Appendix E

Cultural heritage report

Highlands Source Project

Cultural Heritage Assessment: Addendum Report

August 2010

A Report to GHD

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GLOSSARY OF TERMS

Concept design	Initial functional layout of a concept, such as for the proposed duplication, to provide a level of understanding to later establish detailed design parameters.
Consent	Approval to undertake a development received from the consent authority.
Construction Environmental Management Plan	A document setting out the management, control and monitoring measures to be implemented during construction of a development, to avoid or minimise the potential environmental impacts identified during an environmental impact assessment process.
Curtilage	The area attached to a dwelling, house, building or object which forms part of its enclosure.
Cut	An excavation for constructing below the natural ground level.
Cut and fill balance	Difference between earthwork cut and fill volumes.
Detailed design stage	The stage at which the project design is detailed on the basis of an approved concept design.
Director-General's Requirements	Requirements for an environmental assessment issued by the Director-General of the NSW Department of Planning in accordance with the *Environment Planning and Assessment Act 1979*.
Erosion	A natural process where wind or water detaches a soil particle and provides energy to move the particle.
Fauna	The animals of a given region or period, taken collectively.
Flora	Plants of a particular region that make up the vegetation of a site.
Gradient	The degree of ascent or descent with a uniform slope.
Mitigation	Reduction in severity.
Option	A concept design alternative developed for consideration.
Plant	Construction machinery, vehicles or equipment needed to carry out mechanical or construction activities.
Precautionary principle	If there are threats of serious or irreversible damage, lack of full scientific uncertainty should not be used as a reason for postponing measures to prevent environmental damage.
Proponent	Goulburn Mulwaree Council (GMC).
Project	Refers to the proposed Highlands Source Project. Broadly, the Project comprises of a proposed pipeline *ca.* 83 km in length to deliver water from the Wingecarribee Reservoir to the City of Goulburn in NSW.
Rail corridor	The area of land dedicated to the Australian Rail Track Corporation.
Sediment	Material of varying sizes that has been or is being moved from its site of origin by the action of wind, water or gravity.
Site compound	Area enclosing construction machinery, stockpiles and site offices usually adjacent to construction sites.
Study area	The study area for this project is defined as described in Section 1 of this document.

ACRONYMS AND ABBREVIATIONS

BNAC	Buru Ngunawal Aboriginal Corporation
EA	Environmental Assessment
EP&A Act	*Environment Planning and Assessment Act 1979*.
DCSs170	Department of Corrective Services s170 Register
DECCW	Department of Environment, Climate Change and Water
DHs170	Department of Health s170 Register
DoP	Department of Planning
DGR(s)	Director-General's Requirement(s)
GAHAI	Gundungurra Aboriginal Heritage Association
GMC	Goulburn Mulwaree Council
GTA	Gundungurra Tribal Aboriginal Corporation
HSP	Highlands Source Project
HSPH	Highlands Source Project - Historical
HI	NSW Heritage Inventory
HR	NSW Heritage Register
ILALC	Illawarra Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
NHL	National Heritage List
NSW	New South Wales
PAD	Potential Archaeological Deposit
PLALC	Pejar Local Aboriginal Land Council
RNE	Register of the National Estate
RCs170	Rail Infrastructure Corporation s170 Register
SCA s170	Sydney Catchment Authority s170 Register
WSC	Wingecarribee Shire Council
WTP	Water Treatment Plant

EXECUTIVE SUMMARY

Project Background

Goulburn has faced severe drought and water restrictions since 2002. By mid 2007 Goulburn had less than 12 months' water supply available. Goulburn Mulwaree Council (GMC), in conjunction with a State Government Task Force, identified an Emergency Pipeline from Wingecarribee Reservoir as the best means of overcoming the emergency and drought proofing Goulburn for the future (GMC & DoC, 2007). Subsequent rains in June 2007 removed the emergency aspect of the project; however the need for improved water security remains.

Since 2007, a range of options for securing Goulburn's water supply have been investigated. GMC has prepared a draft Integrated Water Cycle Management (IWCM) Strategy that will outline actions for improving long term water sustainability. The IWCM was released in May 2010 and the Highlands Source Project will be an integral part of this Strategy. Additionally, the Department of Commerce and GMC has undertaken a Goulburn Water Supply Strategy Review, in which the Highlands Source Project (referred to as 'the Project') was identified as the best solution for improving the city's water security.

