

# Appendix G

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Stage 2 Aboriginal heritage assessment



**advitech**

## **RMS Aboriginal Heritage Assessment**

Upgrade of M1 Intersection with John  
Renshaw Drive and Weakleys Drive,  
Beresfield

LGA: Newcastle City Council

Prepared for: NSW Roads and Maritime  
Services

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Advitech Environmental

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## TERMS AND ACRONYMS USED IN THIS DUE DILIGENCE ASSESSMENT

Aboriginal Cultural Heritage Values	Aboriginal Cultural Heritage Values are traditional values of Aboriginal people, handed down in spiritual beliefs, stories and community practices and may include local plant and animal species, places that are important and ways of showing respect for other people
Aboriginal Place	Aboriginal Place(s) are locations that have been recognised by the Minister for Climate Change and the Environment (and gazetted under the National Parks and Wildlife Act 1974) as having special cultural significance to the Aboriginal community. An Aboriginal Place may or may not include archaeological materials
Aboriginal Site	An Aboriginal Site is an Aboriginal site is the location of one or more Aboriginal archaeological objects, including flaked stone artefacts, midden shell, grinding grooves, archaeological deposits, scarred trees etc.
CoP	Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (Part 6 <i>National Parks and Wildlife Act, 1974</i> )
DDCoP	Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (2010)
EIA	Environmental impact assessment
EIS	Environmental Impact Statement. Required by section 112 of the EP&A Act
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW). Provides the legislative framework for land use planning and development assessment in NSW
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth). Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process
GIARACH	Guide to Investigating, Assessing and reporting on Aboriginal Cultural in New South Wales (Part 6 <i>National Parks and Wildlife Act, 1974</i> )
Heritage Act	<i>Heritage Act 1977</i> (NSW)
Infrastructure SEPP	State Environmental Planning Policy (Infrastructure) 2007
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan. A type of planning instrument made under Part 3 of the EP&A Act
NPW Act	<i>National Parks and Wildlife Act 1974</i> (NSW). Provides protection to protected places and native species
REP	Regional Environmental Plan. A type of planning instrument made under Part 3 of the EP&A Act
SEPP	State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act
SEPP 14	State Environmental Planning Policy No.14 – Coastal Wetlands
TSC Act	<i>Threatened Species Conservation Act 1995</i> (NSW). Provides specific protection to species listed as threatened

## EXECUTIVE SUMMARY

The M1 Pacific Motorway is a route of national significance forming the main road transport corridor between Sydney to Newcastle and is an integral link of the Pacific Motorway servicing the north coast of NSW and coastal Queensland. The current roundabout, where the northern extreme of the M1 meets John Renshaw Drive and Weakleys Drive, forms a significant chokepoint for motorway users often resulting in significant delays during peak travel times and motor vehicle accidents are also a regular occurrence at the roundabout. Roads and Maritime Services New South Wales (RMS) propose to upgrade the area to traffic control signals in order to reduce traffic congestion and delays and increase safety for motorists. The project involves both major construction works of new sections and improvement works of existing sections to facilitate safer and more efficient travel.

The proposed construction activities will impact on soil profiles in the surroundings of the road corridor and these works have the potential to consequently harm the known and potential archaeological sites that may exist in the area. To avoid any unintentional impact to these sites, and to appropriately assess the cultural heritage resources of the project area, an assessment in accordance with the Roads and Maritime Services *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (RMS PACHCI) (Stage 2) was requested by RMS. This was carried out by Advitech Environmental and the following assessment complies with both the requirements of the RMS PACHCI (Stage 2) Site survey and further assessment, and the Office of Environment and Heritage (OEH) *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (CoP) (DECCW, 2010) and the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW, 2010).

A number of known Aboriginal sites are, or more accurately were, located in close proximity to the study area. Only one registered site, consisting of a solitary artefact, remains within proximity to the impact zone. The artefact was not relocated during the site survey and GPS readings indicated it was not within the impact zone but approximately 50 metres east of the limit of eastern impact to the northern carriageway of John Renshaw Drive east. Due to the highly disturbed nature of the study area, there is only a low to nil potential that this solitary artefact, which had already been damaged by tractors previously, remains or that more archaeological objects exist within the subject area.

The study area exists within largely a flat topography of low gently undulating hills with long slopes. It encompasses both the existing roadways, alignments and approximately 5 to 7.5 metres of largely cleared and or partially excavated land on each side of these existing roads. A tar sealed parking lot, concreted and stone lined drainage lines, culverts, power poles, signage and supporting infrastructure (subsurface and surface) have been constructed in the study area. The closest fresh water source is over 100 metres away from the study area (Viney Creek). The original topography no longer exists due to construction of the M1. The integrity of the study area has largely been destroyed by the construction of the M1, Weakleys Drive and John Renshaw Drive as well as associated infrastructure such as drainage lines and culverts, above and underground services, signage and access tracks. Due to such disturbances, the integrity of the investigation area has been lost and any sites that may have been present would have been destroyed.

The survey of the study area did not reveal any resources or artefacts and this is attributed to both the highly disturbed nature of the site and the site lacking landform features considered desirable for occupation other than of an opportunistic nature such as foraging or hunting. Regional and local archaeological studies and modelling predicts the area to have only contained opportunistic sites that usually contain isolated finds and small density artefacts scatters (also referred to as open camping sites) resulting from the repair.

The results of the assessment showed that no sites were identified and, as such, no sites will be impacted upon by the development. The cumulative impact to Aboriginal heritage in the area is low given that the net development footprint is relatively small and does not affect a high proportion of any particular landform present within the region.

The following recommendations are made:

1. The persons responsible for the management of onsite works will ensure that all staff, contractors and others involved in construction and maintenance related activities are made aware of the statutory legislation protecting sites and places of significance. Of particular importance is the National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010, under the *National Parks and Wildlife Act 1974*.
2. If the defined areas to be impacted are altered and the location proposed is not within the study area, then further investigation of the proposed areas to be impacted will be required.
3. If the construction works are varied to the extent that impact will occur within 5 metres of registered site AHIMS #38-4-0551 (being GPS location AMG 56H LJ Easting 371846 Northing 6368253) may occur, then a fenced buffer zone to protect this site should be erected in case the solitary artefact still remains.

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## APPENDICES

### APPENDIX I

OEH Due Diligence Code of Practice

### APPENDIX II

AHIMS Search Results



## 1. INTRODUCTION

Advitech Pty Limited (trading as Advitech Environmental) was engaged by Roads and Maritime Service of NSW (RMS) to prepare an Archaeological Heritage Assessment over the areas affected by the proposed upgrade of the intersection at the northern end of the M1 with Weakleys Drive and John Renshaw Drive. RMS has identified the need to upgrade the subject intersection from a roundabout to a traffic signal controlled intersection as part of the Pacific Highway Upgrade Project.

RMS undertook a Stage 1 assessment as per the guidelines outlined in the RMS *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (PACHCI) (RMS, 2011). This Stage 1 assessment revealed that the study area requires further investigation pertaining to Aboriginal heritage and objects that may exist in the areas to be impacted by the proposed upgrade. RMS further requested Advitech Environmental to prepare a Stage 2 assessment in accordance with the PACHCI guidelines. This included adhering to the requirements of the NSW Office of Environment and Heritage (OEH) *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (CoP) (DECCW, 2010) and the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DDCoP) (DECCW, 2010).

It should be noted that this report was prepared by Advitech Pty Limited for NSW Roads and Maritime Services ("the customer") in accordance with the scope of work and specific requirements agreed between Advitech and the customer. This report was prepared with background information, terms of reference and assumptions agreed with the customer. The report is not intended for use by any other individual or organisation and as such, Advitech will not accept liability for use of the information contained in this report, other than that which was intended at the time of writing.

### 1.1 The study area

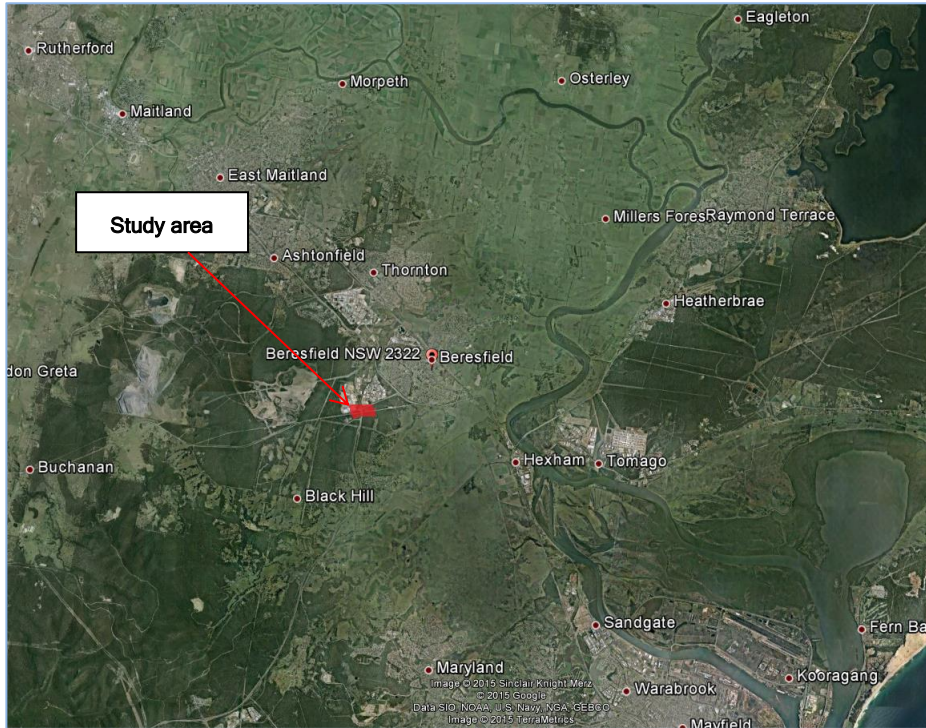
The study area for the proposed works was the immediate area surrounding the existing roundabout and associated carriageways at the intersection of the M1 Pacific Motorway, Weakleys Drive and John Renshaw Drive, at Beresfield as illustrated in **Figure 1.3**. The study area extended variably from 5 to 7.5 metres on both sides of the road corridor and approximately 500 metres to the north, east and south of the existing roundabout intersection, along Weakleys Drive, John Renshaw Drive and the M1 Pacific Motorway respectively. The location and extent of the study area is illustrated in **Figures 1.1 to 1.3**.

### 1.2 Proposed activities and impacts

The M1 Pacific Motorway is a route of national significance forming the main road transport corridor between Sydney to Newcastle and is an integral link of the Pacific Motorway servicing the north coast of NSW and coastal Queensland. The current roundabout forms a significant chokepoint for motorway users often resulting in significant delays during peak travel times and motor vehicle accidents are also a regular occurrence at the roundabout. The proposed upgrade to traffic control signals will help to reduce traffic congestion and delays that regularly occur at the roundabout and increase safety for motorists. The project involves both major construction works of new sections, and improvement works of existing sections to facilitate safer and more efficient travel. The key construction aspects of the project are shown in **Figure 1.4**, and include a traffic controlled, signal intersection with the following features:

- dual through lanes and right turn lanes on all approaches;
- double right turn lanes on the northbound approach from the M1 to accommodate a heavy right turn movement;

- the outside lane westbound approach on John Renshaw Drive changes from the existing layout, to connect directly into the existing slip lane;
- the merge priority of the slip lane changes so that priority is given to the southbound through lanes on the M1 Pacific Motorway;
- a high angle left turn lane with deceleration bay on the northbound approach from the M1; and
- left turn lanes are shared with outside through lane on John Renshaw Drive eastbound and Weakleys; and Drive approaches.



**Figure 1-1. Regional location of the Study Area**





Figure 1-2. Locality of the Study Area



Figure 1-3. Aerial View of the Study Area

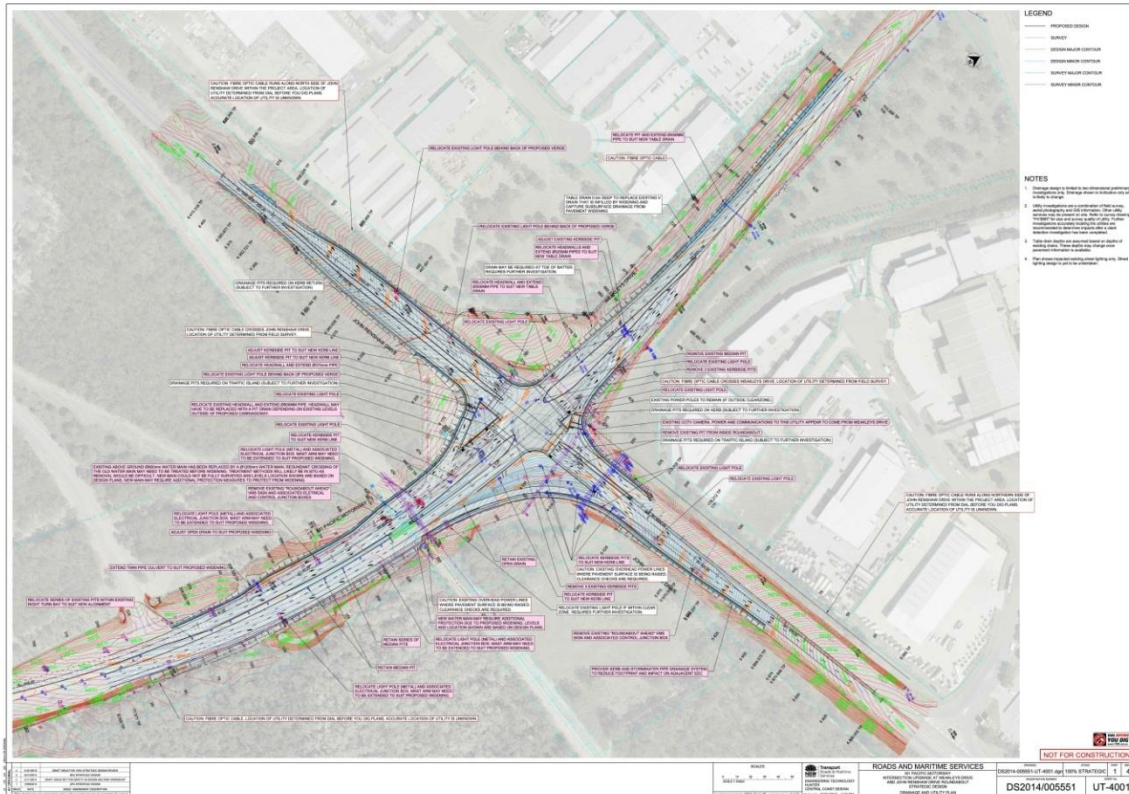


Figure 1-4. Proposed Construction Works showing areas to be impacted

### 1.3 Statutory context

Land managers are required to consider the effects of their activities or proposed development on the environment under several pieces of Commonwealth, State and Local Government legislation and guidelines. The relevant legislation is summarised below.

#### 1.3.1 Environmental Planning and Assessment Act 1979

Consideration of the potential impacts of a development on the Aboriginal heritage is a key component of the environmental impact assessment process under the EP&A Act. In NSW the *Environmental Planning and Assessment Act* (EP&A Act) is the principal law overseeing the assessment and determination of development proposals which are considered under the different parts of the Act (Parts 3, 4 and 5). The implementation of the EP&A Act is the responsibility of the Minister for Planning, statutory authorities and local councils. The EP&A Act contains three parts which impose requirements for planning approval:

- **Part 3** relates to the preparation and making of Environmental Planning Instruments (EPIs), State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs);
- **Part 3A** (now repealed) made provisions for ‘major infrastructure and other projects’ that required approval from the Minister for Planning and Infrastructure. Transitional provisions for existing Part 3A projects that are still being assessed will continue to apply to projects previously approved under Part 3A;
- **Part 4** establishes the framework for assessing development under an EPI. The consent authority for Part 4 development is generally the Local Council; however, and depending



upon the nature of the development, the consent authority may also be the Minister, the Planning Assessment Commission or a joint regional planning panel;

- **Part 4, Division 4.1** establishes the assessment pathway for State significant development (SSD) declared by the State Environmental Planning Policy (State and Regional Development) 2011 (NSW). Once a development is declared as SSD, the Secretary of the Department of Planning and the Environment will issue Secretary's Environmental Assessment Requirements (SEARs) outlining what issues must be considered in the EIS;
- **Part 5** provides for the control of 'activities' that do not require development consent and are undertaken or approved by a determining authority. Developments under Part 5 that are likely to significantly affect the environment are required to have an EIS prepared for the proposed activity; and
- **Part 5.1** provides the pathways of assessment for State significant infrastructure (SSI). Development applications made for SSI can only be approved by the Minister. Once a development is declared as SSI, the Secretary will issue SEARs outlining what issues must be addressed in the EIS.

The applicable approval process is determined by reference to the relevant environmental planning instruments, other controls, LEPs and State Environmental Planning Policies (SEPPs). Pursuant to section 36 of the EP&A Act there is a general presumption that a SEPP prevails over a LEP in the event of an inconsistency.

### 1.3.2 New South Wales National Parks and Wildlife Act 1974, Amendment 2010

The *National Parks and Wildlife Act (1974)*, Amended 2010, administered by the OEHS is the primary legislation for the protection of Aboriginal cultural heritage in New South Wales.

- **Part 6** of the Act provides protection for Aboriginal objects and declared Aboriginal places through the establishment of offences of 'harm' to these objects and places.

Under the Act, it is an offence to knowingly harm or desecrate an Aboriginal object or Aboriginal place. If harm to an object or place is anticipated, an Aboriginal Heritage Impact Permit (AHIP) must be applied for, and OEHS may issue an AHIP under the Section 90 of the Act.

### 1.3.3 Heritage Act 1977

The NSW *Heritage Act 1977* protects the natural and cultural history of NSW with emphasis on non-indigenous cultural heritage through protection provisions and the establishment of a Heritage Council. While Aboriginal heritage sites and objects are protected primarily by the NPW Act 1974, if an Aboriginal site, object or place is of great significance it can be protected by a heritage order issued by the Minister on the advice of the Heritage Council.

### 1.3.4 The Aboriginal and Torres Strait Islander Heritage Protection Act 1984, Amendment 1987

The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* protects areas and or objects which are of significance to Aboriginal people and which are under threat of destruction. A significant area or object is defined as one that is of particular importance to Aboriginal people according to Aboriginal tradition. The Act can, in certain circumstances, override State and Territory provisions, or it can be implemented in circumstances where State or Territory provisions are lacking or are not enforced. The Act must be invoked by or on behalf of an Aboriginal or Torres Strait Islander or organisation.

### 1.3.5 The Australian Heritage Commission Act 1975 (Commonwealth)

The Commonwealth *Australian Heritage Commission Act 1975* established the Australian Heritage Commission, which assesses places to be included in the National Estate and maintains a register of these places, which are significant in terms of their association with particular community or social groups for social, cultural or spiritual reasons. The Act does not include specific protective clauses.

## 1.4 Authorship

Viki Gordon, Advitech's Senior Archaeologist, conducted the field survey and has prepared this report. Viki has more than 5 years of experience in Indigenous archaeological assessments, excavation, reporting, analysis and Indigenous consultation. Viki has worked in the field of Indigenous archaeology in the Newcastle Hunter Valley region since 2011, and in Sydney since 2009. Viki's educational qualifications include a BA (Ancient History) from Macquarie University (2009) and a Graduate Diploma in Archaeology from Flinders University (2012).

## 1.5 Report structure

The structure of this report is as follows:

- Chapter 1 outlines the project, the study area, the project framework including proposed activities and impacts together with relevant legislative requirements;
- Chapter 2 provides the purpose and objectives of this assessment;
- Chapter 3 presents the archaeological context of the area;
- Chapter 4 provides the landscape and ethno-historical context of the area and a predictive model;
- Chapter 5 provides the methodology, results of the fieldwork, analysis and discussion;
- Chapter 6 presents the Due Diligence impact assessment;
- Chapter 7 presents the mitigation strategies; and
- Chapter 8 presents the conclusion and management recommendations.

## 2. PURPOSE AND OBJECTIVES OF THE ASSESSMENT

### 2.1 Purpose of the assessment

The purpose of the assessment is to assess whether there are any archaeological constraints to the development of the study area and to provide opportunities and options to ensure any cultural materials and sites present are protected during the proposed works and prior to the commencement of construction activities.

### 2.2 Objectives of the assessment

The objective of the assessment is to identify areas of Indigenous cultural heritage value, to determine possible impacts on any Indigenous cultural heritage identified (including potential subsurface evidence) and to develop management recommendations where appropriate. This assessment encompasses a holistic regional approach, taking into consideration both the landscape of the study area (landforms, hydrology, soils, geology, and so on) and the regional archaeological patterning identified by past studies.

The primary aim of the assessment is to adhere to the RMS PACHCI Stage 2 Assessment guidelines (which incorporate requirements 1 to 13 of the OEH DDCoP) over the study area (which was defined at the time of survey by RMS Project Development Manager, Mr Theo Stephanou (see **Figure 1.3**).

### 3. ARCHAEOLOGICAL CONTEXT

#### 3.1 OEH Aboriginal Heritage Information Management System (AHIMS) search

##### 3.1.1 OEH AHIMS SITE ACRONYMS

ACD	Aboriginal ceremonial and dreaming
AFT	Artefact (stone, bone, shell, glass, ceramic and metal)
ARG	Aboriginal resource and gathering
ART	Art (pigment or engraving)
BOM	Non-human bone and organic material
BUR	Burial
CFT	Conflict site
CMR	ceremonial ring (stone or earth)
ETM	Earth mound
FSH	Fish trap
GDG	Grinding groove
HAB	Habitation structure
HTH	Hearth
OCQ	Ochre quarry
PAD	Potential archaeological Deposit (used to define an area of the landscape that is believed to contain subsurface archaeological deposits)
SHL	Shell
STA	Stone arrangement
STQ	stone quarry
TRE	Modified tree (carved or scarred)
WTR	Water hole

##### 3.1.2 OEH EXTENSIVE REGISTERED SITE SEARCH

It should be noted that some difficulty is often encountered when using AHIMS site searches. Common errors include:

- site coordinates are not always correct due to both recorder and recording errors. Methods of recording site locations have changed dramatically from a description of a nearby tree to our current GPS aided locations;
- the changing of computer systems at OEH has failed to correctly translate old coordinate systems to new systems;
- the destruction of sites has only been recorded haphazardly over many years and, as such, the cumulative impacts to sites in a particular area are largely unknown; and
- the actual number of studies or relevant investigations in the local area may not reflect an area's potential for Aboriginal occupation. Fewer results from the search suggest that sites have not been recorded; however, it can also mean that the area simply has not been subjected to archaeological studies particularly on areas of privately owned property.

