Limited, Miss. Nicola Roche							
37-2-3994	Denman Rd 2 (DR2)	GDA	56	288451	6419943	Open site	Valid	Artefact:-		Permits
	Contact	Recorders	Doctor-Alan Williams							
37-2-5937	MAC-19-MB5	GDA	56	290259	6419727	Open site	Valid	Artefact:-		Permits
	Contact	Recorders	Mc.Joel Deacon, Arrow Heritage Solutions							
37-2-5938	MAC-19-MB4	GDA	56	290227	6419650	Open site	Valid	Artefact:-		Permits
	Contact	Recorders	Mc.Joel Deacon, Arrow Heritage Solutions							
37-2-5939	MAC-19-MB3	GDA	56	289981	6419232	Open site	Valid	Artefact:-		Permits
	Contact	Recorders	Mc.Joel Deacon, Arrow Heritage Solutions							
37-2-5940	MAC-19-MB2	GDA	56	290325	6419937	Open site	Valid	Artefact:-		Permits
	Contact	Recorders	Mc.Joel Deacon, Arrow Heritage Solutions							
37-2-5941	MAC-19-MB1	GDA	56	289135	6422051	Open site	Valid	Artefact:-		Permits
	Contact	Recorders	Mc.Joel Deacon, Arrow Heritage Solutions							
37-2-2669	HR01	GDA	56	290851	6418023	Open site	Destroyed	Artefact:- 14		Permits
	Contact	Recorders	Ms.Mary-Jean Sutton, Ms.Jillian Ford, RPS Australia East Pty Ltd - Sydney, Ms.Jo Neli							
37-2-2595	hr02	GDA	56	291010	6418197	Open site	Valid	Artefact:-		Permits
	Contact	Recorders	Umwelt (Australia) Pty Limited, Ms.Mary-Jean Sutton, Ms.Jillian Ford							
37-2-2596	hr03	GDA	56	291233	6418304	Open site	Valid	Artefact:-		Permits
	Contact	Recorders	Umwelt (Australia) Pty Limited							
37-2-2603	qc07	GDA	56	292940	6418416	Open site	Valid	Artefact:- 12		Permits
	Contact	Recorders	Ms.Jillian Ford							
37-2-2604	qc08	GDA	56	292853	6418226	Open site	Valid	Artefact:- 10		Permits
	Contact	Recorders	Ms.Jillian Ford							
37-2-2605	qc09	GDA	56	293017	6417891	Open site	Valid	Artefact:- 22		Permits
	Contact	Recorders	Ms.Jillian Ford							
37-2-2606	qc10	GDA	56	292479	6418526	Open site	Valid	Artefact:- 3		Permits
	Contact	Recorders	Ms.Jillian Ford							

Report generated by AHIMS Web Service on 22/01/2020 for Daniel Clingett for the following area at Datum :GDA, Zone : 56, Eastings : 288161 - 292161, Northings : 6418647 - 6422647 with a Buffer of 1000 meters. Additional Info : REF: Number of Aboriginal sites and Aboriginal objects found is 31
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AHIMS Web Services (AWS)
Extensive search - Site list report

Your Ref/PO Number : 14425
Client Service ID : 478851

Shield	SiteName	Datum	Zone	Eastng	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
37-2-2607	qc11	GDA	56	292164	6417810	Open site	Valid	Artefact: 18		
Contact		Recorders	Ms.Jillian Ford					Permits		
37-2-2612	qc16	GDA	56	293105	6418109	Open site	Valid	Artefact: 1		
Contact		Recorders	Ms.Jillian Ford					Permits		
37-2-2613	qc17	GDA	56	292385	6419144	Open site	Valid	Artefact: 7		
Contact		Recorders	Ms.Jillian Ford					Permits		
37-2-2614	qc18	GDA	56	291794	6418035	Open site	Valid	Artefact: 1		
Contact		Recorders	Ms.Jillian Ford					Permits		
37-2-2615	qc19	GDA	56	292002	6418816	Open site	Valid	Artefact: 4		
Contact		Recorders	Ms.Jillian Ford					Permits		
37-2-4151	MAC15	GDA	56	292640	6421306	Open site	Destroyed	Artefact: 1		
Contact		Recorders	Mr.Neville Baker/AECOM Australia Pty Ltd - Sydney,RPS Australia East Pty Ltd - Syc					Permits		
37-2-4365	HN01	GDA	56	290851	6418023	Open site	Destroyed	Artefact: 1		
Contact		Recorders	Mr.Arthur Coal Pty Limited,RPS Australia East Pty Ltd -Hamilton,MsJo Nelson					Permits		
37-2-5827	RPS MAC BS AS3	GDA	56	292870	6419800	Open site	Destroyed	Artefact: -		
Contact		Recorders	RPS Australia East Pty Ltd -Hamilton,MsJo Nelson					Permits		
37-2-5828	MAC RPS GG 582	GDA	56	292589	6420940	Open site	Destroyed	Artefact: -		
Contact		Recorders	RPS Australia East Pty Ltd -Hamilton,MsJo Nelson					Permits		
37-2-5829	MAC RPS BS AS 3	GDA	56	292870	6419800	Open site	Destroyed	Artefact: -		
Contact		Recorders	RPS Australia East Pty Ltd -Hamilton,MsJo Nelson					Permits		
37-2-0507	BMP 7;Maswellbrook;	ACD	56	290170	6417560	Open site	Valid	Artefact: -	Open Camp Site	1097
Contact		Recorders	Unknown Author					Permits		
37-2-0508	BMP 8;Maswellbrook;	ACD	56	288740	6418760	Open site	Valid	Artefact: -	Open Camp Site	1097
Contact		Recorders	Unknown Author					Permits		
37-2-2128	Lind 1	ACD	56	290417	6419655	Open site	Valid	Artefact: 1		
Contact	T Russell	Recorders	Victor Perry					Permits		
37-2-4835	Spur Hill 251	GDA	56	287351	6417809	Open site	Valid	Artefact: -		
Contact		Recorders	Mr.Jason Barr					Permits		

Report generated by AHIMS Web Service on 22/01/2020 for Daniel Craggett for the following areas at Datum :GDA, Zone :56, Eastings : 288161 - 292161, Northings : 6418647 - 6422647 with a Buffer of 1000 meters. Additional Info : REF. Number of Aboriginal sites and Aboriginal objects found is 31

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Appendix B AHIMS Site Card Submissions