The Project is to construct and operate the water supply scheme that would transfer water from the Wingecarribee Water Supply Reservoir to the Goulburn Water Treatment Plant (WTP). The scheme comprises approximately 81 km of DN 300 mm and DN 375 mm diameter pipeline, an offtake and pump station at the Wingecarribee Reservoir site, power supply and controls and a telemetry system.

The pipeline easement is to be constructed predominantly adjacent to existing infrastructure easements. The pipeline crosses 138 watercourses (including drainage lines, creeks and rivers), 68 roads (including RTA roads, local council roads, rural roads, unnamed roads) and 5 railway lines.

The proposed Highlands Source Pipeline will be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A ACT).

A preliminary desktop assessment for the Project was undertaken by Navin Officer Heritage Consultants (NOHC) (2009). That study considered potential impacts to heritage items across a broad corridor corresponding to an initial preferred pipeline route.

The cultural heritage assessment of the proposed pipeline route was completed by NOHC in two stages. The first was conducted during November and December 2009 and included literature review and database searches, field inspections and Aboriginal consultation (2010).

This report details the results of the second stage of field assessment conducted during May and June 2010 and is an addendum to the former report.

Previously Recorded Aboriginal and Historic Sites

Searches of the DECCW Aboriginal Heritage Information Management System (AHIMS) identified 77 Aboriginal sites within an area one kilometre either side of the proposed HSP pipeline route. Two previously recorded Aboriginal sites (listed on AHIMS) are located within 100 m of the proposed HSP pipeline easement (AHIMS 51-6-0113 and 51-6-0115).

Searches of heritage databases and topographic maps identified 49 historical heritage items in areas along or near the HSP pipeline route. The proposed HSP pipeline easement intersects or directly abuts the curtilage of seven items that are currently listed on statutory registers.

The items comprise five sites that are listed on the Goulburn Mulwaree Shire LEP (*Lockyersleigh*: Item 33, *Teneriffe*: Item 238, *Kenmore Psychiatric Hospital Complex*: Item 292 and *Veterans Allotments:* Items 344 and 348), and two that are on the Wingecarribee Shire LEP (*Spring Grove Farm*: Item 2680492 and *Tudor House*: Item 2680046). The *Teneriffe* dwelling and the *Tudor House* school site are also listed on the NSW Heritage Inventory, while the *Kenmore Psychiatric Hospital Complex* is also listed on the NSW Heritage Register, the Register of the National Estate, the

National Heritage List and the Department of Health s170 register. The *Lockyersleigh* homestead and gardens are also listed on the Register of the National Estate.

Survey Results

Over the course of both stages of field work, a total of about approximately 85% (68 km) of the proposed pipeline was surveyed. Within the Southern Tablelands section, in the Goulburn Mulwaree LGA, approximately 37.6 km of the 40 km of Environmental Assessment (EA) corridor were surveyed. Within the Southern Highlands section, in the Wingecarribee LGA, approximately 30.4 km of the 40 km of EA corridor were surveyed.

In the course of the 2009 field survey for the HSP a total of five isolated finds, 13 artefact scatters and seven areas of potential archaeological deposit (PAD) were recorded. Eight of the abovementioned artefact scatters also had areas of PAD associated with the surface distribution of artefacts.

In addition to the seven previously identified European heritage items along the pipeline easement, three more heritage items were identified during stage 1 surveys for the Project. These items consist of two lots of house ruins (Highlands Source Project – Historical [HSPH] 1 and HSPH3) and a brick bridge (HSPH2).

During stage 2 of field survey for the HSP a total of three isolated finds, 10 artefact scatters and one new area of PAD were recorded. Three of the abovementioned artefact scatters also had associated areas of PAD.

An additional three European heritage items were identified during stage 2 of field survey for the Project. These items are all various forms of house ruins (HSPH4-6).

Cultural Heritage Impacts

In terms of specific impacts at Aboriginal sites, the main risks relate to the construction phase of the Project. The sites that will be directly impacted are HSP5, HSP6, HSP7, HSP8, HSP12, HSP15, HSP16, HSP17, HSP18, HSP20, HSP23, HSP24, HSP25, HSP26 (HSP PAD4), HSP29, HSP30, HSP31, HSP PAD1, HSP PAD2, HSP PAD3, HSP PAD5, HSP PAD6, HSP PAD7 and HSP PAD8.