Due to these factors, the OEH AHIMS search is limited in its use as a definitive tool for predictive modelling.



A search of the OEH AHIMS register on 5 December, 2014, showed that 71 known Aboriginal sites are currently recorded within one kilometre of the study area and includes 36 open camp sites, 30 isolated finds, 4 Potential Archaeological Deposits and 1 scarred tree. 17 of these sites are noted as being either partially or completely destroyed. In addition a reduced AHIMS search was conducted at the specific request of RMS, and indicated 35 known Aboriginal sites within 200m of the study area (see **Figure 3.1**).

Registered sites AHIMS # 38-4-0551 (an isolated artefact) and 38-4-1213 (open site) are the only sites recorded within the possible impact area of the proposed works. bSite #38-4-1213 has been destroyed and RMS advised that the site #38-4-0551 (as checked by the Archaeologists' GPS readings) is not within the impact footprint. The isolated artefact which is the subject of site #38-4-0551 was not relocated during the survey.

The AHIMS search results are provided in **Appendix II** and the location of sites is shown in **Figure 3.1**.

Map omitted

**Figure 3-1. Location of AHIMS Registered Sites**

### **3.2 Heritage database searches**

The following statutory authority and non-statutory authority listings were searched on 1 March, 2015:

- Australian Heritage Database (includes data from the World Heritage List UNESCO, National Heritage List, Commonwealth Heritage List, Register of the National Estate);
- State Heritage Register (NSW Heritage Branch);
- National Trust Register; and
- the State Heritage Inventory (also known as the NSW Heritage Database).

No potential heritage items were identified by these searches. There are no indigenous heritage items within the study area listed on the Newcastle Local Environment Plan (2008).

### 3.3 Previous archaeological assessments

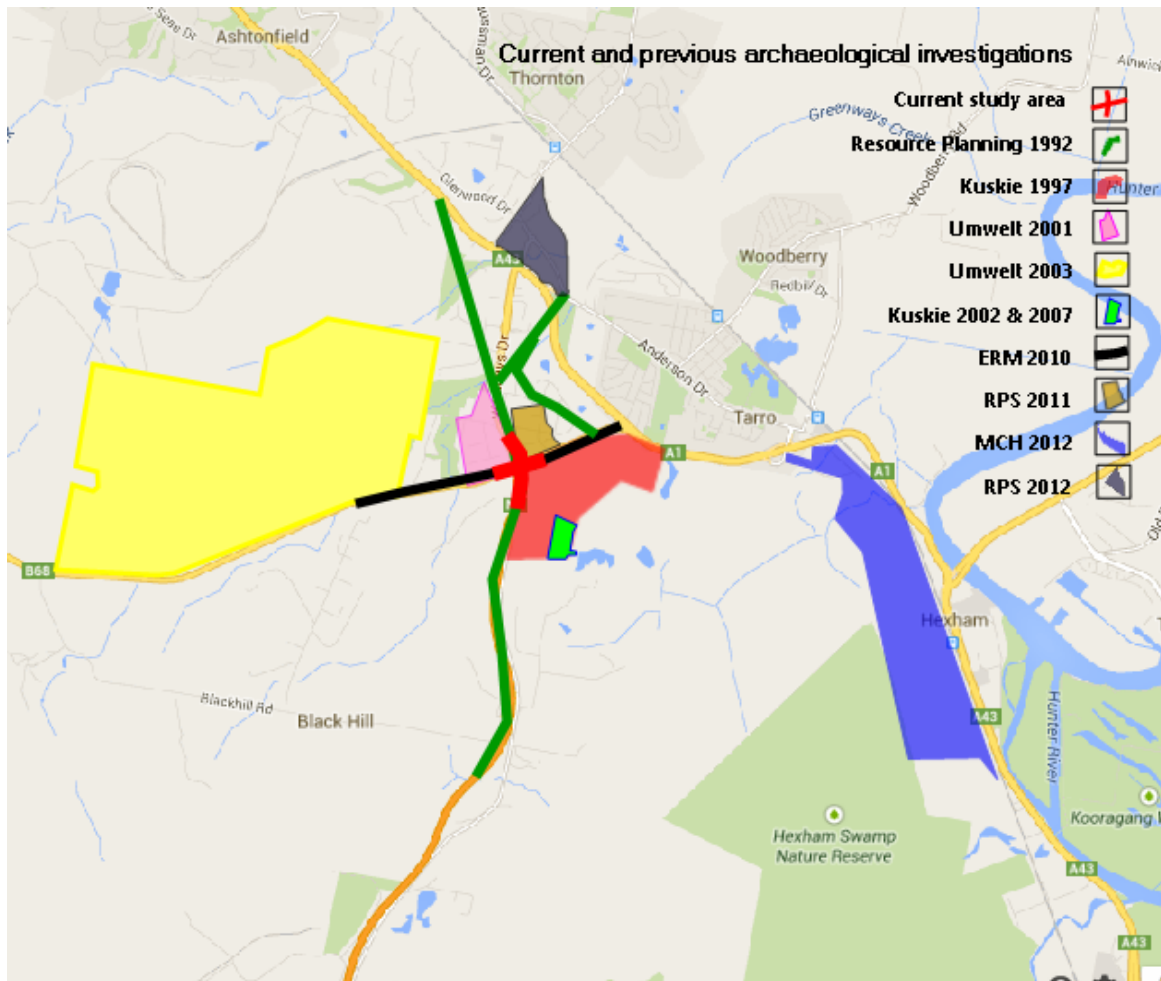


Figure 3-2. Local archaeological investigations

#### 3.3.1 Resource Planning Pty Limited (1992)

Noeleen Steel of Resource Planning Pty Ltd undertook an investigation for the interim connection of the F3 freeway from the north of Minmi to the New England Highway at Beresfield, New South Wales, in 1992 and on behalf of RMS. The study area was between Minmi and Beresfield (see **Figure 3.2**) and bounded by the New England Highway, from the Brickworks entrance near Thornton Road to 500 metres past John Renshaw Drive and to the south at Minmi, approximately 8 kilometres south of the New England Highway. The study area was defined by existing roads and 50 or 100 metres from the existing roads along proposed routes which became 200 metre wide survey areas. The study area is adjacent to Hexham Swamps, which forms part of the eastern and south eastern boundary. The dominant landforms within the study area are creek lines and gullies, with Scotch Dairy Creek and Weakleys Flat Creek running into the Woodberry Swamp catchment in the northern portion of the study area. Ironbark Creek flows into Hexham swamp in the south east of the study area.

The study area had been cleared of old growth vegetation to use the timber in the mining industry and creating grazing land for cattle. Quarrying was also undertaken at nearby Minmi Creek. It was stated that the vegetation across the study area is varied, with Spotted Gum, Forest Red Gum, Grey Ironbark

and Coastal Apple woodland dominating the upper slopes, with the valley floods dominated by *Melaleuca linearifolia*.

No sites were previously recorded within the study area. Based on previous investigations, it was predicted that low density artefact scatters may be located close to water sources and on ridges, isolated finds may be found across all landforms, grinding grooves may be present on sandstone outcrops and close to water, scarred and or carved trees may be present on old growth vegetation, and burials may be located.

The survey area was divided into nine survey units and conducted on foot. Visibility was assessed as low, the survey focussed on areas with exposure. Suitable trees were examined for scars and or carvings, and rock outcrops were inspected for grinding grooves. Two sites were identified as follows:

**Table 3-1: type table title here**

Site	Site Type	Landform	Distance to water	Order/Water source	Site contents	Disturbance	Subsurface potential
MB1	Isolated	Not advised	100-150m	dam	1 artefact	Track	Low
MB2	Artefact scatter	Not advised	0-50m	dam	2 artefacts	Ants nest	Low

Both sites were assessed as being of low scientific significance, with low potential for subsurface artefacts. It was recommended that a Section 90 permit be sought for these sites prior to any road works commencing. However, some landforms within the study area, whilst having no surface artefacts, were considered to be of high archaeological sensitivity. It was recommended that these areas be tested for subsurface artefacts.

### 3.3.2 Kuskie (1997)

In 1997, Kuskie undertook an investigation for the Newcastle City Council in anticipation of its sale of the relevant property for future development. The study area incorporated 130 hectares bounded to the north by the New England Highway and John Renshaw Drive, to the west by Lenaghans Drive, to the south by Black Hill rural residential community and Hexham Wetlands to the east. The property was described as being low gradient, undulating terrain, in a broad, low ridge, trending to the north towards Weakleys Flat. In the northeast of the property, a ridge crest fanned into Hexham Wetlands as a broad, low spur, descending eastward. First order drainage lines are found in the north, north-east and north west of the study area and runoff from the ridge crest drains into Hexham Wetland.

The study area was found to have been largely cleared of vegetation with some tall, open eucalypt mature forest trees remaining. Dominant species were noted as Spotted Gum, Broad-leaved Ironbark, Grey Ironbark, Thin-leaved Stringybark, Grey Gum and Narrow-leaved Stringybark. Lesser occurrences of other species recorded include Smooth-barked Apple, Rough-barked Apple, White Mahogany, Red Bloodwood and Blackbutt. The understorey contained vegetation of Blackthorn, paperbark and wattles with Forest Gum occurring on some lower slopes. Along drainage lines, Prickly-leaved Paperbark, Grey Myrtle, Red Ash and Lantana are common. Past land use practices and removal of trees had left pasture grasses, which significantly reduced visibility across the study area. The study area also contained vehicle tracks, a 33kV transmission line and water pipeline easement.

Sufficient resources for hunting were available in the Hunter Wetland areas including Platypus, Water Rat, Swamp Wallaby, Common Wombat, Eastern Grey Kangaroo, Red-necked Wallaby, flying fox,

lizards, goanna, pademelons and bandicoots, with Ring-tailed Possum, Squirrel Gliders and quolls being less common. A wide variety of freshwater fish has also been recorded in wetlands in the region. Shellfish would also have been present.

A search of the AHIMS database revealed a total of 149 sites within a buffer area of 500 km<sup>2</sup> of the study area. Sites found included 89 artefact scatters, 21 isolated finds, 29 grinding groove sites, 3 middens, 2 scarred trees, 2 stone arrangements, one fish trap, one shelter with art and grinding grooves and one waterhole well. Two sites were recorded within the study area, being one artefact scatter and one isolated find.

The following predictive model was developed for the study area:

- artefact scatters are the most common site type encountered within and near the study area with an increase in numbers and density on low gradient landforms, such as simple slopes, basal slopes and ridge crests/spur crests bordering wetlands and watercourses;
- normally small surface artefact scatters (size and density) are not an indication of the numbers and density of any subsurface artefacts;
- subsurface artefacts are typically located in the topsoil and shallow "A" horizons. Because of this site integrity is affected;
- isolated finds may be encountered in any landform;
- the potential for middens to occur in the study area is low, due to post depositional processes, even though they may be found along the margins of the wetlands, but post depositional processes may not have been favourable to their preservation; and
- there is low potential for scarred trees, mythological traditional sites, quarry sites, and stone arrangements.

The focus of the survey was on areas of high visibility, such as access and vehicle tracks. Tree trunks, erosion scours, cattle trails and other areas of disturbance were also inspected. Surface visibility varied, but averaged at 45%. The twelve sites were identified and are summarised in **Table 3.1** (overleaf).

31 artefacts were recorded within the study area; 15 whole and broken flakes, nine flaked pieces, two cores, one whole and two broken blades, one blade core and one hatchet head (greenstone). 19 pieces were considered to be from heat shatter. Silcrete was the dominant raw material (68%), followed by silicified volcanic tuff (29%).

Kuskie considered the assemblage insufficient to draw any meaningful conclusions regarding the predictive model, and recommended that further investigation be conducted. It was recommended that test excavations be conducted in areas where research potential and site integrity was indicated. Other options, such as monitoring during ground works, destruction or conservation of the site, were also considered.

**Table 3-2: Summary of Sites by Kuskie (1997)**

Site	Site Type	Landform	Distance to water	Order/Water source	Site contents	Disturbance	Subsurface potential
1	Isolated	Ridge crest	100-150m	1 <sup>st</sup> order	1 artefact	Moderate	Moderate
2	Isolated	Ridge crest	100-150m	1 <sup>st</sup> order	1 artefact	Low	Moderate
3	Isolated	Slope	0-50m	Swamp/wetlands	1 artefact	Low	High
4	Artefact scatter	spur crest	0-50m	Swamp/wetlands	8 artefacts	Low	High
5	Artefact scatter	Slope	100-150m	1 <sup>st</sup> order	3 artefacts	Moderate	Moderate
6	Isolated	Slope	50-100m	1 <sup>st</sup> order	2 artefacts	Moderate	Moderate
7	Isolated	Ridge crest	150-200m	1 <sup>st</sup> order	1 artefact	Low	Moderate
8	Isolated	Ridge crest	200-250m	1 <sup>st</sup> order	1 artefact	Low	Moderate
9	Artefact scatter	Slope	150-200m	1 <sup>st</sup> order	3 artefacts	Low	High
10	Artefact scatter	Slope	0-50m	Swamp/wetlands	3 artefacts	Low	High
11	Artefact scatter	Slope	0-50m	1 <sup>st</sup> order	5 artefacts	Moderate	Moderate
12	Artefact scatter	Slope	0-50m	1 <sup>st</sup> order	2 artefacts	Moderate	High

### 3.3.3 Umwelt (2001)

Umwelt (2001) undertook an assessment and test excavations in a 46 hectare parcel of land proposed for light industrial development at South Beresfield. The study area was bounded by Weakleys Drive to the east, John Renshaw Drive to the south, Viney Creek to the west and Weakleys Flat Creek to the north. Past land uses and disturbances included a dairy, clearance and sowing for grazing. Evidence of disturbances associated with land clearance, such as depressions on the ridge crest slopes, riparian corridor and spur extension were interpreted as the burning of tree stumps *in situ*, vegetation cut off just above ground level along the riparian corridor, and a dam along the south side of the flood plain. In addition, it was considered that Weakleys Flat Creek had been diverted to the floodplain.

The topography of the study area consisted of wide floodplains and low rises and was considered atypical of the Central Lowlands of the Hunter Valley. Landforms included a steep area in the northern portion near Weakleys Flat Creek, comprised approximately 6 hectares of the total study area, a north south trending ridge, terminating in the north west with a reasonably level low spur, in the central portion and to the north-east the study area gradually drops away to the floodplain. The vegetation included numerous eucalypts (Grey Gum, Spotted Gum, Narrow-leaved Stringybark, Thin-leaved Stringybark and Grey Ironbark).

Riparian corridors contained Grey Myrtle, Red Ash and *Melaleuca stypheloides*, with Blackthorn, various paperbarks and wattles under the main canopy. Much of the native vegetation had been cleared through past land uses. The dominant vegetation of the study area was immature regrowth (spotted gums, ironbark and tea tree, acacia, Red Ash, Blackthorn, Grey Myrtle, Red Gum and Lantana). Fauna observed within the study area included Eastern Grey Kangaroo, Red-bellied Black Snake, ducks, hares, rabbits and foxes.

The AHIMS database revealed a total of 67 sites within a 6 kilometre buffer of the study area. 55 artefact scatters were the dominant site type, followed by 21 isolated finds, 1 scarred tree, 1 grinding groove and 1 waterhole well. Of the artefact scatters, an equal number were located either within 100m of a creek (15) or on the top, on the end or edge of a spur overlooking a swamp (15). A high number were also located on the lower slopes of a creek emptying into a swamp (13).

The following predictive model was developed as follows:

- higher concentrations of artefacts will occur on lower gradient slopes and most likely within 100m of a creek but possible up to 500m. Areas similar to the study area were the floodplain of Vineys Creek (at its northern end) and Weakley's Flat Creek, and the lower slope directly adjacent to Weakley's Flat Creek and on the northern end of the spur extension;
- between areas of artefact concentration, areas of very light artefact scatter should exist;
- isolated finds are most likely to be found within 100 to 200 metres of a creek but also within 500 metres of a creek. These site types are often disturbed;
- artefact scatters are most likely to be found within 100 to 200 metres of a creek, on spur extensions, lower slope and within the floodplain. They are likely to be found in disturbed contexts except where colluvial and alluvial processes would have buried them, or in the small area of the spur extension that does not appear to have been cleared or affected by past and present land uses;
- except on base of the slope in the Viney Creek riparian zone (southern to central sections), larger watercourses and wetlands were only likely to have been inhabited by larger groups during the drier months, with the minor watercourses occupied by smaller groups throughout the year;
- based on the geology of the area, silcrete would have been available locally and is expected to be the dominant raw material used. Flaked pieces are expected to be the dominant artefact type, followed by flakes, broken flakes, a few retouched flakes and a few cores;
- artefact numbers will be low (<3) in areas more than 100 metres from creek lines, with up to 100 artefacts in close proximity to the creek line (<100 metres); and
- artefacts located in the study area are likely to be dated between the mid to late Holocene period.

The investigation consisted of staged subsurface excavations to determine if there was any evidence of Aboriginal occupation within the study area, and if any connection existed between such evidence and landform units. The landforms identified in the study area for sampling included ridge spur crests, upper and mid slopes of a spur, foot slope/riparian corridor and drainage flat floodplain. It was proposed under the methodology that 29 x 450 millimetre augur holes were drilled across these landforms units to compare stratigraphy and artefact content (absence/presence). It included 2 grids on the ridge crests, 4 on the upper and mid slopes of the spur, 10 grids on the riparian corridor upstream of the creek junction, 4 grids on the riparian corridor downstream of the creek junction and 9 grids on the depression flat/floodplain. It was proposed that following the augur testing, mechanical excavation be undertaken in areas with the highest artefact densities. However, many of the planned augur holes were never undertaken due to water inundation. As summarised in **Table 3.3** a total of 23 augur grids were excavated producing a total of 81 artefacts.

**Table 3-3: Summary of Umwelt sites (2001)**

Site	Site Type	Landform	Distance to water	Order/Water source	Site contents	Disturbance	Subsurface potential
1	Artefact scatter	Viney Creek	0-50m	2 <sup>nd</sup> order	2 artefacts	Not advised	Low
3	Isolated	Viney Creek	0-50m	2 <sup>nd</sup> order	1 artefact	Not advised	Low
6	Artefact scatter	Viney Creek	0-50m	2 <sup>nd</sup> order	2 artefacts	Not advised	Low
8	Artefact scatter	Flood plain Weakleys Flat Creek	0-50m	1 <sup>st</sup> order	21 artefacts	Not advised	High
9	Isolated	Flood plain Weakleys Flat Creek	0-50m	1 <sup>st</sup> order	1 artefact	Not advised	Low
10	Artefact scatter	Slope	0-50m	1 <sup>st</sup> order	19 artefacts	Not advised	Moderate
12	Isolated	Flood plain Weakleys Flat Creek	0-50m	1 <sup>st</sup> order	1 artefact	Not advised	Low
13	Isolated	Ridge crest	0-50m	1 <sup>st</sup> order	3 artefacts	Not advised	Low
15	Artefact scatter	Spur crest and slope	0-50m	1 <sup>st</sup> order	3 artefacts	Not advised	Low
16	Isolated	Spur crest and slope	0-50m	1 <sup>st</sup> order	1 artefact	Not advised	Low
17	Artefact scatter	Spur crest and slope	0-50m	1 <sup>st</sup> order	4 artefacts	Not advised	Low
18	Artefact scatter	Slope	0-50m	1 <sup>st</sup> order	6 artefacts	Not advised	Low
23	Artefact scatter	Flood plain Viney Creek	0-50m	2 <sup>nd</sup> order	18 artefacts	Not advised	High
24	Isolated	Flood plain Viney Creek	0-50m	2 <sup>nd</sup> order	1 artefact	Not advised	Low

The majority of artefacts were located at three separate sites - the floodplain above Weakley's Flat Creek, the floodplain above Viney's Creek and the lower slope above Weakley's Flat Creek. As a consequence, three trenches were excavated by hand (see Table 3.4).

**Table 3-4: Summary of Umwelt Trenches (2001)**

Trench	Site Type	Landform	Distance to water	Order/Water source	Trench contents
1	Artefact scatter	Flood plain Viney Creek	0-50m	2 <sup>nd</sup> order	42 artefacts
2	Artefact scatter	Flood plain, Weakleys Flat Creek	0-50m	1 <sup>st</sup> order	90 artefacts
3	Artefact scatter	Lower slope, Weakleys Flat Creek	0-50m	1 <sup>st</sup> order	48 artefact



It was found that, excepting Trench 2, all artefacts were located in the top two spits. Trench 2, however, was found to have artefacts located in decreasing densities down to spit 5. Silcrete was the most dominant raw material found (81%) followed by tuff (12%) and other variable types in lesser quantities. Umwelt found that sites were not located in any particular landform units within the study area and that the small number and variety of artefact types and raw material associated with Viney Creek suggests only minimal use by past Aboriginal people.

It was concluded that assemblages become small and less complex upstream and larger and more complex downstream and towards the swamps. In relation to artefact types and raw materials, it was concluded that they most closely reflect those from sites near swamps than from the riparian corridor area. In relation to raw materials, it was found that silcrete was the most dominant type.

#### 3.3.4 Kuskie (2002)

An assessment by Kuskie (2002) was undertaken for a proposed development of Lot 2 DP873320 at Black Hill, near Beresfield into 29 rural residential allotments. The property was dominated by a broad, low ridge trending in a northerly direction to Weakley's Flat, with associated spur crests and drainage depressions down towards Hexham Wetlands and the Hunter River (3km to the east). Slopes on the ridge and spurs are very gently to gently inclined (<5.45°).

Previous land uses included clearing and grazing. The vegetation was predominantly regrowth (including Spotted Gum, Broad-leaved Ironbark, Grey Ironbark, Thin-leaved Stringybark, Grey Gum, Narrow-leaved Stringybark, Smooth-barked Apple, Rough-barked Apple, White Mahogany, Red Bloodwood, Blackbutt, Blackthorn, paperbarks and wattles). The floor vegetation was mainly grasses with the shrub understory having recently been removed.

Aboriginal people occupying the area would have had access to ample faunal and floral resources (including Platypus, Water Rat, Swamp Wallaby, catfish and eel, Common Wombat, Eastern Grey Kangaroo, Wallaroo, Red-necked Wallaby, flying fox, lizards, goanna, pademelon and bandicoot). Gently sloping and flat ground would have been suitable for camping. Based on previous archaeological investigations, the following predictive model for the study area was developed:

- site types likely to be found in the study area are likely to include isolated finds and artefact scatters;
- artefact scatters (>2 artefacts within 50-100 metres of each other) have moderate potential to be located along the low gradient ridge line, and a high potential to occur on the low gradient spur crests bordering Hexham Wetlands;
- other features may be present within an artefact scatter site, such as hearths, stone-lined fireplaces and heat treatment pits;
- some quarry sites had been identified along watercourses in the region. The presence therefore of such sites within the study area is assessed as low to moderate; and
- other site types such as burials, grinding grooves, middens, mythological traditional sites, scarred trees, stone arrangements are assessed as having a low probability of being located within the study area.