As is the case with Aboriginal sites, the main risks associated with European sites relate to the construction phase of the HSP. The only sites that will potentially be directly impacted by the Project are the ruins at HSPH6 and the Veteran's Allotments. However, it should be noted that the impacts proposed within the Veteran's Allotments would be restricted to a narrow corridor between two existing easements (the gas pipeline to the north and the railway to the south). Given that impacts would be within an already disturbed portion of these allotments and that impacts would be similar to those already sustained by the neighbouring easements, the overall impact on the heritage value of these allotments is assessed to be negligible.

Conclusions and Recommendations

The 2009 and 2010 field surveys and the associated stages of cultural heritage assessment have considered potential impacts to both previously identified heritage sites and items identified in the course of survey along the proposed pipeline route. In addition, these recommendations include a management strategy for the one remaining area of high potential that could not be physically inspected (HSP PAD8).

It is recommended that:

- No action is required for HSP2.

    - The sites HSP1, HSP3, HSP4, HSP9, HSP10, HSP11, HSP13, HSP14, HSP19, HSP22, HSP27, HSP28 and the Possible Aboriginal Site should be fenced prior to commencement of construction and their locations should be clearly marked on all relevant maps and plans (these measures should also be considered for the previously recorded AHIMS sites 51-6-

0364 and 51-6-0115, which are not within the EA corridor but are situated in proximity to the proposed pipeline).

- Prior to commencement of construction activities, salvage of artefacts should be conducted at HSP6, HSP12, HSP18, HSP24, HSP29, HSP30 and HSP31.

- Prior to commencement of construction activities, salvage of artefacts should be conducted at HSP5, HSP7, HSP8, HSP15, HSP17, HSP20, HSP23, HSP25 and HSP26 (PAD4) and, a program of archaeological subsurface testing should be conducted within the affected sections of PAD at these sites; depending upon the results of that testing, it may be necessary to undertake salvage excavations in these locations.

- A program of archaeological subsurface testing should be conducted within the affected sections of HSP PAD1, HSP PAD2, HSP PAD3 HSP PAD4, HSP PAD5, HSP PAD6, HSP PAD7 and HSP PAD8 and, depending upon the results of that testing, it may be necessary to undertake salvage excavations in these locations.

- The artefacts recorded at site HSP16 should be fenced prior to commencement of construction and their locations clearly marked on all relevant maps and plans. In addition, a program of archaeological subsurface testing should be conducted within the affected sections of PAD; depending upon the results of that testing, it may be necessary to undertake salvage excavations at this site.

- Site HSP21 should be fenced prior to commencement of construction activities and the width of the pipeline corridor be limited as necessary.

- Prior to commencement of construction activities, a statement of heritage impact should be prepared and submitted to Goulburn Mulwaree Council for the two Veteran Allotments on the Wollondilly River at Murrays Flat.

- Sites HSPH1, HSPH2, HSPH3, HSPH4 and HSPH5 should be fenced prior to commencement of construction and their location should be clearly marked on all relevant maps and plans.

- Prior to commencement of construction activities, an archival recording should be completed of site HSPH6 with monitoring carried out during construction. The width of the pipeline corridor should be limited where feasible adjacent this site. Depending upon the results of monitoring, it may be necessary to undertake salvage excavations at this location.

- The following heritage items will not be impacted by the Project, however it would be prudent given their proximity to the pipeline to mark their location on all relevant maps and plans:

    a. The dwelling at Teneriffe;

    b. Conservation area at the Kenmore Psychiatric Hospital Complex;

    c. The homestead and gardens at Lockyersleigh;

    d. The house and gardens at Spring Grove Farm; and

    e. The Tudor House Preparatory School buildings and gardens.

CONTENTS

1. INTRODUCTION

This cultural heritage assessment is an addendum to the *Highlands Source Project: Cultural Heritage Assessment* (NOHC 2010). The heritage assessment for this addendum report has been undertaken by Navin Officer Heritage Consultants; it was commissioned by GHD on behalf of the Goulburn Mulwaree Council (GMC) for the Highlands Source Project (referred to as 'the Project'). This report has been prepared to assess potential impacts to indigenous and non-indigenous heritage sites located within, and/or adjacent areas that will be impacted during construction and operation phases of the Project.

1.1 Background

Goulburn has faced severe drought and water restrictions since 2002. By mid 2007 Goulburn had less than 12 months' water supply available. GMC, in conjunction with a State Government Task Force, identified an Emergency Pipeline from Wingecarribee Reservoir as the best means of overcoming the emergency and drought proofing Goulburn for the future (GMC and DoC, 2007). Subsequent rains in June 2007 removed the emergency aspect of the project; however the need for improved water security remains.

Since 2007, a range of options for securing Goulburn's water supply have been investigated. GMC has prepared a draft Integrated Water Cycle Management (IWCM) Strategy that will outline actions for improving long term water sustainability. The IWCM was released in May 2010 and the Highlands Source Project will be an integral part of this Strategy. Additionally, the Department of Commerce and GMC has undertaken a Goulburn Water Supply Strategy Review, in which the Highlands Source Project (referred to as 'the Project') was identified as the best solution for improving the city's water security.

A preliminary desktop assessment for the Project was undertaken by Navin Officer Heritage Consultants (NOHC) (2009). That study considered potential impacts to heritage items across a broad corridor corresponding to an initial preferred pipeline route.

The cultural heritage assessment of the proposed pipeline route was completed by NOHC in two stages. The first was conducted during November and December 2009 and included literature review and database searches, field inspections and Aboriginal consultation (2010).

In the course of the 2009 field survey for the HSP a total of five isolated finds, 13 artefact scatters and seven areas of potential archaeological deposit (PAD) were recorded. Eight of the abovementioned artefact scatters also had areas of PAD associated with the surface distribution of artefacts.

In addition to the seven previously identified European heritage items along the pipeline easement, three more heritage items were identified during stage 1 surveys for the Project. These items consist of two lots of house ruins (Highlands Source Project – Historical [HSPH] 1 and HSPH3) and a brick bridge (HSPH2).

1.2 Description of the Project

The Project is to construct and operate the water supply scheme that would transfer water from the Wingecarribee Water Supply Reservoir to the Goulburn Water Treatment Plant (WTP).

The proposed pipeline is approximately 81 km in length and is located within the local government areas of Wingecarribee Shire and Goulburn Mulwaree (Figure 1.1). The necessary ancillary infrastructure includes an offtake and pump station at the Wingecarribee Reservoir site, power supply and controls, and a telemetry system.

The pipeline easement is to be constructed predominantly adjacent to existing infrastructure easements. The pipeline crosses 138 watercourses (including drainage lines, creeks and rivers), 68 roads (including RTA roads, local council roads, rural roads, unnamed roads) and 5 railway lines.

The project involves the construction of the key infrastructure elements:

- An 81 km DN300 and DN375 pipeline including scour valves, air valves and divide valves;
- A raw water pump station located at the Wingecarribee Reservoir; and
- Connections to the Goulburn Mulwaree water supply at the outlet point.

The key construction activities include:

- Constructing the water intake infrastructure at the Wingecarribee Reservoir site;
- Trench excavations and placement of the pipeline to the off-take point at Goulburn;
- Constructing railway, road, services and watercourse crossings;
- Reinstatement/revegetation of the construction corridor; and
- Commissioning of the water transfer scheme.

1.3 Legislative Approval and Requirements

The proposed Highlands Source Pipeline will be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A ACT).

The Director-General's Requirements (DGR) for the Project, with regard to heritage impacts, are that the EA must:

- Include sufficient information to demonstrate the likely impacts on Aboriginal heritage values (archaeological and cultural);
- Outline proposed mitigation measures consistent with the Draft *Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC 2005); and
- Demonstrate effective consultation with Aboriginal communities has been undertaken in determining and assessing impacts, developing options and selecting options and mitigation measures.

This cultural heritage assessment has been prepared in keeping with these DGRs. Further details of the relevant sections of the report that document how these requirements have been addressed are provided below in Section 1.5.

1.4 Objectives and Purpose of this Report

This report:

- Is an addendum to the Highlands Source Pipeline Cultural Heritage Assessment Report (NOHC 2010);
- Documents consultation with local Aboriginal communities carried out in the course of 2010 survey for the cultural heritage assessment, as per the DGRs (Section 2);
- Outlines the research and field methodologies employed in the 2009 and 2010 field survey (Section 3);
- Describes the results of the 2010 field survey and Aboriginal consultation program conducted in the context of the assessment, as per the DGRs (Section 4);
- Provides an assessment of the significance of sites recorded during 2010 field survey (Section 5);

- Provides an overview of relevant legislation (Section 6);
- Discusses likely impacts to sites recorded during 2009 and 2010 field survey, as per the DGRs (Section 7);
- Outlines proposed mitigation measures for all recorded sites, as per the DGRs (Section 8); and
- Provides management recommendations based on the results of the investigation (Section 9).