Visibility across the study area was varied and ranged from 3 to 80%. Effective survey coverage was assessed at 1.7% of the study area. One site was identified (refer to Table 3.5).



**Table 3-5: Summary of Kuskie Sites (2002)**

Site	Site Type	Landform	Distance to water	Order/Water source	Site contents	Disturbance	Subsurface potential
BH7	Artefact scatter	Spur crest	0-50m	1 <sup>st</sup> order	2 artefacts	Low	High

The identified site was located along a gentle spur crest in close proximity to a water source. Kuskie reassessed the predictive model within the study area to a low possibility of quarries and no sites were located along the low gradient of the ridge line. Kuskie notes that subsurface investigation would be necessary to further confirm the accuracy of the predictive model. Although Kuskie notes that the small study area limits the conclusions that can be drawn regarding Aboriginal occupation of the area, he acknowledges that the results of this survey in combination with other investigations in the area led to the conclusion that the area was suitable for Aboriginal occupation, particularly for seasonal camping and repeat visits for hunting and gathering.

### 3.3.5 Umwelt (2003)

This was a supplementary archaeological study of the Aboriginal heritage values to a portion of the Mining Lease Area (MLA) of the Donaldson Open Cut Coal Mine at Beresfield. Donaldson Projects Pty Ltd was the proprietor of the MLA and the development project. The study area was confined to an area identified as the Mine Impact Area (MIA) and any adjoining areas that were potentially related to heritage values within the MLA. Previously archaeological investigation of the entire MLA had been undertaken by Umwelt (Australia) Pty Limited (1988); however, in the Commission of Inquiry for the Proposed Donaldson Open Cut Coal Mine, specific concerns were raised about the level of survey of the MIA and commissioned a further archaeological investigation and assessment of this area. This survey predicted the following model:

- based on ethnographic evidence, the Aboriginal population of the Hunter area was “large and relatively stable with a complex range of economic and social activities” (Umwelt 2003:4). Evidence left is limited due to the nature of materials used, such as wood which decomposes over a relatively short period of time, and European disturbances;
- stone artefact sites are the most commonly recorded sites in the Lower Hunter. These are mostly small with silcrete being the most common raw material;
- few sites have been recorded on slopes or crest remote from creek banks or the terraces of swamps;
- there a low frequency of scarred trees or grinding grooves;
- recorded sites on slopes usually contain <20 artefacts and most commonly <5 artefacts; and
- on wetlands, creek banks or margins and terraces a subsurface test pit investigation should complement a surface survey.

The survey identified 3 isolated artefacts, as summarised in Table 3-6.

Sites NPWS #38-4-0339, ISF1, ISF2 and WFC1 were not relocated and were considered destroyed. Subject to satisfaction of certain requirements, the archaeological assessment confirmed the results of this survey were consistent with the predictions raised in the earlier archaeological assessment. The survey revealed no sites of archaeological significance or contained any PAD's.

**Table 3-6: Summary of Umwelt Sites (2003)**

Site	Site Type	Landform	Distance to water	Order/Water source	Site contents	Disturbance	Subsurface potential
ISF4	Isolated	Access track	Not advised	3rd order (Weakleys Flat Creek & Vineys Creek)	1 silcrete core	High	Not advised
ISF5	Isolated	Access track	Not advised	3rd order (Weakleys Flat Creek & Vineys Creek)	1 silcrete flake	High	Not advised
ISF6	Isolated	Access track	Not advised	3rd order (Weakleys Flat Creek & Vineys Creek)	1 silcrete flake	High	Not advised

### 3.3.6 Kuskie (2005)

Kuskie prepared an Aboriginal Heritage Impact Assessment for the proposed Freeway North Business Park in 2005. As part of the assessment, Kuskie undertook an archaeological survey of 17 selected areas where he identified 18 sites containing a total of 178 artefacts.

Kuskie concluded that occupation of the area was of low intensity and related to food procurement or transitory movement although short term camps may have existed bordering Viney Creek. Based on this assessment and other archaeological studies in the area, Kuskie identified the area as having low potential for artefacts.

### 3.3.7 Kuskie's Excavation of Black Hill 2 at Woods Gully (2007)

Following Kuskie's 1997 survey (see **Section 3.3.1**) of the study area, Kuskie and Kamminga undertook a large excavation program at sites Black Hill 2 and Woods Gully, approximately 1.5 kilometres south of the study area. 196m<sup>2</sup> was excavated by hand and 34 x 442 m<sup>2</sup> grader scrapes were conducted. A total of 37,585 lithic artefacts were collected (14,664 pieces being analysed as debitage). It should be noted that extraction of the material from the soil was undertaken in a laboratory.

Kuskie and Kamminga deduced from analysis that the site was dominated by microblade and microlith technology, and surmised that this indicated a maximum age of 4,000 years. The sites were interpreted as one or more family base camps with low numbers of people and several episodes of periodic short term accommodation.

### 3.3.8 Kuskie (2008)

An Aboriginal Heritage Impact Assessment for the Proposed Stage 3 Extension to the Freeway Business Park at Beresfield was undertaken by Kuskie in 2008. As part of the assessment, an archaeological survey was conducted within nine selected units identifying eleven sites with a total of 23 artefacts.

**Table 3-7: Summary of Kuskie Sites (2008)**

Site	Site Type	Landform	Distance to water	Order/Water source	Site contents	Disturbance	Subsurface potential
NWPS #38-4-0901 Weakleys 1/A	Isolated	Small elevated spur	Not advised	3rd order (Weakleys Flat Creek & Vineys Creek)	1 silcrete core	High	Nil
NWPS #38-4-0902 Weakleys 1/B	Artefact scatter	Gently elevated spur	Not advised	" "	2 silcrete flakes	High	Nil
NWPS #38-4-0905 Weakleys 2/A	Artefact scatter	Spur crest	Not advised	" "	3 silcrete flakes 1 tuff flake 1 silcrete core	High	Nil
NWPS #38-4-0906 Weakleys 4/A	Isolated	Gentle simple slope	Not advised	" "	1 silcrete core	High	Nil
NWPS #38-4-0907 Weakleys 4/B	Isolated	Mid to upper slope	Not advised	" "	1 silcrete core	High	Nil
NWPS #38-4-0908 Weakleys 4/C	Isolated	Gentle mid slope	Not advised	" "	1 silcrete flake	High	Nil
NWPS #38-4-0908 Weakleys 4/C	Isolated	Gentle spur crest	Not advised	" "	1 silcrete flake	High	Nil
NWPS #38-4-0909 Weakleys 7/A	Isolated	Gentle elevated spur	Not advised	" "	1 silcrete flake	High	Nil
NWPS #38-4-621 Donaldson Monitoring Site					1 silcrete flake		

Kuskie concluded that occupation of the area was widespread of low intensity and related to food procurement or transitory movement although short term camps may have existed on the basal flats and slopes bordering Viney Creek, Weakleys Flat Creek and Scotch Dairy Creek. Based on this assessment and other archaeological studies in the area, Kuskie identified the area as having low potential for artefacts.

### 3.3.9 ERM (2010)

ERM (2010) undertook an investigation for the Stage 2 upgrade and replacement of a section of the Chichester Trunk Gravity Main near Beresfield. The study area was located along John Renshaw Drive to the northern termination of the Sydney to Newcastle freeway (previously F3 now M1). The study area was approximately 30 metres wide and 3.6 kilometres in length and included the 1923 water pipeline, an unsealed vehicle access track and a transmission line crossed the central portion of the study area. The Beresfield area is characterised by low, undulating hills and abuts lowlands associated with swamps and floodplains of the Hunter Valley.

The landscape contained low rises and slopes with an open depression containing the primary waterways. The study area is located on the periphery of a network of high order streams and large

swamps with the main waterways being two third order creeks, Weakleys Flat Creek, which drains in a northerly direction into Woodberry Swamp, and Viney Creek which drains in a northerly direction into Weakleys Creek. Other smaller first order tributaries drained from the south west portion of the study area into Hexham Wetlands. An unnamed area of swamp exists along the route of the study area. Three major wetland systems are located close to the study area: Hexham Wetlands, located 1 km to the south, Tarro swamp located 1.5km to the northeast and Woodberry swamp, 1.5km to the north were a major source of Aboriginal resource exploitation. Vegetation within the study area comprised medium to heavy density ironbark forest. Native vegetation had been stripped in areas such as transmission easements, vehicle access tracks and for agricultural practices. Vegetation to the west of the F3 (M1) was noted to be regrowth, and can be linked to historic timber-getting projects in association with mining.

A search of the AHIMS database showed a total of 35 recorded sites within a 4 x 3 kilometre study area; 21 artefact scatters, 14 isolated finds, and 1 PAD. It was noted that there appeared to be a strong association between site location and nearby water sources and swamp margins. Two previously recorded sites (one artefact scatter and one isolated find) were located within the study area. Based on previous archaeological investigations, a predictive model was developed and stated that artefact sites (scatters and isolated finds) are the most likely site type to be encountered in the study area, and can be found on any landform (though crests and mid-low slopes seem preferred

The survey revealed that visibility was limited by ground cover, reducing the effective coverage, which was 25% along one transect, but varied between 56% and 90% in all others. Five sites were identified and are summarised in **Table 3-8**.

**Table 3-8: Summary of ERM Sites (2010)**

Site	Site Type	Landform	Distance to water	Order/Water source	Site contents	Disturbance	Subsurface potential
WP-IF-1	Isolated	Crest and slope	Not advised	Not advised	1 artefact	Low	High
WP-IF-3	Isolated	Slope	Not advised	Not advised	1 artefact	Low	High
WP-IF-4	Isolated	Slope	Not advised	Not advised	1 artefact	Low	High
WP-AS-1	Artefact scatter	Slope	0-50m	Swamplands	3 artefacts	Low	High
WP-AS-2	Artefact scatter	Slope	Not advised	Not advised	15 artefacts	Moderate	Low

A total of 21 artefacts were identified. The dominant raw material was silcrete followed by tuff. ERM concluded that the sites identified conformed to the predictive model. The scientific significance of the isolated find sites and WP-AS-2 were assessed as low, whereas WP-AS-1 was assessed as moderate scientific significance due to its higher integrity. One previously recorded site, 38-4-0486 was relocated during the survey and similarly assessed as being of moderate significance with high potential. It was recommended that no further action was required with regards to the sites assessed as low scientific significance other than collection of the artefacts. With the sites assessed as being of moderate scientific significance, it was recommended that as they would be impacted by the proposed works, test excavations would be required.

### 3.3.10 RPS Section 90 Application (2011a)

RPS (2011) prepared supporting information for an AHIP Section 90 application over the Freeway South Business Park at Beresfield on behalf of Hunter Land Pty Ltd. Previously a Section 87 AHIP had been issued for the majority of the project area. The addition of drainage lines and associated infrastructure required the application of a new AHIP permit for the whole area.

The study area was fully contained within Lot 225 DP 1054242 and on John Renshaw Drive, Beresfield with a total area of 40.2 hectares. The application was reliant on previous archaeological investigations by Kuskie (2004, 2007, 2008) and in regard to the development and construction of roads firstly with commercial buildings and warehouse to be eventually constructed.

The property had previously been impacted by vegetation clearance, construction of electricity easements, maintenance tracks, motorcycle tracks and the dumping of rubbish by the public. The site was considered moderately to be highly disturbed. 17.4 hectares was to be dedicated for use as open space and conservation areas in order to mitigate the impacts and losses caused by the development of the remaining 22.8 hectares.

The AHIP methodology was proposed as follows:

- monitoring along the proposed roadway;
- monitoring in proposed sewer line corridors and associated drainage and filter areas to topsoil level only; and
- salvage and collection of exposed artefacts and stockpiles during clearance works.

Appendix 2 to this report was the RPS (2011b) Aboriginal Cultural Heritage Salvage and Excavation Report supporting the previously issued S.87 AHIP (NPWS#3144/#1102287).

### 3.3.11 RPS (2011b)

RPS (2011b) is the Aboriginal Cultural Heritage Salvage and Excavation Report accompanying the RPS (2011a) AHIP application over Freeway South Business Park. This report is the documentation resulting from the field work and analysis arising from the collection and salvage of artefacts under NWPS Section 87 permit (NPWS#3144/#1102287). The sites involved were those previously identified in Kuskie (2008) and **Table 3-9** reflects the artefacts found after analysis had taken place. It should be noted that the soil was examined in a laboratory and artefacts removed from all soil.

**Table 1: Summary of RPS Sites (2011b)**

Site	Site Type	Landform	Distance to water	Order/Water source	Site contents	Disturbance	Subsurface potential
NWPS #38-4-0901 Weakleys 1/A	Isolated	Small elevated spur	Not advised	3rd order (Weakleys Flat Creek & Vineys Creek)	3 artefacts	High	Nil
NWPS #38-4-0902 Weakleys 1/B	Artefact scatter	Gently elevated spur	Not advised	" "	4 artefacts	High	Nil
NWPS #38-4-0905 Weakleys 2/A	Artefact scatter	Spur crest	Not advised	" "	57 artefact	High	Nil
NWPS #38-4-0906 Weakleys 4/A	Isolated	Gentle simple slope	Not advised	" "	Nil	High	Nil
NWPS #38-4-0907 Weakleys 4/B	Isolated	Mid to upper slope	Not advised	" "	1 artefact	High	Nil
NWPS #38-4-0908 Weakleys 4/C	Isolated	Gentle mid slope	Not advised	" "	Nil	High	Nil
NWPS #38-4-0909 Weakleys 7/A	Isolated	Gentle spur crest	Not advised	" "	Nil	High	Nil
NWPS #38-4-621 Donaldson Monitoring Site 2	Isolated	Gentle elevated spur	Not advised	" "	1 artefact	High	Nil

It was concluded that the study area was similar to Woods Gully (Kuskie 2007) in regard to occupation intensity and frequency which suggested that the nature of occupation, as pertains to distance from Hexham Swamp, occurred at intervals of 500m and 2 km. The results also revealed a difference in the proportion of raw materials at each of the sites suggesting a greater variety in stone tools at Woods Gully than at Freeway South.

### 3.3.12 MCH (2012)

MCH (2012) undertook an Aboriginal Heritage Impact Assessment (AHIA) for the proposed Hexham Train Support Facility (TSF) along Woodlands Close, Hexham. The study area is located on the western side of the Pacific Highway at Hexham and includes 255 hectares of land zoned for industrial, special uses and environmental. The site was bounded by the Pacific Highway and the New England Highway to the north and east and by rural and environmental lands to the south and west, including Hexham Swamp Nature Reserve. The study area consisted of low lying flats (part of the Hunter River floodplain) that are constantly water logged in the north and a highly disturbed landscape in the south.

A search of the OEH AHIMS register revealed that 93 known Aboriginal sites were currently recorded within a ten kilometre radius of the study area including 51 open camps, 25 artefact sites, 6 isolated finds, 3 grinding grooves, 3 artefact/PADs, 3 PADs, one scarred tree and one artefact/PAD/grinding groove site. Previous assessments within a similar environmental context indicated that, within a well-watered context, there is high potential for archaeological material to be present on level, typically well-elevated landforms that provide ready access to low lying waterlogged areas and the associated

resources. The majority of sites within the area appear to contain low-moderate artefact densities situated on elevated landforms.

The northern portion of the study area had been subject to European land uses and impacts and the southern portion of the study area was highly disturbed through past land uses and it was expected that all cultural materials that may have been present would no longer exist.

Vegetation during the assessment was dense with overall effective coverage being 1% and grass being the limiting factor with minimal erosion along the drainage line and exposures from cattle. No sites were identified during the survey. This was attributed to the geomorphic history rendering the area unsuitable for camping, poor visibility, disturbances and the low lying flood prone landform that may not have been suitable for occupation. While the study area may have been utilised for hunting and gathering, resulting in reduced evidence of occupation, the disturbances in the northern portion would have disturbed that evidence. The disturbances in the southern section would have destroyed any such evidence. No sites were identified within Hexham swamp itself.

### 3.3.13 RPS (2012)

RPS conducted an investigation of land at Thornton for the purposes of rezoning for the Glenwood Business Park. The study area was divided by Weakleys Drive and Glenwood Drive to the north east of the New England Highway. An AHIMS search disclosed one previously recorded site, an artefact scatter, on the boundary of the study area.

The study area was mainly open grassland with several dams and waterways connected to Woodberry Swamp. The field survey focused on areas of elevation above the swamp areas and ground surfaces with exposure. Mature trees were also inspected. The survey disclosed disturbance had occurred including vegetation clearance, laying and maintenance of lawns, rubbish dumping, fill, roadworks and associated infrastructure. The investigation identified no archaeological items within the study area. The previously registered site was not relocated. A scarred tree was recorded outside of the study area to ensure that no ancillary impact occurred.

## 3.4 Summary of the archaeological context

In order to form a contextual base for the current assessment and a predictive model of the study area, a review of the regional and local archaeological investigations together with registered sites within 1000 metres provides a broader picture of the wider cultural landscape. By highlighting the range of Aboriginal sites throughout the region and the locality, and also taking into account the environment of the study area, an archaeological predictive model can be established. However, it must be remembered that there are various factors which will affect the results. These include but are not limited to:

- the landform on which a site area is observed is not necessarily its original context, for example, artefacts which would have originated on a crest may be located down the slope due to erosion and slip;
- biases due to differential sampling of landforms based on decisions made by archaeologists;
- levels of exposure on different landforms, and the variable level of reporting by archaeologists;
- variations between archaeologists' classifications of raw material types and analysis of stone artefacts (for example tuff and indurated mudstone). For example, the distinction between a waste flake, a debitage flake and a flaked piece may be heavily subject to the



perspective of the recorder. Raw material type was not indicated in many of the reports and, as such, only general comments are made as it would not be productive to attempt to quantify the proportionate representation of artefact types identified in previous studies; and

- artefact counts can be skewed due to factors such as differing levels of fragmentation of material and levels of ground surface visibility. A very large number of sites/artefacts were located on exposures with either no or very few artefacts visible away from the exposures.

Therefore these results provide merely an indication of what may be expected in terms of site location, content and distribution.

### 3.4.1 Regional archaeological context

The majority of archaeological surveys and excavations throughout the region have been undertaken in relation to environmental assessments for industry and commercially related developments. Based on the available information, it is possible to identify a number of trends:

- artefact scatters and isolated finds are by far the most common site types. It should be noted isolated finds are also referred to as open campsites or artefact scatters;
- a variety of other site types have been identified in the region in far lower concentrations and include grinding grooves, scarred trees, rock shelters, shelters with art and burials. A high representation of sites containing stone artefacts is to be expected due to the durability of stone in comparison to other raw materials such as wood;
- mudstone is the most common lithic material found in the region, followed by silcrete. Chert, tuff, quartz, quartzite, petrified wood, porcellanite, hornfels, porphyry, basalt, limestone, sandstone, rhyolite, basalt, European glass and other non-specific lithic types also occur in smaller quantities;
- the majority of Aboriginal open sites within the region are attributed to the Holocene period;
- McCardle (2012), in assessing sites in terms of distance to water, suggests that there is a bimodal distribution of sites and their relativity to water. McCardle (2012) states that the majority of sites are situated within 50 metres of water and the next highest proportion of sites are over 100 metres from water, with comparatively few sites present in the zone 50-100 metres from water. This bimodal pattern is echoed in relation to site size. The bulk of large and medium sites are situated within 50 metres of water, dropping in representation in the area 50-100 metres from water before reaching another lesser peak at distances over 100 metres from water;
- the majority of sites within 50 metres of water are present on creek lines whilst slopes and crest/ridge formations are also common site locations. The frequent presence of sites on crest/ridges and slopes is also noticeable for sites located over 50 metres from water;
- grinding groove sites are located within 50 metres of water;
- closed camping sites (such as a rockshelter), petroglyphs and scarred trees do not appear to have any recognisable pattern, other than the necessary presence of overhangs and outcrops, and only a small amount of these sites have been recorded; and
- the majority of artefacts are observed on exposures with good to excellent ground surface visibility. The site area is often given as the area of exposure. It is therefore difficult to attempt to draw any conclusions regarding site extent based on current information.



### 3.4.2 Local and regional character of Aboriginal land use and its material traces

The regional character and patterning of Aboriginal land use and material traces are also generally reflected on a local basis. Within the local area, previous assessments within a similar environmental context indicate that, within a well watered context, there is high potential for archaeological material to be present on level, typically well elevated landforms that provide ready access to low lying waterlogged areas and the associated resources.

The majority of sites within the area appear to contain low to moderate artefact densities with open campsites and isolated artefacts being the most common site types. Lithic artefacts are primarily manufactured from mudstone and silcrete with a variety of other raw materials (tuff, quartz, chert, and so on) also utilised but in lesser proportions. Site numbers and artefact volumes are greatest within close proximity to water such as creek lines, crests or ridges and slopes are the most archaeologically sensitive landforms.

Previous archaeological studies within 1000 metres of the study all basically concluded that occupation of the subject area was widespread, of low intensity and has low potential for artefacts. Its use related to food procurement or transitory movement. Short term camps may have existed within 50 to 100 metres of the basal flats and slopes bordering Viney Creek and Weakleys Flat Creek. Based on information gained from previous studies within a 1000 metre radius of the study area, it can be expected that:

- the likelihood of locating sites increases with proximity to water;
- the likelihood of finding large sites increases markedly with proximity to water;
- in swamp areas, sites are more likely to be found on the elevated margins of the swamp;
- the majority of sites more than 50 metres from a watercourse may contain less than 10 visible artefacts;
- large artefact scatters can occur more than 50 metres from a watercourse but infrequently;
- a variety of raw materials will be represented though the majority of sites will be predominated by mudstone and silcrete;
- a variety of artefact types will be located though the majority will be flakes, flaked pieces and debitage;
- grinding grooves will be located along or near water sources;
- the likelihood of finding scarred trees is dependent on the level of clearing in an area;
- the majority of sites will be subject to disturbances including human and natural; and
- the majority of sites contain stone artefacts which is to be expected due to stone's high preservation qualities.

## 4. LANDSCAPE CONTEXT

The nature and distribution of Aboriginal cultural materials in a landscape are influenced by the availability of plants, animals, water, raw materials, the location of suitable camping places, ceremonial grounds, burials, and suitable surfaces for the application of rock art or petroglyphs. Environmental factors such as topography, geology, landforms, climate, geomorphology, hydrology and the associated soils and vegetation determine the availability of these resources and influence the degree to which cultural materials have survived.