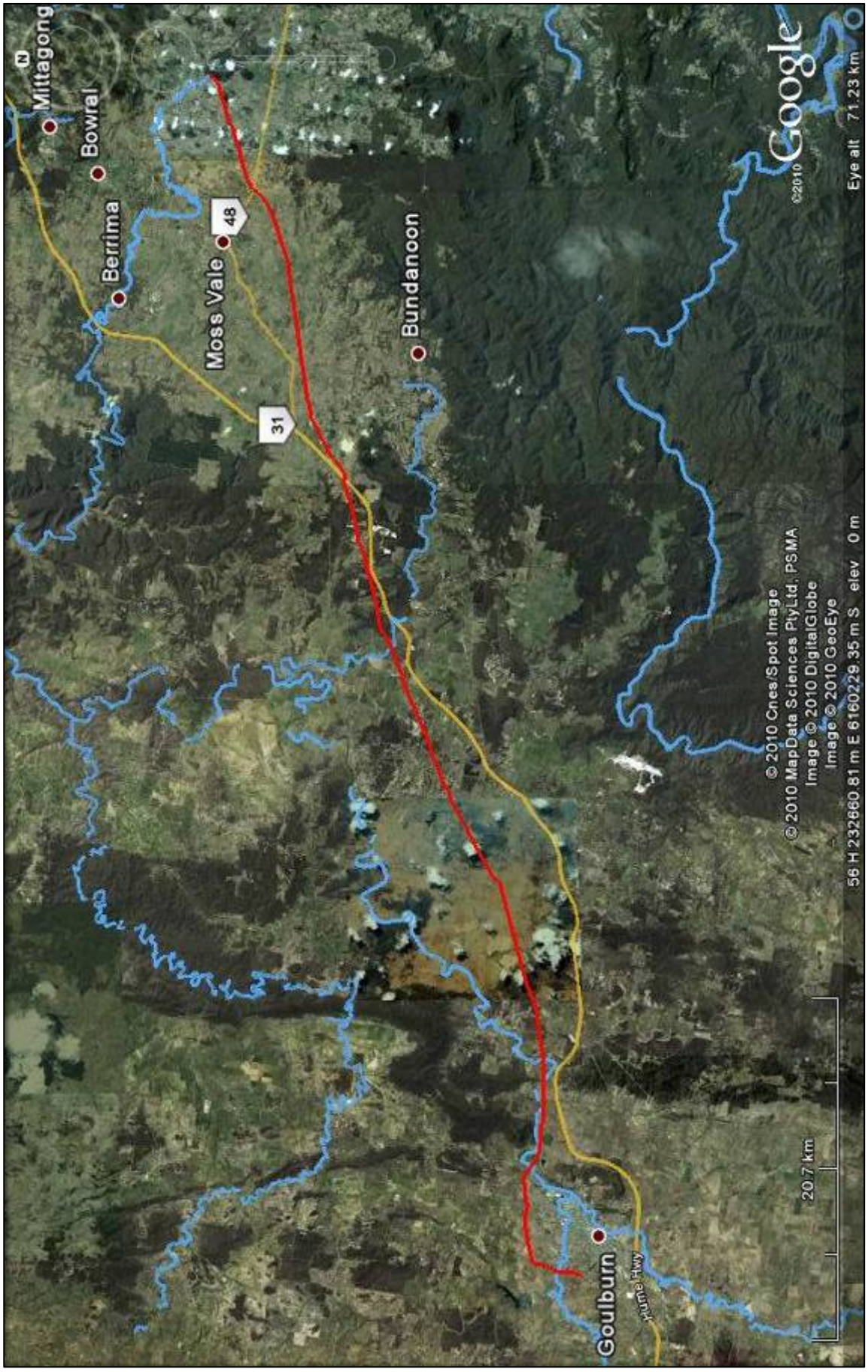

Figure 1.1 The Highlands Source Project proposed pipeline alignment
(Basemap from Google Earth 2010)

2. ABORIGINAL CONSULTATION AND CULTURAL VALUES

2.1 Interim Guidelines for Aboriginal Community Consultation

Due to time constraints associated with the HSP, the DECCW *Interim Community Consultation Requirements* were implemented concurrently with the first stage of field investigations for the Environmental Assessment. Nevertheless, every effort has been made to identify and consult with potential stakeholders regarding mitigation measures and development impacts. While the fieldwork was already underway when the consultation process began, all of the registered stakeholders have been consulted regarding potential heritage impacts, development options and mitigation measures, as per the DGRs.

Details of the Aboriginal community consultation process are as follows:

An advertisement was placed in the:

- *Goulburn Post* (2 December 2009).

Letters were sent to the:

- Pejar Local Aboriginal Land Council (PLALC);
- Illawarra Local Aboriginal Land Council (ILALC);
- Office of the Registrar Aboriginal Land Rights Act 1983;
- NSW Native Title Services;
- NSW DECCW;
- Goulburn Mulwaree Council; and
- Wingecarribee Shire Council.

The closing date for expressions of interest was 16 December 2009.
Responses to the advertisement and letters were received from:

- Mr Walter R Bell, Buru Ngunawal Aboriginal Corporation (BNAC);
- Goulburn Mulwaree Council; and
- Office of the Registrar Aboriginal Land Rights Act 1983.

Following advice received from DECCW, additional letters were sent to:

- The Ngunnawal Elders Corporation;
- Peter Falk;
- Ngunnawal Elder;
- The Gundungurra Aboriginal Heritage Association Inc. (GAHA);
- Ngunawal Heritage Aboriginal Corporation;
- Konanggo Aboriginal Cultural Heritage Services;
- Dean Bell - Yurwang Gundana Consultancy Cultural Heritage Services; and
- Carl and Tina Brown.

The closing date for expressions of interest was 11 January 2010.
Responses to the letters and additional registrations of interest were received from:

- Dorothy Carroll, Ngunawal Heritage Aboriginal Corporation;
- Buru Ngunawal Aboriginal Corporation;
- Peter Falk;

- Sharyn Halls, Gundungurra Aboriginal Heritage Association Inc.; and
- Carl Brown, King Brown Tribal Group Pty Ltd.

A draft copy of this addendum, accompanied by an invitation for comments, was provided via email to all of the registered stakeholders on 30 July 2010.

2.2 Aboriginal Field Participation

The study area for the Highlands Source Project extends across the boundaries of the Pejar Local Aboriginal Land Council (PLALC) and the Illawarra Local Aboriginal Land Council (ILALC). It also coincides with part of an area that is subject to a native title claim (NC 97/7 – NOHC 2010) by the Gundungurra Tribal Aboriginal Corporation (GTAC).

Invitations to participate in the field survey were extended to the PLALC, the ILALC and the Gundungurra Aboriginal Heritage Association Inc. (GAHAI). Representatives from these three organisations participated in various phases of the fieldwork, subject to the location of field investigations and the availability of representatives from the relevant organisations. Copies of the records of Aboriginal participation are provided in Appendix 2 along with a copy of a field report provided by ILALC.

2.3 Aboriginal Cultural Values

Comments and input regarding the Aboriginal cultural heritage values relevant to the Project were invited from the representatives who participated in the field survey. No specific information was provided regarding the Aboriginal cultural values of sites identified during the current survey investigations.

3. STUDY METHODOLOGY

3.1 Literature and Database Review

A range of archaeological and historical data was reviewed for the HSP study area and its surrounds. This literature and data review was used to determine if known Aboriginal and historical sites were located within the area under investigation, to facilitate site prediction on the basis of known regional and local site patterns, and to place the area within an archaeological and heritage management context. The review of documentary sources included heritage registers and schedules, local histories, and archaeological reports.

Aboriginal literature sources included the Aboriginal Heritage Information Management System (AHIMS) maintained by the Department of Environment, Climate Change and Water (DECCW) and associated files and catalogue of archaeological reports. Sources of historical information included regional and local histories, heritage studies and theses; parish maps; and where available, other maps, such as portion plans.

Searches were undertaken of the following statutory and non-statutory heritage registers and schedules:

- Statutory Listings:
  - Aboriginal Heritage Information Management System (AHIMS) (NSW DECCW);
  - The National Heritage List (Australian Heritage Council);
  - The Commonwealth Heritage List (Australian Heritage Council);
  - The State Heritage Register (NSW Heritage Office);
  - Heritage Schedule from the Goulburn Mulwaree Local Environmental Plan 2009;
  - Heritage Schedule from the Wingecarribee Draft Local Environmental Plan 2009;
  - Section 170 Heritage and Conservation Register compiled by the NSW Department of Health (DH);
  - Section 170 Heritage and Conservation Register compiled by RailCorp (RC);
  - Section 170 Heritage and Conservation Register compiled by the NSW Department of Corrective Services (DCS); and
  - Section 170 Heritage and Conservation Register compiled by the Sydney Catchment Authority (SCA).
- Non-Statutory Listings:
  - The Register of the National Estate (Australian Heritage Council); and
  - The State Heritage Inventory (NSW Heritage Office).