Both natural and human influences affect the likelihood of sites being detected during ground surface survey. Site detection is dependent on a number of environmental factors including surface visibility (which is determined by the nature and extent of ground cover including grass and leaf litter, and so on) and the survival of the original land surface and associated cultural materials (by flood alluvium and slope wash materials). It is also dependant on the exposure of the original landscape and associated cultural materials (by water, sheet and gully erosion, ploughing, vehicle tracks, and so on) (Hughes and Sullivan 1984). Combined, these processes and activities are used in determining the likelihood of both surface and subsurface cultural materials surviving and being detected.

It is therefore necessary to investigate the natural, human and environmental factors, processes and activities that may affect site location, preservation, and detection during surface survey and the likelihood of in situ subsurface cultural materials being present. These factors, processes and disturbances of the surrounding environment and the specific study area are discussed below.

### 4.1 Topography

The topographical context of the study area is an important tool in identifying factors relating to past Aboriginal land use patterns. The specific study area is situated within the East Maitland Hills physiographic region of the Port Stephens Sheet (Matthei, 1995:2). This area consists mainly of undulating low hills and rises with broad crests, long and gently inclined sideslopes. Drainage lines are deeply incised and narrow with rock outcropping generally absent. The original topography of the study area has largely been destroyed by the construction of the M1.

### 4.2 Geology

The geological structure of the Newcastle region is complex and varied. The Hunter Fault, a zone of thrusting faults trending in a north westerly direction which passes beneath the deep Quaternary sediments of the coastal plain, is one of the most important aspects of Newcastle's geology. The Hunter Fault is the boundary between the Permian sediments of the Sydney Basin and Carboniferous system that outcrops to the north east.

The geology of the region surrounding the study area is not only reflected in the environment (landforms, topography, geomorphology, vegetation, climate, and so on), but also indicates areas suitable for past occupation and its manifestation in the archaeological record. The nature of the surrounding and local geology along with the availability and distribution of geological resources, particularly stone materials, has a number of implications for Aboriginal land use and its archaeology.

The study area is situated on folded Permian rocks that consist of shales, tuffs, sandstone, mudstones, and coal, with some lava beds in the basal portion, and contain the extensive coal measures that are mined throughout the region. Generally, the Permian rocks are only moderately resistant, consequently forming the lowlands (Newcastle Geological Map 1966).

Materials most dominant in stone tool manufacture are indurated mudstone or tuff and silcrete, and are commonly found in creek line deposits, such as those observed at Black Hill and Woods Gully (Kuskie and Kamminga 2000:183). No raw materials suitable for stone tool manufacture are located within the study area.

### 4.3 Geomorphology

The geomorphological evolution of the Newcastle region is complex and there are two major periods that significantly changed the landscape for past Aboriginal occupation of the area. The relevant period of environmental history for Aboriginal occupation is within the last 50,000 years with the critical time being the last 20,000. At the last glacial maximum (20,000 ya), the sea level was about 120 metres lower than present. Sea levels then rose rapidly from about 17,000 ya until 10,000 ya, with sea level rates tapering until the present level that was reached at 6,000 ya. The nearby Hunter River Estuary is typical of the larger NSW estuaries that have evolved over the millennia through various geological developments, climatic periods and sea level variations to the present day. The present day estuary is a drowned river valley with an extensive floodplain delta where the river meanders to the sea. At the height of the Last Glacial period, sea level was at minus 120 metres AHD (Australian Height Datum), and the shoreline was about 30 kilometres seaward of its present position.

Importantly, towards the end the Last Glacial period, it is likely that the study area was part of, or adjoined an open bay (now known as Hexham Swamp) which was dominated by marine processes and tidal delta deposition. In summary, the study area was most likely favourable for occupation due to its elevation and nearness to the Hexham Swamp and its resources.

### 4.4 Soils

The study area is within the Beresfield soil landscape which contains the underlying Permian Tomago Coal Measures (shale, mudstone, sandstone, coal, tuff and clay), Permian Mulbring Siltstone (siltstone, claystone, thin sandstone and limestone) and Permian Waratah Subgroup (Matthei, 1995:3). The locality of the study site lies within the Sydney Basin geological region, and is characteristic of the 'Beresfield (Be)' and 'Cockle Creek (Cc)' soil landscapes. Soils within the study area consist of moderately deep, moderately well to imperfectly drained Yellow Podzolic and Brown Podzolic Soils (sandy loam A Horizon with heavy clay B and C Horizons), with brown Soloths occurring on the crests. The soils are generally slightly to moderately acidic and moderately to highly reactive (Matthei, 1995).

The Newcastle Local Environmental Plan (2012) Acid Sulfate Soils Map indicates that the site is generally classified as 'Class 5', which is considered to have the lowest probability of containing ASS.

### 4.5 Hydrology

One of the major environmental factors influencing human behaviour is the availability of water and, as such, people will not travel far from reliable water sources unless necessity dictates, such as travelling to obtain rare or prized resources and or trade. Proximity to water not only influences the number of sites likely to be found, but also artefact densities. The highest number of sites and the highest density are usually found in close proximity to water and usually on an elevated landform. Regional archaeological investigations support this modelling with open camp sites typically being within 50 metres of a reliable water source. The main types of water sources include permanent (rivers and soaks), semi-permanent (large streams, swamps and billabongs), ephemeral (small stream and creeks) and underground (artesian).

When assessing the relationship between sites and water sources, it must be noted that the Australian continent has undergone significant environmental changes during the past 45,000 to 60,000 years (being the current and widely varying estimated period that people have lived here), and that Pleistocene sites (older than 10,000 years) would have been located in relation to Pleistocene water sources that may not exist today. The modern landscape experiences seasonal waterlogging, high localised run on and water erosion hazard (Matthei, 1995). Urbanisation of the Hunter Water catchment has permitted major irreversible impacts on the hydrology of the area. Land clearing reduces the opportunity for local ponding of surface water and the installation of gutters, pipes and concrete channels also contributes to hydrological change. Compared with the run off from a forested catchment (2%), the percentage of runoff from an urban catchment may be as high as 98-100%. Natural surface hydrology in the study area is limited (Newcastle Catchment Characteristics, 2004).

One unnamed first order stream is located in the north east quadrant of the study area, and a third order stream, Viney Creek extends under John Renshaw Drive approximately 650 metres from the intersection between John Renshaw Drive and the M1 Pacific Motorway, at the western extent of the study site. A constructed drainage line (concrete catch drain) extends along the western side of the M1 Pacific Motorway. The catch drain passes through a culvert approximately 250 metres south of the intersection between the Motorway and John Renshaw Drive, and terminates at a constructed sedimentation dam on the eastern side of the M1 Pacific Motorway. Three major wetland systems are located close to the study area: Hexham Wetlands, Tarro swamp and Woodberry swamp. Viney Creek and these wetland systems would have been a major source of resources for the Aboriginal occupants of the locality.

#### 4.6 Landforms

As site locations may differ between landforms due to environmental constraints that result in the physical manifestation of different spatial distributions and forms of archaeological evidence, landforms are used in constructing predictive models of Aboriginal site locations.

Generally, the location of the study area has a natural topography of undulating low hills and rises, with a local relief of 10 to 50 metres and natural drainage lines. In the north east of the site, narrow flood plains with deeply incised drainage lines lead towards the extensive alluvial floodplain of the Lower Hunter River (Matthei, 1995). See **Section 5.2** for specific landforms and diagrams.

#### 4.7 Landscape history, uses and disturbances

Based upon archaeological evidence, the occupation of Australia extends back over 40,000 years (Hiscock 2008), whilst Aboriginal people have been present within the Hunter Valley for at least 20,000 years (Koettig 1986). It is generally considered that the impact of past Aboriginal occupation on the natural landscape is thought to have been relatively minimal; however, it should not be simply assumed that over 20,000 years of land use could have passed without affecting various environmental variables. Other than the practice of seasonal burning off and the setting of stone fishtraps within waterways, very little is known about the effects of Aboriginal occupation on the landscape.

Burnham Burnham (1988:58) described the Awabakal manufacturing canoes using local trees, bark and stones as anchors. Flowers and bark were used to make flax from which twine, nets and work bags were made. The making of fish hooks, the preparation of glue for spears, rope and cord making, hunting and food preparation all took place using items available in the nearby landscape or sometimes traded from other groups (Bonhomme 1996:7; McBryde 1974:13). The landscape also provided the most important resources of water and food. Fresh water would have been available at

Viney Creek during most, if not all, of the year. Aboriginal people were highly skilled and proficient hunters and gatherers in tune with the cycles and seasonal changes of their surrounding environment. Thousands of years of occupation and inherited knowledge was used by Aboriginal people to determine the best way and the right time to hunt and gather for the flora, fauna and marine delicacies it contained.

Following European settlement of the area in the 1820s, the landscape was subjected to a range of disturbances including extensive clearing, agricultural cultivation, pastoral grazing, residential developments and mining. The more recent construction of the M1 freeway and its associated infrastructure, particularly drainage, has left vegetation within the investigation area virtually non-existent. Drainage ditches have been constructed at the boundary of the road surface and the adjoining bushland. Vegetation remaining in the investigation area is very sparse with insignificant ground cover if any at all. The spraying of shotcrete over both horizontal and vertical surfaces in and at varying levels has prevented regrowth of vegetation. The bushland within and immediately adjoining the investigation area (to the west and south) is primarily covered with a sparse scattering of native trees and the ground cover consists of small bushes, shrubs, ferns, saplings and leaf litter.

No sites were identified during the survey. This may be due to a number of reasons including the geomorphic history and landforms rendering the area less favourable for occupation than other nearby more suitable locations, such as elevated landforms closer to the nearby Viney Creek. Other factors affecting the location of sites may include poor visibility and disturbances. While the study area may have been utilised for hunting and gathering, resulting in reduced evidence of occupation, the construction of roadways and their related infrastructure would have extensively disturbed or destroyed that evidence.

The landscape in the immediately vicinity of the study location has been extensively modified to allow for roads, industrial developments, underground services and supporting infrastructure. Drainage lines have been constructed and formed in concrete and with stone on either side of the M1 and Weakleys Drive. Undulations are generally absent or gently sloping, with no steep gradients due to clearance and development.

The disturbance of cultural materials can also result from natural processes. Both deposition and erosion within a locality can influence the formation and or destruction of archaeological sites. Moderate sheet erosion often occurs where whole scale vegetation clearance has taken place. Deposition, alongside minimal to moderate erosion, of the landscape will bury cultural materials and, over an extended period, repeated deposition will result in the compression of the archaeological record with multiple occupational episodes being located on one surface prior to burial. If erosion occurs after cultural material is deposited, it will disturb or destroy sections of archaeological sites. The more frequent and severe the episodes of erosional events the more likely it is that the archaeological record in that area will be disturbed or destroyed (Waters and Kuehn, 1996:484).

The role of animal and insect bioturbation is another significant factor in the disturbance of the archaeological record within a landscape. Post-depositional processes can disturb and destroy artefacts and sites as well as preserve cultural materials. Burrowing and mounding animals (such as earthworms, curl grubs and ants) redistribute and mix cultural deposits. Tree root growth and tree falls can also disturb the *insitu* state of artefacts, in that artefacts can move downwards through root holes as well as through sorting and settling due to gravity. Artefacts may also be moved as a result of an oscillating water table causing alternate drying and wetting of sediments, and by percolating rainwater.

## 4.8 Resources

Previous Palaeolithic studies have identified that the hunter gatherer activities of Aboriginal peoples related to movements which were 'embedded' within a certain region (Wobst, 1983:22). The availability of flora and fauna combined with fresh water sources affected the resources in a given location which, in turn, influenced patterns of past Aboriginal land use and occupation. The availability of flora and fauna would have affected the range of resources available for food, medicine and the manufacture of objects such as fishing nets, string bags, shields, canoes, fur coats and protection from the weather or climate. An article in the Wallsend & Plattsburg Sun in 1890 (17/12) notes:

*"The principle animal food of the Aboriginal was the possum, wallaby, and Kangaroo rat. The kangaroo, emu, and the hundred and one other animals that ranged the hills and scrub were also acceptable, but the possum was really the animal he relied most upon. The possum was always abundant and easily procured...[by the setting of snares]...Besides snares, fire was employed in getting at possums and other animals, and the natives were very clever in smoking their victim out and capturing it when about to make its escape. Different tactics were adopted in the capture of different animals. The kangaroo, wallaby, and larger animals were generally hunted with spears...Everything that came in the way of the [aboriginal person] was eaten. There is hardly an animal, fish, reptile or insect that was not greedily devoured. Reptiles were particular delicacies. The carpet snake afforded a splendid evening meal; the iguana was another much sought after dish, while the lizards and various snakes always found a space in the stomachs of hungry natives. The flesh of the reptile is beautifully white, and those Europeans who have been compelled to eat with the natives declare that one could not tell the flesh from eel; the carpet snake and iguana being especially good. Nothing delights the [aboriginal people] more than to have a well stocked camp and while cooking operations are going on it is something to remember the huge pile of possums, cats, snakes and lizards on the hot embers".*

In 1825, Edward Sparke Snr received a grant which covered much of present day Beresfield and Tarro (Hartley,1995:87). Following colonisation and during the 1800's, the European settlers extensively cleared the original native vegetation. However, drainage throughout the area would presumably have supported a limited range of faunal populations including kangaroo, wallaby, goanna, snakes and a variety of birds. A wider variety of resources would have been available in the three major wetland systems located close to the study area: Hexham Wetlands to the east, Tarro swamp to the northeast and Woodberry swamp to the north. These wetland systems would have been a major source of Aboriginal resource exploitation. The nearby third order Viney Creek would have also have provided a variety of resources and reliable freshwater.

## 4.9 Ethno-historical

The colonisation of Australia and its associated European settlement has unfortunately resulted in the destruction of past Aboriginal communities, their culture, social structure, activities and beliefs. In the study region, a minimal amount of information with regards to the Aboriginal traditional way of life prior to colonisation is available. Anthropologists and ethnographers have attempted to piece together a picture of past Aboriginal societies throughout the Hunter Valley but such information is often diluted and confused by language barriers and personal interpretations. It is highly debateable in its veracity as a result of European bias and interpretation. The limited ethno-historical records available reflect the degree of interest and attitudes towards Aboriginal people which varied greatly and was highly affected by colonisation's violent settlement history, lack of understanding and fear of 'the other'.



Cultural practices (such as initiation ceremonies and burial practices) were rarely viewed and, if such, an opportunity was given and in fact recorded, the informant would then interpret what he saw based on his own understanding and then generalise about those practices. The main sources of information are the historical records of the colonial period, both official reports of exploration or administration, and the unofficial records in the diaries, station journals and reminiscences of those who took up land in the Hunter Valley.

The placing of tribal boundaries is another area complicated by European interpretation. A lack of ability or understanding by non-Aboriginal people to see the land as Aboriginal people did, led to confusion over tribal boundary areas. In 1861, J.D.Lang noted that Aboriginal people

*“were universally divided into district and independent tribes, each occupying as their hunting grounds a certain portion of territory, of which the limits are generally well defined by permanent features in the natural scenery of the country, and well known to all the neighbouring tribes...the territory of each tribe is subdivided... among the different families of which it consists and that there was exclusive rights to direct when such a territory should be hunted over, the grass burned for the obtaining of its animals for food...”.*

He also came to the conclusion that, and due to the extensive time that Aboriginal people had occupied the land, these repeated divisions and subdivisions as families changed over generations, meant that virtually all people could claim was lineage or be rightful descendants of the rights previously enjoyed by their forefathers, either patrilineal or matrilineal (Tindale, 1974:76-77).

The naming of places using Aboriginal names has also been widely misinterpreted. It is thought that Aboriginal people had no written language, it was purely oral. However this is also a simplistic way of interpreting the situation. Aboriginal people certainly used symbols such as petroglyphs, rock art, tree marking and rock formations which, like the Ancient Egyptian hieroglyphics, was a visual language (McDonald 2008).

It is considered that Aboriginal people have been present within the Hunter Valley for at least 20,000 years (Koettig 1987). Due to European settlement and the associated destruction of Aboriginal resources, communities, culture, social structures, activities and beliefs, little information of the early traditional Aboriginal way of life remains. The main sources of historical information are derived from historical records of the colonial period, official reports of exploration or administration, unofficial records in the diaries, station journals and reminiscences of those who settled in the Hunter Valley.

Historic documents indicate that the Pambalong (also known as Bambalong) Tribe occupied the Hexham Swamp area (Gunson 1974:30). It is unclear whether the Pambalong were a subgroup of the Awabakal Tribe or a group in their own right. It is also not certain whether the Pambalong occupied the actual study area. Gunson (1974:30) states that the Awabakal were originally the largest clan of a tribe in the Lake Macquarie region. This is supported by the Wonnarua people who claim the Awabakal (Awaba-gal) were part of the Wonnarua language speaking group and a clan of their tribe. It is suggested that the missionary Reverend Lancelot Edward Threlkeld (1788 - 1859), who created an Aboriginal mission on the banks of Lake Macquarie in 1826, and his renderings was the cause of the Awabakal name encompassing the whole tribe. Whatever the case, the most detailed historical information regarding the early Awabakal people comes from Reverend Threlkeld. As part of his missionary instruction, and while he was compiling a grammar and vocabulary of the Awabakal dialect, he questioned the Aboriginal people about their language, beliefs and was given the opportunity to witness some of their rituals. He recorded dreaming stories, important places, and ritualistic practices. To this date, the considered original occupants of the area, the Awabakal retain links to their country and the study area.

Trade between groups over some distances was considered to be a common place occurrence as evidenced in Archaeological records by the finding of tools manufactured from raw materials not available in the area. Attenbrow (2010:123) reports on oral history received from local residents of the Newcastle region that a common trade and travelling route existed between Singleton and the east coast regions. F D McCarthy also hypothesised that there was a trade route along the east coast from Newcastle to Sydney and the Reverend Threkheld writes of a trading venture between Lake Macquarie and 'the mountains' for the acquisition of opossum cord for ceremonial purposes (cf, Attenbrow 2010:123).

#### 4.10 Models of past aboriginal land use

One of the main aims of this project is to attempt to define both the nature and extent of Aboriginal occupation and past land use within the study area in order to assess whether Aboriginal sites may be present. In order to do this, a model of past Aboriginal land use based on a summary of both regional and local archaeological investigations is compiled (see **Section 3**). Combining this summary of archaeological investigations, the landscape context, registered sites and available resources in the study area provides a model of past Aboriginal land use incorporating variations across the landscape, landforms and assemblages that correspond with variation in the general patterns of landscape use and occupation.

Advitech Environmental recognises that in attempting to devise a model of past Aboriginal land use we lack the knowledge Aboriginal people had over their land. Geographical recognition by Aboriginal people of their country involved a name for every place; usually on account of some peculiarity of the physical feature or in recognition of an occurrence that took place there. Aboriginal people had an intimate knowledge and name for every bend in the river, or of a place where an abundance of food was to be found, or where good supplies of water, wood or stone were located (Canon Carlos Stretch Collection, cf. University of Newcastle 2000).

Past Aboriginal land use of the study area is indicated as being complimentary activity that occurs within the foraging radius of a home base camp (approximately 10 km) (Renfrew and Bahn 1991). On the premise that these sites served as a focus of a specific activity, they will show a low diversity in artefacts and are not likely to contain features reflecting a base camp (such as hearths). However, it is also possible that the location of certain activities cannot be predicted or identified, adding to the increased dispersal of cultural material across the landscape. If people were opting to carry stone tools during hunting and gathering journeys throughout the area rather than manufacturing tools at task locations, an increased number of used tools can be recovered from low density and dispersed assemblages.

#### 4.11 Predictive model

Due to issues surrounding the highly disturbed nature of the study area, ground surface visibility and the fact that the distribution of surface archaeological material does not necessarily reflect that of sub-surface deposits, it is considered essential to establish a predictive model. By combining the previous archaeological studies undertaken throughout the region (see **Section 3.3**), the OEH AHIMS register (see **Section 3.1**) and the landscape context (**Section 4**) a relatively good indication of site types and site patterning can be predicated for the locality of study area. The following predictive model is suggested:

- Moderate potential for occupation sites (artefact scatters and isolated finds) on elevated areas within 100 metres of the third order stream Viney Creek and the previous natural drainage course;



- High potential for occupation sites with higher artefact densities on elevated areas within fifty metres of Vineys Creek or the natural drainage course;
- Surface artefact scatters are generally low in numbers and density but should not be seen as an indication of the numbers and density of any subsurface artefacts;
- Subsurface artefacts are typically located in the topsoil and shallow 'A' horizons and are particularly subject to post depositional processes;
- Isolated finds may be encountered in any landform; and
- Low potential for middens, quarry sites, scarred trees and stone arrangements to occur in the study area.

This base predictive model is then refined taking into account landforms and the occurrence of modern disturbances within the study area. The study area is located further than 100 metres from Viney Creek and has been highly affected by the clearance and excavation works for the M1 and its accompanying infrastructure. Natural drainage lines have been diverted and modernised including the addition of a culvert from the east to west across survey unit 1. Given the highly disturbed nature of the site, archaeological sites and the landscape context, nil to very limited evidence of past occupation is expected to occur within the area. There is a very low to nil chance that isolated finds and or very low density artefact scatters may be still be present within the study area.

## 5. ARCHAEOLOGICAL FIELD SURVEY

### 5.1 Methodology

The survey areas were surveyed in the late morning on 17 March, 2015, and on foot by Viki Gordon (Advitech Environmental Archaeologist), James Sinclair (Mindaribba Local Aboriginal Land Council representative), and RMS representatives Theo Stephanou (Project Manager) and Stephen Knight (Aboriginal Cultural Heritage Officer). The survey included a single transect varying from one to three metres apart depending on accessibility. The survey focused on those areas of exposure at the extents of the existing roadways that would be impacted by the proposed works in order to identify any artefactual evidence. All areas of the study area were transected, excluding the in-use road surfaces.

### 5.2 Landforms

Due to the highly altered and disturbed nature of the limited study area, no landforms were considered to have original surface areas, as evidenced by alteration of the topography, the vegetation clearance and immature regrowth. Due to the relative consistency of the landforms in the survey area, survey units are described in the context of the roadways as follows:

**Survey unit 1 (M1)** - a low hill encompassing the northern most extent of the M1 commencing from a sealed road approximately 250m south of the roundabout on the eastern side. A natural deeply incised drainage line, since modified, runs along the eastern extent of survey unit 1 crossing to the western side by way of a constructed culvert at the mid-way point of this survey unit. A constructed drainage line also runs along the eastern extent of the survey unit. A sealed carpark is present in the north west.

**Survey unit 2 (John Renshaw Drive East)** - flat land with a very slight incline trending south commencing from the roundabout to approximately 250 metres west. A sealed carpark is present in the south east. Fencing is present along the southern edge of the survey unit.

**Survey unit 3 (Weakleys Drive)** - flat land with a very slight incline trending south from the roundabout to 250 metres north a roundabout at the intersection of Weakleys Drive, Yangan Drive and Enterprise Drive. A natural deeply incised drainage line runs along the eastern extent of this survey unit and continues to Survey unit 1.

**Survey unit 4 (John Renshaw Drive West)** - a low hill with a gradual low incline trending south and east towards the natural drainage line in survey units 1 and 3.

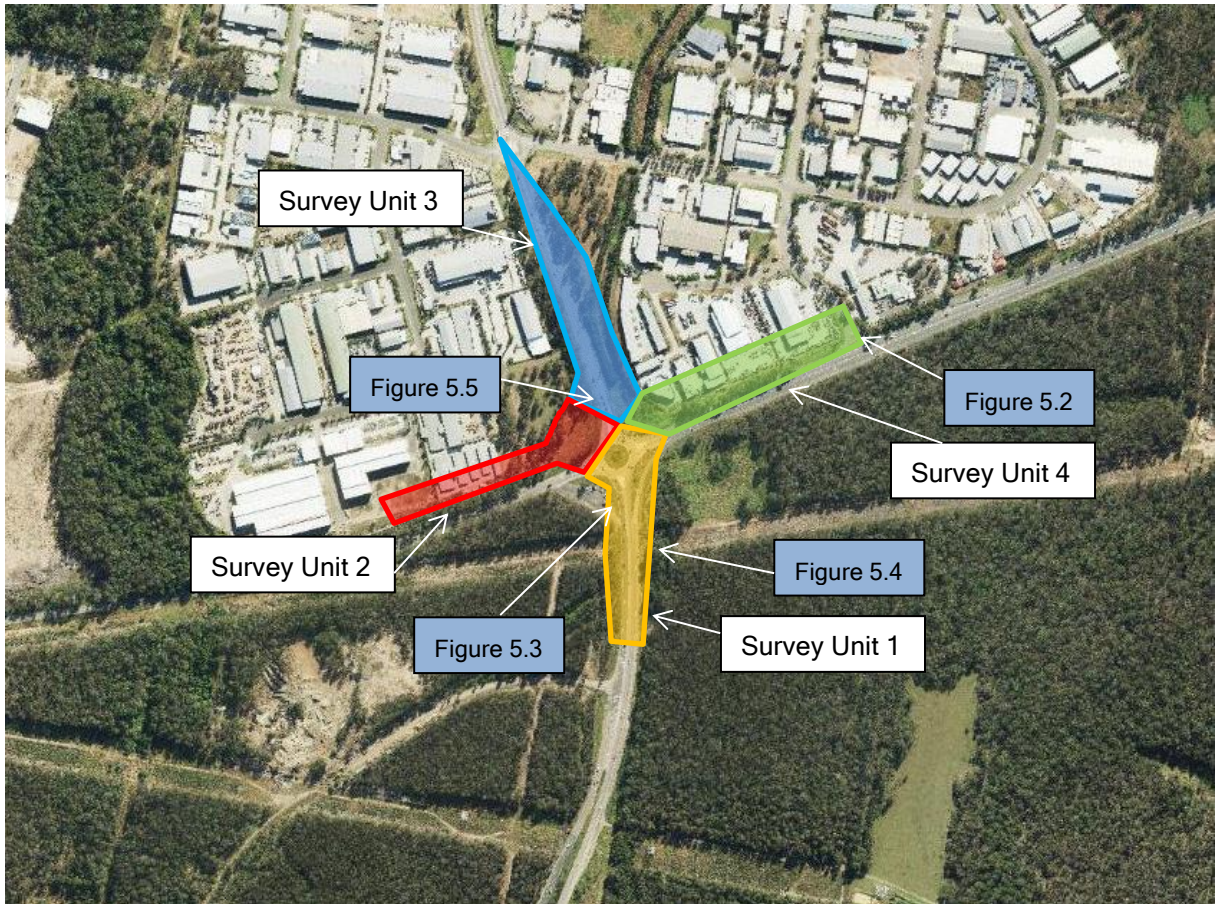


Figure 5-1. Survey Areas



Figure 5-2. Looking west





Figure 5-3. Looking east



Figure 5-4. Looking east



**Figure 5-5. Looking north**

### **5.3 Field survey**

The original topography of the investigation area has largely been destroyed. No undisturbed areas were noted and no artefacts sighted.

### **5.4 Effective coverage**

Effective coverage is an estimate of the amount of ground observed taking into account local constraints on site discovery such as vegetation and soil cover. There are two components to determining the effective coverage: ground surface visibility and ground surface exposure.

#### **5.4.1 Ground surface visibility**

Ground surface visibility is the amount of the ground surface visible to the observer and what factors limit the detection of surface artefacts. Visibility is hampered by vegetation, plant or leaf litter, loose sand, stony ground or introduced materials (such as rubbish). Ground surface visibility is described as a percentage on the following basis:

**Table 5-1: Ground visibility**

Description	Ground surface visibility rating %
Very Poor - heavy vegetation, scrub foliage or debris cover, dense tree or scrub cover.	0-9%
Poor - moderate level of vegetation, scrub, and or tree cover. Some small patches of soil surface visible in animal tracks, erosion, scalds, blowouts etc, in isolated patches.	10-29%
Fair - moderate levels of vegetation, scrub and or tree cover. Moderate sized patches of soil surface visible, possibly associated with animal, stock tracks, unsealed walking tracks, erosion, blow outs etc, soil surface visible as moderate to small patches, but across a larger section of the study area than in poor visibility	30-49%
Very Good - low levels of vegetation/scrub cover. Higher incidence of soil surface visible due to recent or past land-use practices such as ploughing, mining etc.	60-79%
Excellent - very low to non-existent levels of vegetation/scrub cover. High incidence of soil surface visible due to past or recent land use practices, such as ploughing, grading, mining etc.	80-100%

It should be noted that the estimation of ground surface visibility is purely subjective to the observer; however, consistency is achieved by the observer providing the assessment for the study area as has been done in this assessment.

#### 5.4.2 Ground surface exposure

Ground surface exposure is the amount of surface with a likelihood of revealing subsurface cultural materials rather than just an observation of the amount of bare ground. This is generally attributable to erosion (aggrading, eroding or stable) and the prevailing sedimentary conditions that would be sufficient to reveal cultural materials on the surface. The effective coverage for the study area was determined for both visibility and exposure ratings and the following table details the visibility rating system used.

**Table 5-2. Effective coverage for the investigation area**

SU	Landform	Area (m2)	Vis. %	Exp. %	Exposure type	Previous disturbances	Present disturbances	Limiting visibility factors	Effective coverage (m2)
1	Flat	32,450	15%	30%	drainage lines, erosion, excavation	clearing, excavation, construction, drainage	drainage, roads, under & above ground services, carpark	low growth, leaf litter, grasses, sealed surfaces	1,460
2	Low hill slope	16,360	35%	15%	drainage lines, erosion, excavation	clearing, excavation, construction, drainage	roads, under & above ground services, carpark	low growth, leaf litter, grasses, rubbish, fencing, sealed surfaces	859
3	Flat	19,130	50%	50%	drainage lines, erosion, excavation	clearing, excavation, construction, drainage	drainage, roads, under & above ground services, fencing, surface clearance	low growth, leaf litter, grasses, rubbish	4,783
4	Low hill slope	19,580	15%	60%	drainage lines, erosion, excavation	clearing, excavation	drainage, under & above ground, services	low growth, leaf litter, grasses	1,762
<b>Totals 87,520</b>									<b>8,864</b>
<b>Effective coverage %</b>									<b>27.32%</b>



The level and nature of the effective survey coverage, 27.32%, is considered satisfactory to provide an effective assessment of the Aboriginal sites potentially present within the investigation area. The coverage was comprehensive for obtrusive site types (for example, petroglyphs and scarred trees), but somewhat limited for the less obtrusive surface stone artefact sites. Surface visibility constraints included vegetation cover and minimal exposures combined with the destruction of the topography for roadworks which has removed the original landscape and any associated cultural materials.

In view of the predictive modelling (see **Section 4**) and the results obtained from the effective coverage, it is concluded that the survey provides a valid basis for determining the probable impacts of the proposal and formulating recommendations for the management of the identified sites and potential Aboriginal sites.

## 5.5 Results

No objects or sites were identified; this is likely due to the high level of land use and impacts across the entire investigation area which would have destroyed any evidence of past occupation.

## 6. DUE DILIGENCE IMPACT ASSESSMENT

The archaeological record is a non-renewable resource that is affected by many processes and activities. As outlined in **Section 4**, the various natural processes and human activities would have impacted on archaeological deposits through both site formation and taphonomic processes. Section 4 also describes the impacts within the study area, showing how these processes and activities have disturbed the landscape and associated cultural materials in varying degrees.

### 6.1 Impacts

Detailed descriptions of the possible impacts are provided in **Section 1.2**, and the CoP describes impacts to be rated as follows:

- type of impact: direct, indirect or none;
- degree of impact: total, partial or none; and
- consequence of impact: total loss, partial loss, or no loss of value.

As no sites or PADs were identified, there are no impacts and no loss of value on the archaeological record within the study area.

### 6.2 Cumulative Impacts

The cumulative impact to Aboriginal heritage in terms of scientific inquiry in this location is unknown given that:

- the net development footprint (that is, the area of direct impact) is small and does not affect a high proportion of any particular landform present within the region;
- no sites were identified within the study area;
- no PADs were identified within the study area; and
- the placement of the development within this area and within a disturbed context ensures the cumulative impacts, if any, are low.

No objects of Aboriginal heritage were identified within the areas identified by RMS.

## 7. MITIGATION AND MANAGEMENT STRATEGIES

The Advitech Environmental believes that Aboriginal cultural heritage is to be recognised as a finite and valuable resource and adopt the following viewpoints in order to form mitigation and management strategies for Aboriginal heritage:

- Aboriginal community members are pivotal in the identification, assessment, and management of Aboriginal cultural heritage, as it is primarily Aboriginal people who should determine the cultural significance of their heritage;
- places of Aboriginal cultural value within the Newcastle LGA are to be actively conserved and managed to retain cultural values. Appropriate conservation actions should be taken according to the level of significance;
- Aboriginal cultural heritage is to be actively managed during the development process, to ensure appropriate conservation and impact mitigation outcomes are achieved;
- compliance with relevant statutory controls, specifically the NPW Act and EPA Act, is to be required for all development and heritage programs; and
- sustainable, ongoing management strategies for Aboriginal cultural heritage management should maximise the involvement of Aboriginal parties.

One of the most important considerations in selecting the most suitable and appropriate strategy is the recognition that Aboriginal cultural heritage is very important to the local Aboriginal community. Decisions about the management of sites and potential archaeological deposits should be made in consultation with the appropriate local Aboriginal community. Note that a representative from the Mindaribba Local Aboriginal Land Council, Mr James Sinclair, attended the survey with the archaeologist.

No objects of Aboriginal heritage were identified within the study areas identified by RMS and, therefore, no mitigation or management strategies are necessary.

### 7.1.1 Conversation and Protection

The OEH is responsible for the conservation and protection of Indigenous sites. Conservation is the first avenue and is suitable for all sites, especially those considered of high archaeological significance and or cultural significance. Conservation includes the processes of looking after an indigenous site or place so as to retain its cultural significance and are managed in ways that are consistent with the nature of peoples' attachment to them.

No sites or PADs were identified and no indication was received from Mr James Sinclair that the site had any cultural significance and, as such, conservation or protection is not justified from an archaeological or scientific perspective.

### 7.1.2 Test excavations

An Aboriginal Heritage Impact Permit (AHIP) is no longer required to undertake test excavations (providing the excavations are in accordance with the OEH DDCoP). Subsurface testing is appropriate when a Potential Archaeological Deposit (PAD) has been identified, and it can be demonstrated that sub-surface Aboriginal objects with potential conservation value have a high probability of being present, and that the area cannot be substantially avoided by the proposed activity. However, testing may only be undertaken as per the OEH CoP and discussions/consultation with the local Aboriginal community.

No sites or PADs were identified and, as such, further investigation is not justified.

### 7.1.3 AHIP

If harm will occur to an Aboriginal object or Place, then an AHIP is required from the OEH. An AHIP is required when a site is identified but its extent, the nature of its contents, level of integrity and or its significance cannot be adequately assessed through a surface survey. In this case, if a systematic excavation of the known site could provide benefits and information for the Aboriginal community and or archaeological study of past Aboriginal occupation, a salvage program may be an appropriate strategy to further assess the site to determine its extent, nature, content, integrity and significance. The AHIP may also include surface collection of artefacts.

No sites or PADs were identified and, as such, an AHIP is not required.

## 8. CONCLUSION AND RECOMMENDATIONS

As noted in **Section 3**, a number of known Aboriginal sites were located in proximity to the study area, many of which have been destroyed. Due to the presence of these nearby sites, there is a very low potential that more archaeological objects exist within the defined study area. However, the vast clearance of vegetation, previous European use, large scale road levelling and construction, drainage works and diversions, associated infrastructure and signage indicate that the study area is highly disturbed and any artefacts originally present in the area would have most likely been destroyed. The proposed construction activities will impact on the soil profiles surrounding the road corridors; however, due to the highly disturbed nature of these sites, it is concluded that no objects of Aboriginal heritage will be impacted by the proposed works.

### 8.1 Discussion

As no sites have been identified, the results of the investigation are discussed below in terms of overall site integrity, local and regional contexts, and predictive modelling.

#### 8.1.1 Integrity

The integrity of the study area has been largely destroyed by the construction of the M1 Freeway, Weakleys Drive and John Renshaw Drive, as well as associated infrastructure such as drainage lines and culverts, above and underground services, signage and access tracks. Due to such disturbances, the integrity of the investigation area is lost and any sites that may have been present would have been destroyed.

#### 8.1.2 Interpretation and occupation model

Given the high level of disturbance throughout the investigation area, and the fact that no sites or PADs were identified, it is not possible to discuss site interpretation or occupation models.

#### 8.1.3 Regional and local context

Given the high level of disturbance throughout the investigation area, and the fact that no sites or PADs were identified, it is not possible to identify any differences or similarities with other assessments throughout the region (such as site patterning, site types, land form preference, and so on).

#### 8.1.4 Reassessment of the predictive model

In view of the survey results, the predictive model of site locations remains, as determined, to be having low to no potential for artefacts to occur within the study area due to its highly disturbed nature.

### 8.2 Conclusion

Proximity to water was an important factor in past occupation of the area, with sites reducing in number significantly away from water with most sites located within 50 metres of the tributaries. No raw materials typically used in the manufacture of stone tools were sighted. The access to both Viney Creek, Weakleys Creek and the Hexham swamplands nearby would have provided the necessary resources for occupation of the surrounding area; however, the study area is located over 50 metres from these water resources and in areas with little elevation. The study area is highly disturbed thereby further reducing the likelihood of in situ cultural materials to be present. There is low to nil potential that intact or in situ artefacts that would contribute to archaeological knowledge remain within the study area.

No sites or PADs were identified and, as such, an AHIP is not required.

## **8.3 Recommendations**

### **8.3.1 On site work staff, contractors and others**

The persons responsible for the management of works on site will ensure that all staff, contractors and others involved in construction and maintenance related activities are made aware of the statutory legislation protecting sites and places of significance. Of particular importance is the National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010, under the NPW Act .

### **8.3.2 Areas to be impacted**

If the defined areas to be impacted are to be altered and the location proposed is not within the study area, then further investigation of the proposed areas to be impacted will be required. In particular, if the construction works are varied to the extent that impact will occur within 5 metres of the registered site AHIMS #38-4-0551 (being GPS location AMG 56H LJ Easting 371846 Northing 6368253) may occur, then a fenced buffer zone to protect this site should be erected in case the solitary artefact still remains.



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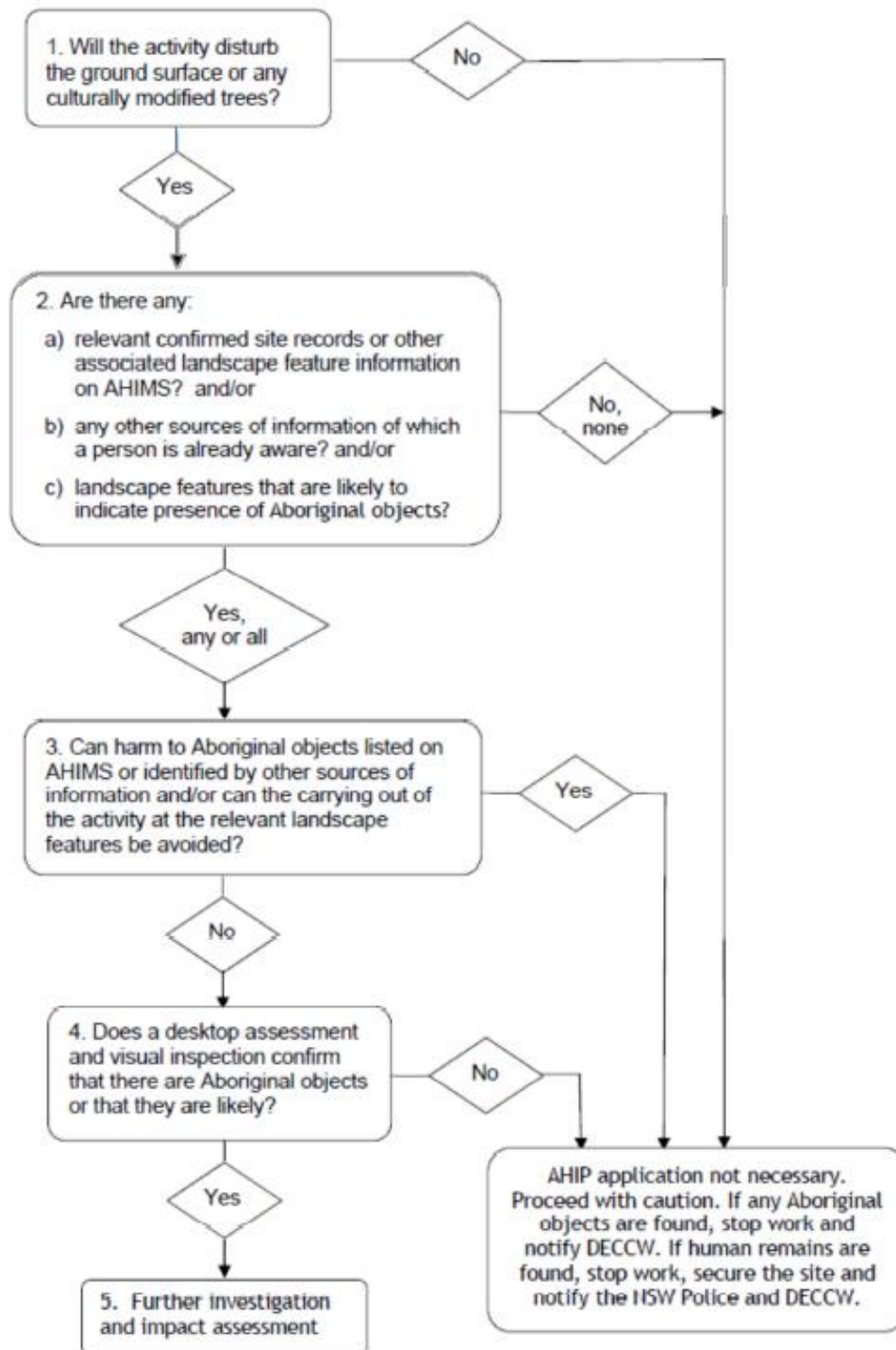
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## Appendix I

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OEH Due Diligence Code of Practice





## Appendix II

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### AHIMS Search Results

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-0463	Site 4;Beresfield;	AGD	56			Open site	Valid	Artefact : -	Open Camp Site	4211,102222,102568
	<u>Contact</u>	Coordinates omitted							<u>Permits</u>	
38-4-0465	Site 6;Beresfield;					Open site	Partially Destroyed	Artefact : -	Open Camp Site	4211,102222,102568,103090
	<u>Contact</u>								<u>Permits</u>	3432
38-4-0466	Site 7;Beresfield;					Open site	Valid	Artefact : -	Isolated Find	4211,102222,102568
	<u>Contact</u>								<u>Permits</u>	
38-4-0467	Site 8;Beresfield;					Open site	Valid	Artefact : -	Isolated Find	4211,102222,102568
	<u>Contact</u>								<u>Permits</u>	
38-4-0469	Site 11;Beresfield;					Open site	Valid	Artefact : -	Open Camp Site	4211,102222,102568
	<u>Contact</u>								<u>Permits</u>	
38-4-0470	Site 12;Beresfield;					Open site	Valid	Artefact : -	Open Camp Site	4211,102222,102568
	<u>Contact</u>								<u>Permits</u>	
38-4-0473	Site 2;Beresfield;					Open site	Valid	Artefact : -	Isolated Find	4211,102222,102568
	<u>Contact</u>								<u>Permits</u>	
38-4-0379	BS2;					Open site	Partially Destroyed	Artefact : -	Open Camp Site	102222,102568
	<u>Contact</u>								<u>Permits</u>	824,1066
38-4-0382	BS6 (duplicate);					Open site	Partially Destroyed	Artefact : -	Open Camp Site	102568
	<u>Contact</u>								<u>Permits</u>	1066
38-4-0386	BS1.					Open site	Valid	Artefact : -	Open Camp Site	102222,102568
	<u>Contact</u>								<u>Permits</u>	
38-4-0387	BS2;					Open site	Valid	Artefact : -	Open Camp Site	102222
	<u>Contact</u>								<u>Permits</u>	
38-4-0388	BS3 (Holmwood Estate)					Open site	Destroyed	Artefact : -	Open Camp Site	102568
	<u>Contact</u>								<u>Permits</u>	965
38-4-0550	Viney Creek 1 Artefact Scatter					Open site	Valid	Artefact : 72		97572,102222
	<u>Contact</u>								<u>Permits</u>	
38-4-0551	John Renshaw Drive Isolated Find					Open site	Valid	Artefact : 1		97572,102568
	<u>Contact</u>								<u>Permits</u>	