3.2 Fieldwork and Project Personnel

Fieldwork was conducted during May and June 2010 by Rebecca Parkes, Nicola Hayes, and Phillip Byron and representatives of PLALC, ILALC and GAHAI (refer to Section 2).

Field survey for this second phase of heritage assessment involved:

- comprehensive inspection on foot, of all areas where land access was secured: survey was targeted on areas not previously surveyed, sections where the proposed pipeline alignment had been varied and previously identified sites and PADs where impacts were anticipated – this last component was included in order to ensure that the survey accounted for changes in visibility as well as enabling confirmation of the extent of potential impacts relative to surface sites and PADs; and

- systematic assessment of landscape disturbance and archaeological potential across all surveyed areas.

This report was prepared by Rebecca Parkes and Christine Gant-Thompson.

3.3 Recording Parameters

3.3.1 Aboriginal Sites and PADs

The archaeological survey aimed at identifying material evidence of Aboriginal occupation as revealed by surface artefacts and areas of archaeological potential unassociated with surface artefacts. Potential recordings fall into two broad categories: sites and potential archaeological deposits (PADs).

Sites

A site is defined as any material evidence of past Aboriginal activity that remains within a context or place which can be reliably related to that activity.

Most Aboriginal sites are identified by the presence of three main categories of artefacts: stone or shell artefacts situated on or in a sedimentary matrix, marks located on or in rock surfaces, and scars on trees.

Frequently encountered site types within southeastern Australia include stone artefact occurrences - including isolated finds and open artefact scatters, coastal and freshwater middens, rock shelter sites - including occupation deposit and/or rock art, grinding groove sites and scarred trees. For the purposes of this section, only the methodologies used in basic site identification are outlined, together with those for the recording types encountered by this investigation.

Stone Artefact Occurrences

Stone artefact occurrences are the most commonly recorded site type in Australia. They may consist of single artefacts - described as isolated finds; or as a distribution of more than one artefact – often described as an artefact scatter or 'open camp site' when recording surface artefacts, or as a subsurface artefact distribution when dealing with an archaeological deposit.

Where artefact incidence is very low, either in terms of areal distribution (artefacts per square metre) or density (artefacts per cubic metre), then the differentiation of the recording from background artefacts counts or *background scatter* may be an issue.

Isolated finds

An isolated find is a single stone artefact, not located within a rock shelter, and which occurs without any associated evidence of Aboriginal occupation within a radius of 60 metres. Isolated finds may be indicative of:

- Random loss or deliberate discard of a single artefact;
- The remnant of a now dispersed and disturbed artefact scatter; and
- An otherwise obscured or sub-surface artefact scatter.

Except in the case of the latter, isolated finds may be considered to be constituent components of the *background scatter* present within any particular landform. The distance used to define an isolated artefact varies according to the survey objectives, the incidence of ground surface exposure, the extent of ground surface disturbance, and estimates of *background scatter* or *background discard* densities. In the absence of baseline information relating to background scatter densities, the defining distance for an isolated find must be based on methodological and visibility considerations. Given the varied incidence of ground surface exposure and deposit disturbance within the study area, and the lack of background baseline data, the specification of 60 metres is considered to be an effective parameter for surface survey methodologies. This distance provides a balance between detecting fine scale patterns of Aboriginal occupation and avoiding environmental biases caused by

ground disturbance or high ground surface exposure rates. The 60 metre parameter has provided an effective separation of low density artefact occurrences in similar southeast Australian topographies outside of semi-arid landscapes.

Background scatter

Background scatter is a term used generally by archaeologists to refer to artefacts which cannot be usefully related to a place or focus of past activity (except for the net accumulation of single artefact losses).