Report generated by AHIMS Web Service on 25/02/2015 for Rod Bennison for the following area at Lat, Long From : -32.8191, 151.6268 - Lat, Long To : -32.8087, 151.6433 with a Buffer of 200 meters. Additional Info : Archaeological assessment for review of environmental factors. Number of Aboriginal sites and Aboriginal objects found is 35

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-0552	South Beresfield Freeway Industrial Estate					Open site	Valid	Potential Archaeological Deposit (PAD) :-		97572,102222
	<b>Contact</b>							<b>Permits</b>		
38-4-0554	Viney Creek 2 Artefact Scatter					Open site	Valid	Artefact : 1		97572,102222, 102398
	<b>Contact</b>							<b>Permits</b>		
38-4-0903	Weakleys 1 Locus C (W1/C)					Open site	Valid	Artefact : 3		102222,10239 8
	<b>Contact</b> T Russell							<b>Permits</b>	3144,3431	
38-4-0904	Weakleys 1 Locus D (W1/D)					Open site	Valid	Artefact : 2		102222,10239 8
	<b>Contact</b> T Russell							<b>Permits</b>	3144,3431	
38-4-0905	Weakleys 2 Locus A (W2/A)					Open site	Valid	Artefact : 5		102222,10239 8
	<b>Contact</b> T Russell							<b>Permits</b>	3144,3431	
38-4-0906	Weakleys 4 Locus A (W4/A)					Open site	Valid	Artefact : 1		102222,10239 8
	<b>Contact</b> T Russell							<b>Permits</b>	3144,3431	
38-4-0907	Weakleys 4 Locus B (W4/B)					Open site	Valid	Artefact : 1		102222,10239 8
	<b>Contact</b> T Russell							<b>Permits</b>	3144,3431	
38-4-0908	Weakleys 4 Locus C (W4/C)					Open site	Valid	Artefact : 1		102222,10239 8
	<b>Contact</b> T Russell							<b>Permits</b>	3144,3431	
38-4-0909	Weakleys 7 Locus A (W7/A)					Open site	Valid	Artefact : 1		102398
	<b>Contact</b> T Russell							<b>Permits</b>	3144,3431	
38-4-0926	Weakleys 23 Locus F (W23/F)					Open site	Valid	Artefact : 1		
	<b>Contact</b> T Russell							<b>Permits</b>		
38-4-0464	Site 5;Beresfield;					Open site	Valid	Artefact : -	Open Camp Site	4211,102222,1 02568
	<b>Contact</b>							<b>Permits</b>		
38-4-0391	BS6;					Open site	Partially Destroyed	Artefact : -	Open Camp Site	
	<b>Contact</b>							<b>Permits</b>	1066	
38-4-1287	CTGM1 AT1					Open site	Partially Destroyed	Artefact : 1		103089
	<b>Contact</b>							<b>Permits</b>	3374	

Report generated by AHIMS Web Service on 25/02/2015 for Rod Bennison for the following area at Lat, Long From : -32.8191, 151.6268 - Lat, Long To : -32.8087, 151.6433 with a Buffer of 200 meters. Additional Info : Archaeological assessment for review of environmental factors. Number of Aboriginal sites and Aboriginal objects found is 35

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-1210	Beresfield WP IF 1						Destroyed	Artefact : 1		101939,10256 8,103090
	<u>Contact</u> Mindaribba Local Aboriginal L							<u>Permits</u>	3432	
38-4-1211	Beresfield WP IF 2						Destroyed	Artefact : 1		101939,10256 8,103090
	<u>Contact</u> Mindaribba Local Aboriginal L							<u>Permits</u>	3432	
38-4-1212	Beresfield WP IF 3						Destroyed	Artefact : 1		101939,10309 0
	<u>Contact</u> Mindaribba Local Aboriginal L							<u>Permits</u>	3432	
38-4-1213	Beresfield WP IF 4						Destroyed	Artefact : 1		101939,10309 0
	<u>Contact</u> Mindaribba Local Aboriginal L							<u>Permits</u>	3432	
38-4-1214	Beresfield WP AS 1						Partially Destroyed	Artefact : 1		101939,10256 8,103090
	<u>Contact</u> Mindaribba Local Aboriginal L							<u>Permits</u>	3432	
38-4-1217	CTGM PAD2						Partially Destroyed	Potential Archaeological Deposit (PAD) : 1		101939,10256 8,103090
	<u>Contact</u>							<u>Permits</u>	3432,3761	
38-4-1336	Black Hill 1						Valid	Artefact : 1		
	<u>Contact</u>							<u>Permits</u>		
38-4-1689	CTGM-Beresfield East artefacts					Open site	Valid	Artefact : -		
	<u>Contact</u>							<u>Permits</u>		

Report generated by AHIMS Web Service on 25/02/2015 for Rod Bennison for the following area at Lat, Long From : -32.8191, 151.6268 - Lat, Long To : -32.8087, 151.6433 with a Buffer of 200 meters. Additional Info : Archaeological assessment for review of environmental factors. Number of Aboriginal sites and Aboriginal objects found is 35

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-0463	Site 4;Beresfield;	AGD	56	373000	6368200	Open site	Valid	Artefact : -	Open Camp Site	4211,102222,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	
38-4-0465	Site 6;Beresfield;						Partially Destroyed	Artefact : -	Open Camp Site	4211,102222,102568,103090
	<a href="#">Contact</a>								<a href="#">Permits</a>	3432
38-4-0466	Site 7;Beresfield;						Valid	Artefact : -	Isolated Find	4211,102222,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	
38-4-0467	Site 8;Beresfield;						Valid	Artefact : -	Isolated Find	4211,102222,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	
38-4-0468	Site 9;Beresfield;						Valid	Artefact : -	Open Camp Site	4211,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	3761
38-4-0469	Site 11;Beresfield;						Valid	Artefact : -	Open Camp Site	4211,102222,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	
38-4-0470	Site 12;Beresfield;						Valid	Artefact : -	Open Camp Site	4211,102222,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	
38-4-0471	Site 10;Beresfield;						Valid	Artefact : -	Open Camp Site	4211,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	
38-4-0472	Site 1;Beresfield;						Valid	Artefact : -	Isolated Find	4211,102222,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	
38-4-0473	Site 2;Beresfield;						Valid	Artefact : -	Isolated Find	4211,102222,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	
38-4-0474	Site 3;Beresfield;						Valid	Artefact : -	Isolated Find	4211,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	
38-4-0375	Black Hill 1, BH1						Destroyed	Artefact : -	Open Camp Site	102222,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	658,745,819,831,1062,1074
38-4-0329	MB2;						Destroyed	Artefact : -	Open Camp Site	2410,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	
38-4-0379	BS2;						Partially Destroyed	Artefact : -	Open Camp Site	102222,102568
	<a href="#">Contact</a>								<a href="#">Permits</a>	824,1066

Report generated by AHIMS Web Service on 05/12/2014 for Rod Bennison for the following area at Lat, Long From : -32.8186, 151.6276 - Lat, Long To : -32.8082, 151.6441 with a Buffer of 1000 meters. Additional Info : RMS Cultural Heritage Impact Assessment. Number of Aboriginal sites and Aboriginal objects found is 75

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-0380	BS4;						Partially Destroyed	Artefact : -	Open Camp Site	102568
	<a href="#">Contact</a>							<a href="#">Permits</a>	1066	
38-4-0381	BS5 (duplicate);						Partially Destroyed	Artefact : -	Open Camp Site	
	<a href="#">Contact</a>							<a href="#">Permits</a>	1066	
38-4-0382	BS6 (duplicate);						Partially Destroyed	Artefact : -	Open Camp Site	102568
	<a href="#">Contact</a>							<a href="#">Permits</a>	1066	
38-4-0386	BS1.						Valid	Artefact : -	Open Camp Site	102222,102568
	<a href="#">Contact</a>							<a href="#">Permits</a>		
38-4-0387	BS2;						Valid	Artefact : -	Open Camp Site	102222
	<a href="#">Contact</a>							<a href="#">Permits</a>		
38-4-0388	BS3 (Holmwood Estate)						Destroyed	Artefact : -	Open Camp Site	102568
	<a href="#">Contact</a>							<a href="#">Permits</a>	965	
38-4-0389	BS4 (duplicate);						Partially Destroyed	Artefact : -	Open Camp Site	102568
	<a href="#">Contact</a>							<a href="#">Permits</a>	1066	
38-4-0390	BS5;						Partially Destroyed	Artefact : -	Open Camp Site	102568
	<a href="#">Contact</a>							<a href="#">Permits</a>	1066	
38-4-0550	Viney Creek 1 Artefact Scatter						Valid	Artefact : 72		97572,102222
	<a href="#">Contact</a>							<a href="#">Permits</a>		
38-4-0551	John Renshaw Drive Isolated Find						Valid	Artefact : 1		97572,102568
	<a href="#">Contact</a>							<a href="#">Permits</a>		
38-4-0552	South Beresfield Freeway Industrial Estate						Valid	Potential Archaeological Deposit (PAD) : -		97572,102222
	<a href="#">Contact</a>							<a href="#">Permits</a>		
38-4-0554	Viney Creek 2 Artefact Scatter						Valid	Artefact : 1		97572,102222, 102398
	<a href="#">Contact</a>							<a href="#">Permits</a>		
38-4-0561	ISF1						Valid	Artefact : 1		
	<a href="#">Contact</a>							<a href="#">Permits</a>	1342	
38-4-0604	BLACK HILL 7 (BH7)						Valid	Artefact : -		98227,102222, 102568
	<a href="#">Contact</a>							<a href="#">Permits</a>		

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-0671	WFC1 Donaldson Mine <b>Contact</b>						Valid	Artefact : 3 <b>Permits</b>		98344
38-4-0673	ISF4 Donaldson Mine <b>Contact</b>						Valid	Artefact : 1 <b>Permits</b>	1902	98344,102222
38-4-0638	Donaldson Monitoring Site 6 (DMS6) <b>Contact</b>						Valid	Modified Tree (Carved or Scarred) : 1 <b>Permits</b>		
38-4-0639	Donaldson Monitoring Site 5 (DMS5) <b>Contact</b>						Valid	Artefact : 1 <b>Permits</b>		102222
38-4-0621	Donaldson Monitoring Site 2 (DMS2) <b>Contact</b>						Valid	Artefact : 1 <b>Permits</b>	3144,3431	102222,102398
38-4-0709	BGC 1 <b>Contact</b>						Valid	Artefact : 55 <b>Permits</b>	1788,2141,2952	102568,102615
38-4-0868	MB1. <b>Contact</b> T Russell						Valid	Artefact : 1 <b>Permits</b>		102568
38-4-0798	Beresfield Substation 1 (BSS1) <b>Contact</b> T Russell						Valid	Artefact : 1, Potential Archaeological Deposit (PAD) : - <b>Permits</b>	2088	102568
38-4-0901	Weakleys 1 Locus A (W1/A) <b>Contact</b> T Russell						Valid	Artefact : 1 <b>Permits</b>	3144,3431	102222,102398
38-4-0902	Weakleys 1 Locus B (W1/B) <b>Contact</b> T Russell						Valid	Artefact : 2 <b>Permits</b>	3144,3431	102222,102398
38-4-0903	Weakleys 1 Locus C (W1/C) <b>Contact</b> T Russell						Valid	Artefact : 3 <b>Permits</b>	3144,3431	102222,102398
38-4-0904	Weakleys 1 Locus D (W1/D) <b>Contact</b> T Russell						Valid	Artefact : 2 <b>Permits</b>	3144,3431	102222,102398
38-4-0905	Weakleys 2 Locus A (W2/A) <b>Contact</b> T Russell						Valid	Artefact : 5 <b>Permits</b>	3144,3431	102222,102398
38-4-0906	Weakleys 4 Locus A (W4/A)						Valid	Artefact : 1		102222,102398

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	<u>Contact</u> T Russell	<u>Recorders</u>	Mr.Peter Kuskie					<u>Permits</u>	3144,3431	
38-4-0907	Weakleys 4 Locus B (W4/B)						Valid	Artefact : 1		102222,102398
	<u>Contact</u> T Russell							<u>Permits</u>	3144,3431	
38-4-0908	Weakleys 4 Locus C (W4/C)						Valid	Artefact : 1		102222,102398
	<u>Contact</u> T Russell							<u>Permits</u>	3144,3431	
38-4-0909	Weakleys 7 Locus A (W7/A)						Valid	Artefact : 1		102398
	<u>Contact</u> T Russell							<u>Permits</u>	3144,3431	
38-4-0915	Weakleys 15 Locus F (W15/F)						Valid	Artefact : 8		
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0916	Weakleys 15 Locus G (W15/G)						Valid	Artefact : 19		
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0917	Weakleys 18 Locus A (W15/A)						Valid	Artefact : 1		
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0918	Weakleys 20 Locus A (W20/A)						Valid	Artefact : 98		102568
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0919	Weakleys 20 Locus B (W20/B)						Valid	Artefact : 6		
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0920	Weakleys 21 Locus A (W21/A)						Valid	Artefact : 4		
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0921	Weakleys 22 Locus A (W22/A)						Valid	Artefact : 22		
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0922	Weakleys 23 Locus A (W23/A)						Valid	Artefact : 1		
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0923	Weakleys 23 Locus B (W23/B)						Valid	Artefact : 1		
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0924	Weakleys 23 Locus D (W23/D)						Valid	Artefact : 1		
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0925	Weakleys 23 Locus E (W23/E)						Valid	Artefact : 2		
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0926	Weakleys 23 Locus F (W23/F)						Valid	Artefact : 1		
	<u>Contact</u> T Russell							<u>Permits</u>		
38-4-0464	Site 5;Beresfield;						Valid	Artefact : -	Open Camp Site	4211,102222,102568
	<u>Contact</u>							<u>Permits</u>		

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-0391	BS6;	AGD	56	372360	6369050	Open site	Partially Destroyed	Artefact : -	Open Camp Site	
	<a href="#">Contact</a>							<a href="#">Permits</a>	1066	
38-4-1287	CTGM1 AT1						Partially Destroyed	Artefact : 1		103089
	<a href="#">Contact</a>							<a href="#">Permits</a>	3374	
38-4-1289	CTGM3 AT3						Partially Destroyed	Artefact : -		103089
	<a href="#">Contact</a>							<a href="#">Permits</a>	3374	
38-4-1290	CTGM4 MC						Valid	Artefact : 1		103089
	<a href="#">Contact</a>							<a href="#">Permits</a>		
38-4-1210	Beresfield WP IF 1						Destroyed	Artefact : 1		101939,10256 8,103090
	<a href="#">Contact</a> Mindaribba Local Aboriginal L							<a href="#">Permits</a>	3432	
38-4-1211	Beresfield WP IF 2						Destroyed	Artefact : 1		101939,10256 8,103090
	<a href="#">Contact</a> Mindaribba Local Aboriginal L							<a href="#">Permits</a>	3432	
38-4-1212	Beresfield WP IF 3						Destroyed	Artefact : 1		101939,10309 0
	<a href="#">Contact</a> Mindaribba Local Aboriginal L							<a href="#">Permits</a>	3432	
38-4-1213	Beresfield WP IF 4						Destroyed	Artefact : 1		101939,10309 0
	<a href="#">Contact</a> Mindaribba Local Aboriginal L							<a href="#">Permits</a>	3432	
38-4-1214	Beresfield WP AS 1						Partially Destroyed	Artefact : 1		101939,10256 8,103090
	<a href="#">Contact</a> Mindaribba Local Aboriginal L							<a href="#">Permits</a>	3432	
38-4-1215	Beresfield WP AS 2						Destroyed	Artefact : 15		101939,10308 9
	<a href="#">Contact</a> Mindaribba Local Aboriginal L							<a href="#">Permits</a>	3374	
38-4-1216	CTGM PAD1						Partially Destroyed	Potential Archaeological Deposit (PAD) : 1		101939,10308 9
	<a href="#">Contact</a>							<a href="#">Permits</a>	3374	
38-4-1217	CTGM PAD2						Partially Destroyed	Potential Archaeological Deposit (PAD) : 1		101939,10256 8,103090
	<a href="#">Contact</a>							<a href="#">Permits</a>	3432,3761	
38-4-1336	Black Hill 1						Valid	Artefact : 1		
	<a href="#">Contact</a>							<a href="#">Permits</a>		

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# AHIMS Web Services (AWS)

## Extensive search - Site list report

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-1687	Beresfield WP-AS2 artefacts					Open site	Valid	Artefact : -		
	<a href="#"><u>Contact</u></a>									<a href="#"><u>Permits</u></a>
38-4-1688	CTGM PAD1 artefacts					Open site	Valid	Artefact : -		
	<a href="#"><u>Contact</u></a>									<a href="#"><u>Permits</u></a>
38-4-1689	CTGM-Beresfield East artefacts					Open site	Valid	Artefact : -		
	<a href="#"><u>Contact</u></a>									<a href="#"><u>Permits</u></a>
38-4-1709	TB IF1					Open site	Valid	Artefact : -		
	<a href="#"><u>Contact</u></a>								<a href="#"><u>Permits</u></a>	3761

Report generated by AHIMS Web Service on 05/12/2014 for Rod Bennison for the following area at Lat, Long From : -32.8186, 151.6276 - Lat, Long To : -32.8082, 151.6441 with a Buffer of 1000 meters. Additional Info : RMS Cultural Heritage Impact Assessment. Number of Aboriginal sites and Aboriginal objects found is 75

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**advitech**

## Technical Memo

**M1 Intersection with John Renshaw Drive  
and Weakleys Drive, Beresfield – Proposed  
compound site and lane widening**

Prepared for: Aurecon Group

14 January 2016  
Rev 0

## Report Details

**Technical Memo - M1 Intersection with John Renshaw Drive and Weakleys Drive, Beresfield**

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## Prepared For

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## History

Date	Revision	Comments
14 January, 2016	0	Technical Memo

## Endorsements

Function	Signature	Name and Title	Date
Prepared by		Viki Gordon Senior Archaeologist	14 January, 2016
Authorised for Release by		Dr Rod Bennison Lead Environmental Scientist	14 January, 2016

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## EXECUTIVE SUMMARY

The M1 Pacific Motorway is a route of national significance forming the main road transport corridor between Sydney to Newcastle and is an integral link of the Pacific Motorway servicing the north coast of NSW and coastal Queensland. The current roundabout, where the northern extreme of the M1 meets John Renshaw Drive and Weakleys Drive, forms a significant chokepoint for motorway users and provides a popular light vehicle rest area and a driver reviver stop for travellers particularly at peak holiday times. Roads and Maritime propose to upgrade the area to traffic control signals in order to reduce traffic congestion and delays and increase safety for motorists. The project involves both major construction works of new sections and improvement works of existing sections to facilitate safer and more efficient travel. This report specifically relates to a proposed compound site and an extended area of lane widening which will be utilised in the upgrade of the roundabout.

This report has been prepared in order to assist and inform the technical design and concept aspects, as pertains to Aboriginal heritage and any potential archaeological sites, in regard to the possible compound location and extended lane widening. To avoid any unintentional impacts to Aboriginal objects or places a brief technical assessment and field survey was undertaken on 11th December, 2015. This was carried out by Advitech Environmental and in accordance with the methodology prescribed under the Office of Environment and Heritage *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (CoP) (DECCW, 2010) and the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW, 2010). However it should be noted that this report does not form a Due Diligence Assessment or complete Archaeological Survey.

There are no current registered Aboriginal sites within the study area, however there are registered sites in the surrounding areas. Only one registered site, consisting of a solitary artefact, remains within proximity to the impact zone and this is currently described by Aboriginal Heritage Information System (AHIMS) as being partially destroyed. Due to the highly disturbed nature of the study area, there is only a low to nil potential that this solitary artefact remains or that more archaeological objects exist within the subject area. A number of known Aboriginal sites are located within proximity to the study area but are well outside the proposed impact zone. The field survey of the study area did not reveal any archaeological artefacts or sites. Due to the highly disturbed nature of the study area, there is only a low potential that archaeological objects remain within the subject area.

The result of this technical assessment is that it is considered likely that no archaeological sites will be impacted upon by the development in the assessed area, however it should be noted that no Aboriginal cultural assessment or consultation of the area and its possible cultural significance was undertaken for this technical assessment.

The survey of the study area did not reveal any resources or artefacts and this is attributed to both the highly disturbed nature of the site and the site lacking landform features considered desirable for occupation other than of an opportunistic nature, such as foraging or hunting. Regional and local archaeological studies, and the ensuing predictive modelling, indicates the area would most likely only have contained objects or sites reflective of short term occupation such as solitary or low density artefact scatters.

The following recommendations are made:

1. The persons responsible for the management of onsite works will ensure that all staff, contractors and others involved in construction and maintenance related activities are made aware of the statutory legislation protecting sites and places of significance. Of particular

importance is the National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010, under the *National Parks and Wildlife Act 1974*;

2. If the defined areas to be impacted are altered and the location proposed is not within the study area, then further archaeological investigation of the proposed areas to be impacted will be required;
3. Further investigation of the study area, in consultation with Local Aboriginal community members must be undertaken once definitive plans and impacts to the area are known; and
4. If the construction works are varied to the extent that impact will occur within 5 metres of registered site AHIMS #38-4-0465 (being GPS location AMG 56H LJ Easting 372300 Northing 6368250), then a fenced buffer zone to protect this site should be erected in case the solitary artefact still remains, if indeed it can be located.



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# 1. INTRODUCTION

The M1 Pacific Motorway is a route of national significance forming the main road transport corridor between Sydney to Newcastle. The current roundabout, where the northern extreme of the M1 meets John Renshaw Drive and Weakleys Drive, forms a significant chokepoint for motorway users and provides a popular light vehicle rest area for travellers, particularly at peak holiday times. Roads and Maritime proposes to upgrade the area to traffic control signals in order to reduce traffic congestion and delays and increase safety for motorists. This report specifically relates to a proposed compound site and an extended area of lane widening which will be utilised in the upgrade of the roundabout.

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It should be noted that this report was prepared by Advitech Pty Limited for Aurecon Group (“the customer”) in accordance with the scope of work and specific requirements agreed between Advitech and the customer. This report was prepared with background information, terms of reference and assumptions agreed with the customer. The report is not intended for use by any other individual or organisation and as such, Advitech will not accept liability for use of the information contained in this report, other than that which was intended at the time of writing

Advitech Pty Limited, on behalf of Roads and Maritime, has previously undertaken a Stage 2 Aboriginal Heritage assessment of the areas indicated in **Figure 1** and as per the guidelines outlined in the Roads and Maritime *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (PACHCI) (Roads and Maritime, 2011) on 22 April, 2015.



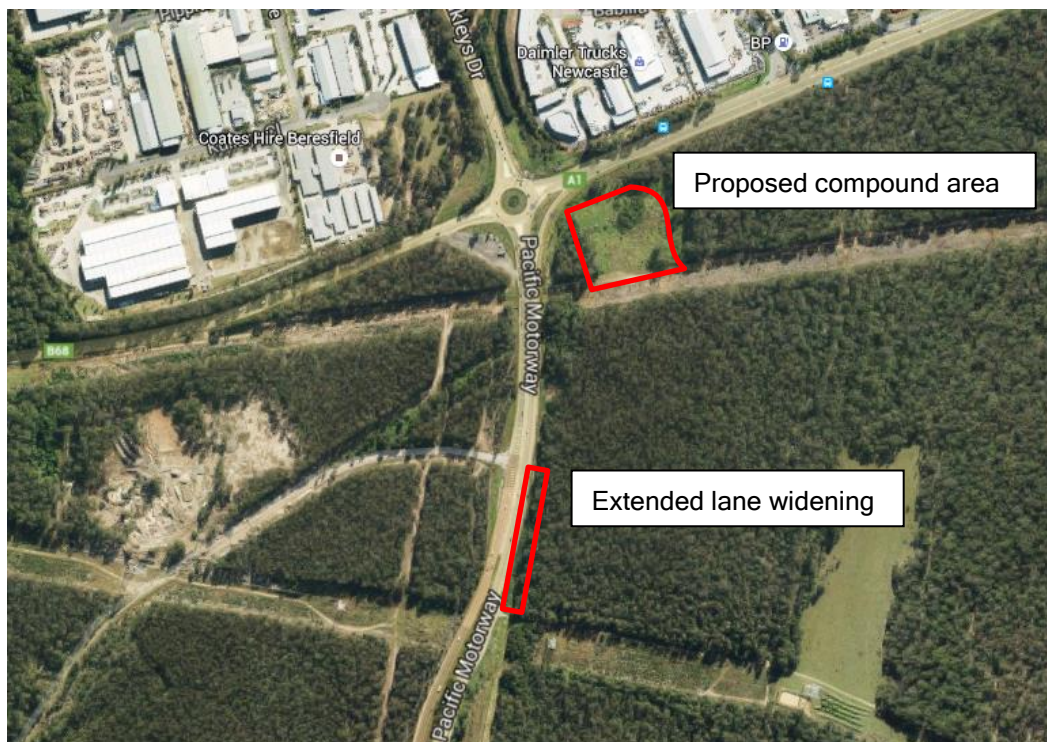
Figure 1.1 Areas previously assessed by Advitech Pty Limited for M1 project

## 1.1 The Study Areas

The study areas for the proposed site compound and lane widening area are respectively to the east and south east of the existing roundabout at the intersection of the M1 Pacific Motorway, Weakleys Drive and John Renshaw Drive, at Beresfield and as illustrated in **Figure 1.3**. The location and extent of the areas assessed are illustrated in **Figures 1.2 and 1.3**, respectively.



**Figure 1.2** Locality of the study area



**Figure 1.3** Areas assessed in walk over



A search of the OEH Aboriginal Heritage Information Management System (AHIMS) register on 5 December, 2014, showed that 71 known Aboriginal sites are currently recorded within one kilometre of the study area and includes 36 open camp sites, 30 isolated finds, 4 Potential Archaeological Deposits and 1 scarred tree. 17 of these sites are noted as being either partially or completely destroyed. In addition, a reduced AHIMS search was conducted at the specific request of Roads and Maritime, in February, 2015 and indicated 35 known Aboriginal sites within 200m of the study area. The location of AHIMS sites are shown in **Figure 1.4**. Registered site AHIMS # 38-4-0465 is described as an open site recorded within close proximity of the possible impact area of the proposed compound. The isolated artefact, which is the subject of site #38-4-0551 was not relocated during the survey.

Map omitted

**Figure 1.4** Location of AHIMS Registered Sites

## 1.2 Previous archaeological assessment of the study areas by Peter Kuskie (1997)

In 1997, Kuskie undertook an investigation for the Newcastle City Council in anticipation of its sale of the relevant property for future development. The study area (see **Figures 1.5 and 1.6**) incorporated 130 hectares bounded to the north by the New England Highway and John Renshaw Drive, to the west by Lenaghans Drive, to the south by Black Hill rural residential community and Hexham Wetlands to the east. The property was described as being low gradient, undulating terrain, in a broad, low ridge, trending to the north towards Weakleys Flat. In the northeast of the property, a ridge crest fanned into Hexham Wetlands as a broad, low spur, descending eastward. First order drainage lines are found in the north, north-east and north west of the study area and runoff from the ridge crest drains into Hexham Wetland.

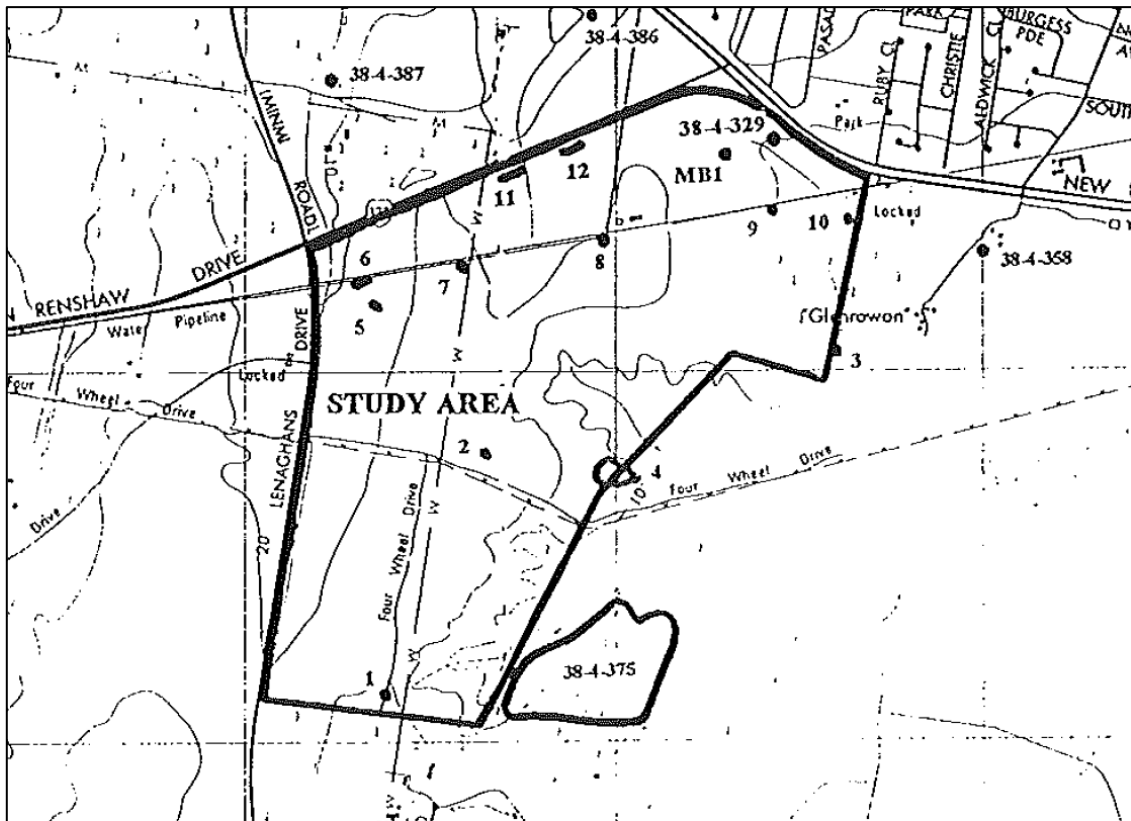


Figure 1.5 Area studied by Kuskie (1997)

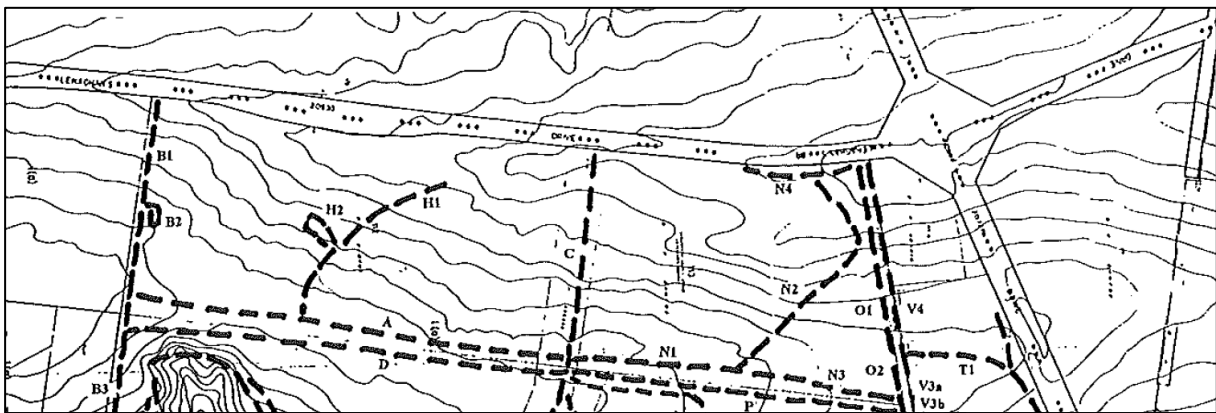


Figure 1.6 Hatched line indicates transects undertaken by Kuskie (1997) in current study area i.e. no transects of the relevant study area were made

The study area was found to have been largely cleared of vegetation with some tall, open eucalypt mature forest trees remaining. Dominant species were noted as Spotted Gum, Broad-leaved Ironbark, Grey Ironbark, Thin-leaved Stringybark, Grey Gum and Narrow-leaved Stringybark. Lesser occurrences of other species recorded include Smooth-barked Apple, Rough-barked Apple, White Mahogany, Red Bloodwood and Blackbutt. The understorey contained vegetation of Blackthorn, several species of paperbark and wattles, with Forest Gum occurring on some lower slopes. Along drainage lines, Prickly-leaved Paperbark, Grey Myrtle, Red Ash and Lantana are common. Past land use practices and removal of trees had left pasture grasses, which significantly reduced visibility

across the study area. The study area also contained vehicle tracks, a 33kV transmission line and water pipeline easement.

Sufficient resources for hunting were available in the Hunter Wetland areas including Platypus, Water Rat, Swamp Wallaby, Common Wombat, Eastern Grey Kangaroo, Red-necked Wallaby, flying fox, lizards, goanna, pademelons and bandicoots, with Ring-tailed Possum, Squirrel Gliders and quolls being less common. A wide variety of freshwater fish has also been recorded in wetlands in the region. Shellfish would also have been present.

A search of the AHIMS database revealed a total of 149 sites within a buffer area of 500 m<sup>2</sup> of the study area. Sites found included 89 artefact scatters, 21 isolated finds, 29 grinding groove sites, 3 middens, 2 scarred trees, 2 stone arrangements, one fish trap, one shelter with art and grinding grooves and one waterhole well. Two sites were recorded within the study area, being one artefact scatter and one isolated find.

The following predictive model was developed for the study area:

- Artefact scatters are the most common site type encountered within and near the study area with an increase in numbers and density on low gradient landforms, such as simple slopes, basal slopes and ridge crests/spur crests bordering wetlands and watercourses;
- Normally, small surface artefact scatters are not an indication of the numbers and density of any subsurface artefacts;
- Subsurface artefacts are typically located in the topsoil and shallow “A” horizons;
- Isolated finds may be encountered in any landform;
- There is low potential for middens, scarred trees, mythological traditional sites, quarry sites, and stone arrangements.

The focus of the survey was on areas of high visibility, such as access and vehicle tracks. Tree trunks, erosion scours, cattle trails and other areas of disturbance were also inspected. Surface visibility varied, but averaged at 45%. Twelve sites were identified and are summarised in **Table 3.1** (overleaf).

31 artefacts were recorded within the study area; 15 whole and broken flakes, nine flaked pieces, two cores, one whole and two broken blades, one blade core and one hatchet head (greenstone). 19 pieces were considered to be from heat shatter. Silcrete was the dominant raw material (68%), followed by silicified volcanic tuff (29%).

Kuskie considered the assemblage insufficient to draw any meaningful conclusions regarding the predictive model, and recommended that further investigation be conducted. It was recommended that test excavations be conducted in areas where research potential and site integrity was indicated. Other options, such as monitoring during ground works, destruction or conservation of the site, were also considered.



**Table 3.1: Summary of Sites by Kuskie (1997)**

Site	Site Type	Landform	Distance to water	Order/Water source	Site contents	Disturbance	Subsurface potential
1	Isolated	Ridge crest	100-150m	1 <sup>st</sup> order	1 artefact	Moderate	Moderate
2	Isolated	Ridge crest	100-150m	1 <sup>st</sup> order	1 artefact	Low	Moderate
3	Isolated	Slope	0-50m	Swamp/ wetlands	1 artefact	Low	High
4	Artefact scatter	Spur crest	0-50m	Swamp/ wetlands	8 artefacts	Low	High
5	Artefact scatter	Slope	100-150m	1 <sup>st</sup> order	3 artefacts	Moderate	Moderate
6	Isolated	Slope	50-100m	1 <sup>st</sup> order	2 artefacts	Moderate	Moderate
7	Isolated	Ridge crest	150-200m	1 <sup>st</sup> order	1 artefact	Low	Moderate
8	Isolated	Ridge crest	200-250m	1 <sup>st</sup> order	1 artefact	Low	Moderate
9	Artefact scatter	Slope	150-200m	1 <sup>st</sup> order	3 artefacts	Low	High
10	Artefact scatter	Slope	0-50m	Swamp/ wetlands	3 artefacts	Low	High
11	Artefact scatter	Slope	0-50m	1 <sup>st</sup> order	5 artefacts	Moderate	Moderate
12	Artefact scatter	Slope	0-50m	1 <sup>st</sup> order	2 artefacts	Moderate	High

## 2. LANDSCAPE CONTEXT

The nature and distribution of Aboriginal cultural materials in a landscape are influenced by the availability of plants, animals, water, raw materials, the location of suitable camping places, ceremonial grounds, burials, and suitable surfaces for the application of rock art or petroglyphs. Environmental factors such as topography, geology, landforms, climate, geomorphology, hydrology and the associated soils and vegetation determine the availability of these resources and influence the degree to which cultural materials have survived.

Both natural and human influences affect the likelihood of sites being detected during ground surface survey. Site detection is dependent on a number of environmental factors including surface visibility (which is determined by the nature and extent of ground cover including grass and leaf litter, and so on) and the survival of the original land surface and associated cultural materials (by flood alluvium and slope wash materials). It is also dependant on the exposure of the original landscape and associated cultural materials (by water, sheet and gully erosion, ploughing, vehicle tracks, and so on) (Hughes and Sullivan 1984). Combined, these processes and activities are used in determining the likelihood of both surface and subsurface cultural materials surviving and being detected.

It is therefore necessary to investigate the natural, human and environmental factors, processes and activities that may affect site location, preservation, and detection during surface survey and the likelihood of in situ subsurface cultural materials being present. These factors, processes and disturbances of the surrounding environment and the specific study area are discussed below.

### 2.1 Topography

The topographical context of the study area is an important tool in identifying factors relating to past Aboriginal land use patterns. The specific study area is situated within the East Maitland Hills physiographic region of the Port Stephens Sheet (Matthei, 1995:2). The extended study area originally consisted of a drainage depression and gently inclined sideslopes (see **Figure 2.1**). The original

topography of the study area has been somewhat disturbed with manufactured drainage lines now running along the northern and eastern borders servicing Renshaw Drive and the M1.

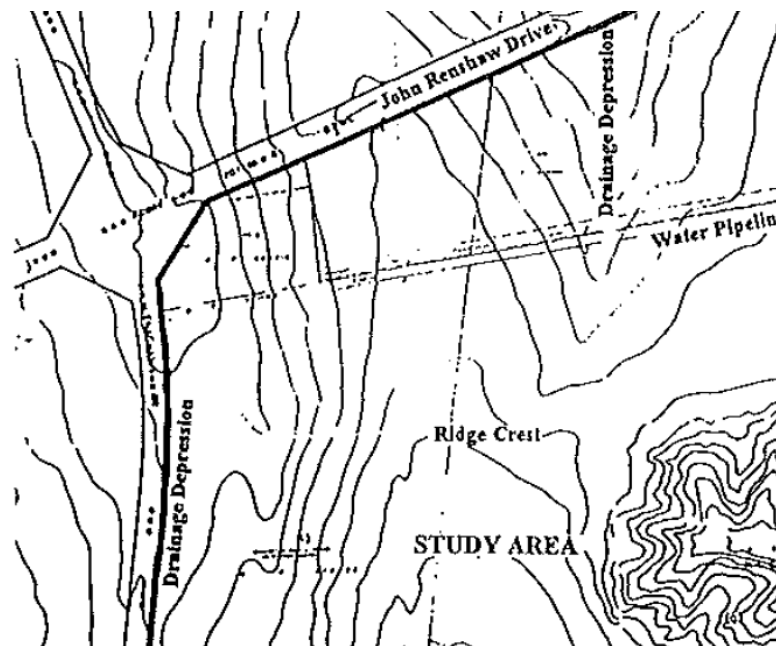


Figure 2.1 Topography of study area as noted by Kuskie (1997)

## 2.2 Geomorphology

The geomorphological evolution of the Newcastle region is complex and there are two major periods that significantly changed the landscape for past Aboriginal occupation of the area. The relevant period of environmental history for Aboriginal occupation is within the last 50,000 years with the critical time being the last 20,000. At the last glacial maximum (20,000 ya), the sea level was about 120 metres lower than present. Sea levels then rose rapidly from about 17,000 ya until 10,000 ya, with sea level rates tapering until the present level that was reached at 6,000 ya. The nearby Hunter River Estuary is typical of the larger NSW estuaries that have evolved over the millennia through various geological developments, climatic periods and sea level variations to the present day. The present day estuary is a drowned river valley with an extensive floodplain delta where the river meanders to the sea. At the height of the Last Glacial period, sea level was at minus 120 metres AHD (Australian Height Datum), and the shoreline was about 30 kilometres seaward of its present position.

Importantly, towards the end of the Last Glacial period, it is likely that the study area was part of, or adjoined an open bay (now known as Hexham Swamp) which was dominated by marine processes and tidal delta deposition. In summary, the study area was most likely favourable for occupation due to its elevation and close proximity to the Hexham Swamp and its resources.

## 2.3 Soils

The study area is within the Beresfield soil landscape which contains the underlying Permian Tomago Coal Measures (shale, mudstone, sandstone, coal, tuff and clay), Permian Mulbring Siltstone (siltstone, claystone, thin sandstone and limestone) and Permian Waratah Subgroup (Matthei, 1995:3). The locality of the study site lies within the Sydney Basin geological region, and is characteristic of the 'Beresfield (Be)' and 'Cockle Creek (Cc)' soil landscapes. Soils within the study area consist of moderately deep, moderately well to imperfectly drained Yellow Podzolic and Brown Podzolic Soils

(sandy loam A Horizon with heavy clay B and C Horizons), with brown Soloths occurring on the crests. The soils are generally slightly to moderately acidic and moderately to highly reactive (Matthei, 1995).

Kuskie (1997), notes that archaeological deposits within the region are mainly Holocene in age and to be found within the A Horizon.

## 2.4 Hydrology

One of the major environmental factors influencing human behaviour is the availability of water and, as such, people will not travel far from reliable water sources unless necessity dictates, such as travelling to obtain rare or prized resources and or trade. Proximity to water not only influences the number of sites likely to be found, but also artefact densities. The highest number of sites and the highest density are usually found in close proximity to water and usually on an elevated landform. Regional archaeological investigations support this modelling with open camp sites typically being within 50 metres of a reliable water source. The main types of water sources include permanent (rivers and soaks), semi-permanent (large streams, swamps and billabongs), ephemeral (small stream and creeks) and underground (aquifer).

Land clearing reduces the opportunity for local ponding of surface water and the installation of gutters, pipes and concrete channels also contributes to hydrological change. As indicated in **Figure 2.1**, a natural drainage depression once existed along the western side of the study area. This has now been highly disturbed and modified with the construction of the M1. Three major wetland systems are located close to the study area: Hexham Wetlands, Tarro swamp and Woodberry swamp. These wetland systems would have been a major source of resources for the Aboriginal occupants of the locality.

## 2.5 Landscape History, Uses and Disturbances

Based upon archaeological evidence, the occupation of Australia extends back over 40,000 years (Hiscock 2008), whilst Aboriginal people have been present within the Hunter Valley for at least 20,000 years (Koettig 1986). Other than the practice of seasonal burning off and the setting of stone fish traps within waterways, very little is known about the effects of Aboriginal occupation on the landscape.

Following European settlement of the area in the 1820s, the landscape in general was subjected to a range of disturbances including extensive clearing, agricultural cultivation, pastoral grazing, residential developments and mining. The more recent construction of the M1 freeway and its associated infrastructure, particularly drainage, has left vegetation within the investigation area virtually non-existent. Drainage ditches have been constructed at the boundary of the road surface and the adjoining bushland. Vegetation remaining in the study area is very sparse, excepting in the area in and adjoining the denoted drainage depression which has relatively thick bushland, the balance of the study area has significant and dense ground cover of grasses.

No sites were identified during the brief walk over. This may be due to a number of reasons including the geomorphic history and landforms rendering the area less favourable for occupation than other nearby more suitable locations, such as elevated landforms closer to more substantial water courses. Other factors affecting the location of sites may include poor visibility and disturbances. The landscape in the immediate vicinity of the study location has been extensively modified to allow for roads, underground services and supporting infrastructure.

## 2.6 Resources

The availability of flora and fauna combined with fresh water sources affected the resources in a given location which, in turn, influenced patterns of past Aboriginal land use and occupation. The availability of flora and fauna would have affected the range of resources available for food, medicine and the manufacture of objects such as fishing nets, string bags, shields, canoes, fur coats and protection from the weather or climate.

In 1825, Edward Sparke Snr received a grant which covered much of present day Beresfield and Tarro (Hartley, 1995:87). Following colonisation and during the 1800's, the European settlers extensively cleared the original native vegetation. However, drainage throughout the area would presumably have supported a limited range of faunal populations including kangaroo, wallaby, goanna, snakes and a variety of birds. A wider variety of resources would have been available in the three major wetland systems located close to the study area: Hexham Wetlands to the east, Tarro swamp to the northeast and Woodberry swamp to the north. These wetland systems would have been a major source of Aboriginal resource exploitation. The nearby third order Viney Creek would have also provided a variety of resources and reliable freshwater. The drainage depression within the study area would have only provided intermittent and ephemeral, water resources.

## 2.7 Ethno-historical

The colonisation of Australia and its associated European settlement has resulted in the destruction of past Aboriginal communities, their culture, social structure, activities and beliefs. In the study region, a minimal amount of information with regards to the Aboriginal traditional way of life prior to colonisation is available. The main sources of information are the historical records of the colonial period, both official reports of exploration or administration, and the unofficial records in the diaries, station journals and reminiscences of those who took up land in the Hunter Valley.

Historic documents indicate that the Pambalong (also known as Bambalong) Tribe occupied the Hexham Swamp area (Gunson 1974:30). It is unclear whether the Pambalong were a subgroup of the Awabakal Tribe or a group in their own right. The Mindaribba Local Aboriginal Land Council is the current custodian of Aboriginal objects and places within the study area.

## 2.8 Models of Past Aboriginal Land Use

One of the main aims of this technical memorandum is to attempt to define both the nature and extent of Aboriginal occupation and past land use within the study area in order to assess whether Aboriginal sites may be present. Combining previous archaeological investigations, the landscape context, registered sites and available resources in the study area provides a model of past Aboriginal land use incorporating variations across the landscape, landforms and assemblages that correspond with variation in the general patterns of landscape use and occupation.

Advitech Environmental recognises that in attempting to devise a model of past Aboriginal land use we lack the knowledge that Aboriginal people have over their land. Aboriginal people have an intimate knowledge and name for every bend in the river, or of a place where an abundance of food was to be found, or where good supplies of water, wood or stone were located (Canon Carlos Stretch Collection, cf. University of Newcastle 2000).

Past Aboriginal land use of the study area is indicated as being a complimentary activity occurring within the foraging radius of a home base camp (approximately 10 km) (Renfrew and Bahn, 1991). On the premise that these sites served as a focus of a specific activity, they will show a low diversity in artefacts and are not likely to contain features reflecting a base camp (such as hearths). However, it is

also possible that the location of certain activities cannot be predicted or identified, adding to the increased dispersal of cultural material across the landscape. If people were opting to carry stone tools during hunting and gathering journeys throughout the area rather than manufacturing tools at task locations, an increased number of used tools can be recovered from low density and dispersed assemblages. Just to the south of the study area, hand excavations at Woods Gully, revealed extremely high artefact densities (Baker 1996), with 1854 artefacts found within an area of 1m<sup>2</sup>.

## 2.9 Predictive Model

Due to issues surrounding the disturbed nature of the study area, ground surface visibility and the fact that the distribution of surface archaeological material does not necessarily reflect that of sub-surface deposits, it is considered essential to establish a predictive model. By combining the previous archaeological studies undertaken throughout the region (see **Section 1.2**), the OEH AHIMS register (see **Section 1.1**) and the landscape context (**Section 2**), a relatively good indication of site types and site patterning can be predicated for the locality of study area. The following predictive model is suggested:

- Moderate potential for occupation sites (artefact scatters and isolated finds) on elevated areas within 100 metres of water courses;
- High potential for occupation sites with higher artefact densities on elevated areas within fifty metres of natural drainage courses;
- Surface artefact scatters are generally low in numbers and density but should not be seen as an indication of the numbers and density of any subsurface artefacts;
- Subsurface artefacts are typically located in the topsoil and shallow 'A' horizons and are particularly subject to post depositional processes;
- Isolated finds may be encountered in any landform;
- Low potential for middens, quarry sites, scarred trees and stone arrangements to occur in the study area.

This base predictive model is then refined taking into account landforms and the occurrence of modern disturbances within the study area. Overall, the study area has been highly affected by vegetation clearance and some form of earth disturbance such as minor excavation or other works. Although not visible, deep ruts can be felt underfoot. Natural drainage lines have been diverted and modernised including the addition of a culvert running east to west. Given the disturbed nature of the site, nearby archaeological sites and the landscape context, very limited evidence of past occupation is expected to occur within the area. There is a low chance that isolated finds and or very low density artefact scatters may be still be present within the study area.

## 3. ARCHAEOLOGICAL SURVEY

### 3.1 Methodology

The study area was surveyed, on foot by Viki Gordon (Advitech Environmental Archaeologist), along with Stephen Knight (Aboriginal Liaison Officer, Roads and Maritime) and representatives from Roads and Maritime and the Aurecon Group. The survey included a single transect varying from one to three metres apart depending on exposures. The survey focused on those areas of exposure that would be impacted by the proposed works in order to identify any surface artefactual evidence.

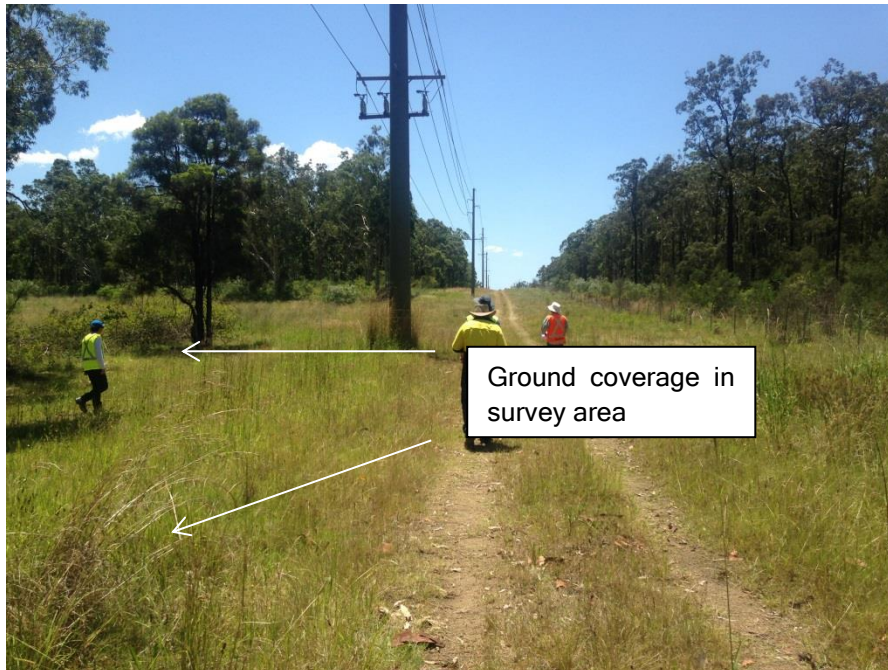


## 3.2 Landforms

Due to the altered and disturbed nature of the limited study area, no landforms were considered to have original surface areas, as evidenced by alteration of the topography, the vegetation clearance and immature regrowth.

## 3.3 Field Survey

The original topography of the investigation area has been highly disturbed. Vegetation in the drainage depression and immediate surrounds alongside dense grass cover over the remainder area restricted ground surface visibility (see **Figure 3.1**).



**Figure 3.1** Looking west along transmission line easement

## 3.4 Effective Coverage of Survey

Effective coverage is an estimate of the amount of ground observed taking into account local constraints on site discovery such as vegetation and soil cover. There are two components to determining the effective coverage: ground surface visibility and ground surface exposure.

### 3.4.1 Ground surface visibility

Ground surface visibility is the amount of the ground surface visible to the observer and what factors limit the detection of surface artefacts. Visibility was hampered by vegetation, plant or leaf litter, loose sand, stony ground and introduced materials (such as rubbish). Ground surface visibility was very poor and considered to be between 0 and 9%. is described as a percentage on the following basis:

### 3.4.2 Ground surface exposure

Ground surface exposure is the amount of surface with a likelihood of revealing subsurface cultural materials rather than just an observation of the amount of bare ground. This is generally attributable to erosion (aggrading, eroding or stable) and the prevailing sedimentary conditions that would be



sufficient to reveal cultural materials on the surface. The ground surface exposure was considered moderate.

The level and nature of the effective survey coverage is considered unsatisfactory to provide an effective assessment of the Aboriginal sites potentially present within the investigation area. The coverage was comprehensive for obtrusive site types (for example, petroglyphs and scarred trees), but somewhat limited for the less obtrusive surface stone artefact sites. Surface visibility constraints included vegetation cover, minimal exposures and alteration of the natural topography.

### 3.5 Results

No objects or sites were identified; this is likely due to the level of impact that has occurred across the study area. It is considered that any surface artefacts present would have most likely been destroyed however, depending on the depth of Horizon A, sub surface deposits, particularly in the drainage depression may still contain evidence of past occupation particularly given Kuskie's (1997) findings and recommendations (See **Section 1.2**).

## 4. CONCLUSION AND RECOMMENDATIONS

In view of the predictive modelling (see **Section 2.8**), the effective coverage results, and Kuskie's Aboriginal Heritage Assessment (1997), it is concluded that this technical memorandum provides an insufficient basis for determining the probable impacts of the proposal. In order to ensure that the OEH *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010) and the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW, 2010) is adhered to it is recommended that a full Due Diligence Assessment be made of the study area and Aboriginal community consultation be obtained.

Advitech Environmental believes that Aboriginal cultural heritage is to be recognised as a finite and valuable and that Aboriginal community members are pivotal in the identification, assessment, and management of Aboriginal cultural heritage, as it is primarily Aboriginal people who should determine the cultural significance of their heritage. Aboriginal cultural heritage input and assessment should be obtained, in regard to the study areas.

### 4.1 Conclusion

No sites or PADs were identified. Proximity to water was an important factor in past occupation of the area, with sites reducing in number significantly away from water, with most sites located within 50 to 100 metres of tributaries. No raw materials typically used in the manufacture of stone tools were sighted. Nearby Viney Creek, Weakleys Creek and the Hexham swamplands nearby would have provided the necessary resources for occupation of the surrounding area. The study area is highly disturbed, thereby further reducing the likelihood of in situ cultural materials to be present. However, there is low potential that intact or *in situ* artefacts that would contribute to archaeological knowledge remain within the study area.

### 4.2 Recommendations

The following recommendations are made:

- The persons responsible for the management of onsite works will ensure that all staff, contractors and others involved in construction and maintenance related activities are made aware of the statutory legislation protecting sites and places of significance. Of particular

importance is the *National Parks and Wildlife Amendment* (Aboriginal Objects and Aboriginal Places) Regulation 2010, under the National Parks and Wildlife Act 1974;

- If the defined areas to be impacted are altered and the location proposed is not within the study area, then further archaeological investigation of the proposed areas to be impacted will be required;
- Further investigation of the study area, in consultation with Local Aboriginal community members, must be undertaken once definitive plans and impacts to the area are known;
- If the construction works are varied to the extent that impact will occur within 5 metres of registered site AHIMS #38-4-0465 (being GPS location AMG 56H LJ Easting 372300 Northing 6368250) may occur, then a fenced buffer zone to protect this site should be erected in case the solitary artefact still remains, if indeed it can be located.

## 5. REFERENCES

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21/01/16

D/00487

Damien Grace  
Infrastructure Development  
Freight & Regional Program  
Roads & Maritime Services  
59 Darby St Cook Hill 2300

Dear Damien

**Preliminary assessment results for D/00487 M1WD (Additional Land Parcel corner of Pacific Motorway and John Renshaw Drive, and potential ancillary site west bound on John Renshaw Drive) based on Stage 1 of the *Procedure for Aboriginal cultural heritage consultation and investigation* (the procedure).**

The project, as described in the Stage 1 assessment checklist (see attached), was assessed as being unlikely to have an impact on Aboriginal cultural heritage.

The assessment is based on the following due diligence considerations:

- The project is unlikely to harm known Aboriginal objects or places.
- The AHIMS search did not indicate moderate to high concentrations of Aboriginal objects or places in the study area.
- The study area does not contain landscape features that indicate the presence of Aboriginal objects, based on the Office of Environment and Heritage's *Due diligence Code of Practice for the Protection of Aboriginal objects in NSW* and the Roads and Maritime Services' procedure.
- The cultural heritage potential of the study area appears to be reduced due to past disturbance.
- There is an absence of sandstone rock outcrops likely to contain Aboriginal art.

Your project may proceed in accordance with the environmental impact assessment process, as relevant, and all other relevant approvals.


If the scope of your project changes, you must contact me and your regional environmental staff Stuart Pigott to reassess any potential impacts on Aboriginal cultural heritage.

If any potential Aboriginal objects (including skeletal remains) are discovered during the course of the project, all works in the vicinity of the find must cease. Follow the steps outlined in the Roads and Maritime Services' *Unexpected Archaeological Finds Procedure*.

**Roads and Maritime Services**

For further assistance in this matter and do not hesitate to contact me.

Yours sincerely / faithfully



Stephen Knight  
Aboriginal Cultural Heritage Advisor – Hunter Region.

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## Activity checklist

Procedure for Aboriginal cultural heritage consultation and investigation - Resource 1

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### 1. Project details

Project name: D/00487 Weakleys Drive Intersection Upgrade

Name of project manager: Damien Grace

Name of Aboriginal cultural heritage advisor: Stephen Knight

Project WBS#: D/00487/C/E1/02

### 2. Purpose of this assessment

This resource provides a checklist of actions associated with the four stages of the *Procedure for Aboriginal cultural heritage consultation and investigation*. It can be used to:

- Assist Roads and Maritime Services staff to ensure that the appropriate actions have been completed for a particular project.
- Demonstrate that the Roads and Maritime Services has been duly diligent in considering potential harm to Aboriginal cultural heritage prior to project implementation.

A copy of this checklist must be kept on the project file.




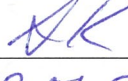

### Glossary

The following terms are used in this resource:

ACHA – Aboriginal cultural heritage advisor  
AFG – Aboriginal focus group meeting  
AHIMS – OEH's Aboriginal heritage information management system  
CHAR – Cultural heritage assessment report  
OEH – Office of Environment and Heritage  
PM – Project manager  
RES – Regional environmental staff  
SES(H) – Senior Environmental Specialist (Heritage)



### 3. Action checklist

Stage	Action	Completed <input checked="" type="checkbox"/>	Date completed and signature
Stage 1	<b>Action 1:</b> Is the activity exempt development in accordance with the <i>Environmental assessment procedure for routine and minor works</i> ? If <b>yes</b> , the project may proceed in accordance with all other relevant approvals. If <b>no</b> , proceed to Action 2.	X	22.01.2016 
	<b>Action 2:</b> Undertake a Basic Search of AHIMS. Are sites located in the study area? If <b>yes</b> , undertake an Extensive Search.	<input checked="" type="checkbox"/>	22.01.2016 
	<b>Action 3:</b> Provide project details and AHIMS results to ACHA and RES.	<input checked="" type="checkbox"/>	22.01.2016 
	<b>Action 4:</b> ACHA and RES to advise PM whether the project is likely to harm Aboriginal objects or places.	<input checked="" type="checkbox"/>	22.01.2016 
	<b>Outcomes:</b> Are known or potential impacts to objects or places likely?  If <b>no</b> , proceed in accordance with all other relevant approvals and environmental impact assessment processes.  If <b>yes</b> , proceed to Stage 2.  <u>Note:</u> For large or complex projects, it may not be feasible to do a Stage 2 survey. Has a cultural heritage constraints mapping been suggested instead? If <b>yes</b> , engage an archaeologist and Aboriginal stakeholders to prepare this.	X <b>Potential impacts on aboriginal objects and places is unlikely.</b>  <b>No further action.</b>	22.01.2016 



## Stage 1 Roads and Maritime Services assessment

Procedure for Aboriginal cultural heritage consultation and investigation: Resource 3

### Aim

The project manager (or their representative) must provide the information requested in this checklist to the regional Aboriginal cultural heritage adviser. This information will assist them in determining whether the project may affect Aboriginal cultural heritage in accordance with Stage 1 of the procedure.

Please **provide** this completed cover sheet, along with the required information, to your regional Aboriginal cultural heritage adviser.

### Contact details for this project

#### Name of project:

D/00487 M1WD Intersection.

#### Project manager

Damien Grace, Project Development Manager, mobile 0411 804 505

#### Environmental officer undertaking/managing the environmental impact assessment

Stuart Pigott, Senior Environmental Officer.

#### Corporate communications officer, if any

Jane Dickinson.

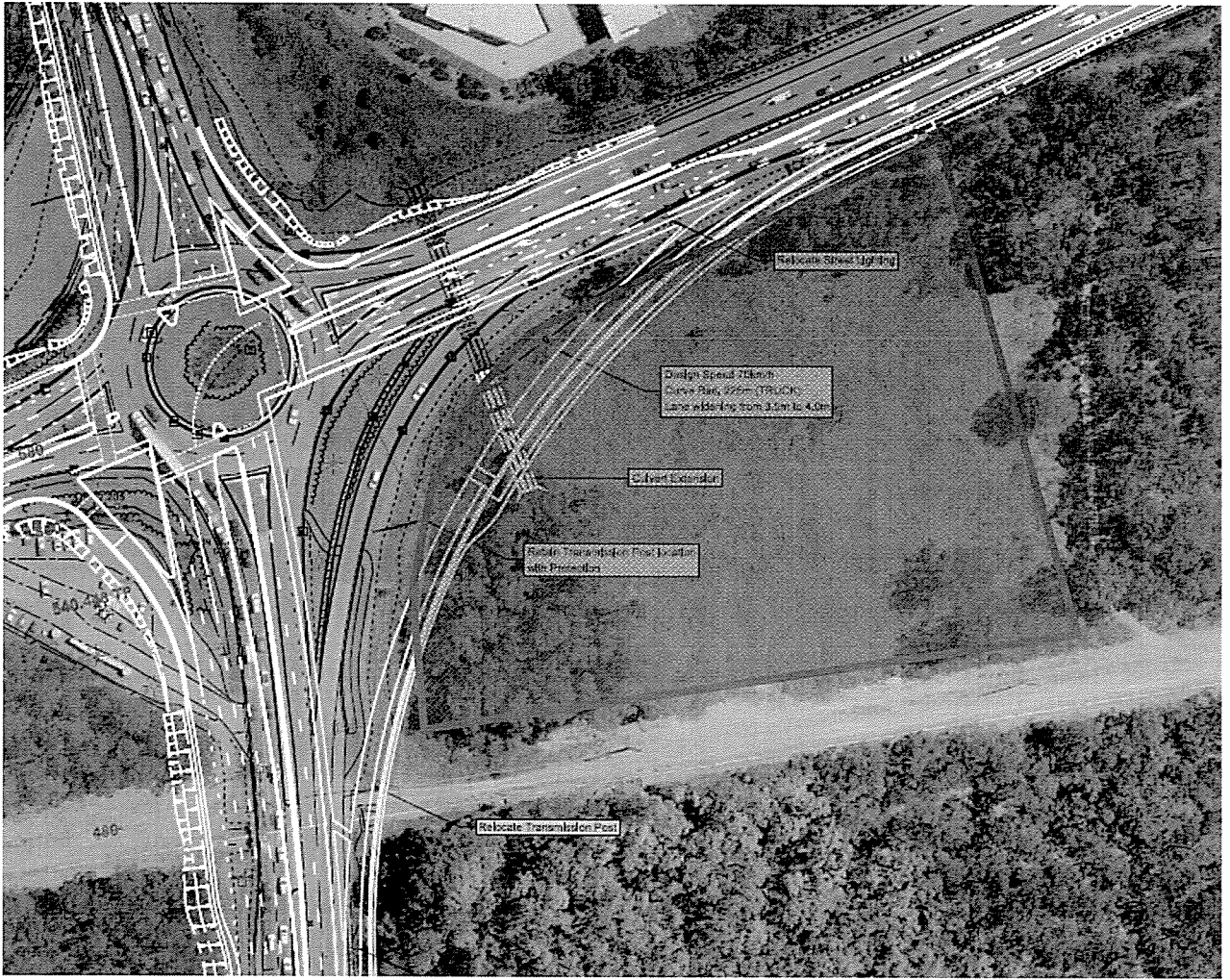
**Date:** 21/01/2016

Action	Status <input checked="" type="checkbox"/>
<p><b>Item 1</b> Attach an overview of the project.</p> <p>The project is an intersection upgrade. The layout is shown attached. This PACHCI process has been undertaken for areas not considered previously considered under Stage 1 and Stage 2 PACHCI processes for the proposal.</p> <p>This includes :</p> <ul style="list-style-type: none"> <li>• A section of vegetated land on the corner of John Renshaw and the M1 Motorway to account for a large radius curve.</li> <li>• A cleared parcel of land westbound on John Renshaw Drive that may be used as an ancillary site.</li> </ul>	<p style="text-align: center;"><input checked="" type="checkbox"/></p>

<p><b>Item 2</b> Attach a map/plan of the study area that clearly outlines the extent and scope of the project. The map/plan should also include topographical information where available.</p> <p>Attached.</p>	<input checked="" type="checkbox"/>
<p><b>Item 3</b> If land acquisition is required, provide details about this.</p> <p>The extent of land acquisitions, if required, are not known at this stage.</p>	NA
<p><b>Item 4</b> Attach a brief description of current and past land use, where known.</p> <p>The parcel on the corner on the intersection with John Renshaw Dr and the Pacific motorway is a vegetated drainage line. It is surrounded by infrastructure (Roads and power).</p> <p>The cleared parcel of land site on John Renshaw drive is suggested of former use for construction and/or disposal of spoil material and stockpiles. The ground surface is highly uneven.</p>	<input checked="" type="checkbox"/>
<p><b>Item 5</b> Describe the timeframe for the project along with key milestones and deliverables.</p> <p>The project is in the concept design phase.</p>	<input checked="" type="checkbox"/>
<p><b>Item 6</b> Please attach the results of the Office of Environment and Heritage's Aboriginal Heritage Information Management System (<b>AHIMS</b>) <b>Basic Search</b> - <a href="http://www.environment.nsw.gov.au/licences/WhatInformationCanYouObtainFromAHIMS.htm">http://www.environment.nsw.gov.au/licences/WhatInformationCanYouObtainFromAHIMS.htm</a></p> <p>Results of OEH searches are in the attached PEI.</p>	<input checked="" type="checkbox"/>
<p><b>Item 7</b> Attach the results of the following heritage searches relevant to the study area:</p> <ul style="list-style-type: none"> <li>• Native Title Register search</li> <li>• State Heritage Inventory search</li> <li>• Australian Heritage Database search</li> </ul>	X
<p><b>Item 8</b> Attach a copy of any heritage assessment (Aboriginal or non-Aboriginal) previously prepared for the study area/project?</p> <p>Results of previous heritage assessments are in the attached PEI. Previous PACHCI stage 1 and stage 2 processes have been completed for the project. These are available in Objective.</p>	<input checked="" type="checkbox"/>
<p><b>Item 9</b> Attach a copy of any environmental impact assessment previously prepared for the study area/project?</p> <p>The PEI is attached.</p>	<input checked="" type="checkbox"/>

Item 1 and Item 2 . Overview of Project, Map and Plan of Area.





Approximate area of PACHCI assessment.