There is no single concept for background discard or 'scatter', and therefore no agreed definition. The definitions in current use are based on the postulated nature of prehistoric activity, and often they are phrased in general terms and do not include quantitative criteria. Commonly agreed is that background discard occurs in the absence of 'focused' activity involving the production or discard of stone artefacts in a particular location. An example of unfocused activity is occasional isolated discard of artefacts during travel along a route or pathway. Examples of 'focused activity' are camping, knapping and heat-treating stone, cooking in a hearth, and processing food with stone tools. In practical terms, over a period of thousands of years an accumulation of 'unfocused' discard may result in an archaeological concentration that may be identified as a 'site'. Definitions of background discard comprising only qualitative criteria do not specify the numbers (numerical flux) or 'density' of artefacts required to discriminate site areas from background discard.

Artefact scatters

Artefacts situated within an open context are classed as an open artefact scatter (or ‘open camp site’) when two or more occur no more than 60 metres away from any other constituent artefact. The 60 metre specification relates back to the definition of an isolated find (*Refer above*). The use of the term *scatter* is intended only to be descriptive of the current archaeological evidence and does not infer the original human behaviour which formed the site. The term *open camp site* has been used extensively in the past to describe open artefact scatters. This was based on ethnographic modelling suggesting that most artefact occurrences resulted from activities at camp sites. However, in order to separate the description from the interpretation of field evidence, the terms *artefact scatter*, *artefact distribution* or *artefact occurrence* are now more extensively used. The latter two options can also be used to categorise artefacts occurring in sub-surface contexts.

Potential Archaeological Deposits

A potential archaeological deposit, or PAD, is defined as any location where the potential for subsurface archaeological material is considered to be moderate or high, relative to the surrounding study area landscape. The potential for subsurface material to be present is assessed using criteria developed from the results of previous surveys and excavations relevant to the region. Where necessary, PADs can be given an indicative rating of their ‘archaeological potential’ based on a combined assessment of their potential to contain artefacts, and the potential archaeological value of the deposit. Table 3.1 illustrates the matrix on which this assessment is based. Locations with low potential for artefacts fall below the threshold of classification. In such cases the potential incidence of artefactual material is considered to be the same as, or close to that for background scatter. Where there is moderate potential for artefacts, the predicted archaeological potential parallels the potential significance of the deposit. For deposits with high potential for artefacts, the assessed archaeological potential is weighted positively.

The boundaries of PADs are generally defined by the extent of particular micro-landforms known to have high correlations with archaeological material. A PAD may or may not be associated with surface artefacts. In the absence of artefacts, a location with potential will be recorded as a PAD. Where one or more surface artefacts occur on a sedimentary deposit, a PAD may also be identified where there is insufficient evidence to assess the nature and content of the underlying deposit. This situation is due mostly to poor ground surface visibility.

Table 3.1 Matrix showing the basis for assessing the archaeological potential (shown in bolded black text) of a potential archaeological deposit.

		Potential to contain Aboriginal objects		
		Low	*Moderate*	*High*
Potential archaeological significance	*Low*	---	**low**	**moderate**
	Moderate	---	**moderate**	**high**
	High	---	**high**	**high**

3.3.2 Historical Sites and Features

Historical archaeology refers to the 'post-contact' period and includes: domestic, commercial and industrial sites as well as most maritime sites. It is the study of the past using physical evidence in conjunction with historical sources. The two primary types of places or items that may form part of the historical archaeology context include:

1. Below ground evidence, including building foundations, occupation deposits, features and artefacts; and above ground evidence, including buildings, works, industrial structures and relics that are intact or ruined;

2. Areas of land that display evidence of human activity or occupation; and

Within these broad parameters, an historical archaeological site may include:

- Topographical features and evidence of past environments (that is, resident in pollens and diatoms);
- Evidence of site formation, evolution, redundancy and abandonment (that is, features and materials associated with land reclamation, sequences of structural development, demolition/deconstruction, and renewal);
- Evidence of function and activities according to historical theme/s represented (for example, an industrial site may contain diagnostic evidence of process, products and by-products);
- Evidence associated with domestic occupation including household items and consumables, ornaments, personal effects and toys;
- Evidence of diet including animal and fish bones, and plant residues;
- Evidence of pastimes and occupations including tools of trade and the often fragmentary signatures of these activities and processes;
- Methods of waste disposal and sanitation, including the waste itself which may contain discarded elements from all classes of artefact as well as indicators of diet and pathology; and
- Any surviving physical evidence of the interplay between site environment and people.

The information found in historical archaeological sites is often part of a bigger picture which offers opportunities to compare and contrast results between sites. The most common comparisons are made at the local level, however, due to advances in research and the increasing sophistication and standardisation of methods of data collection, the capacity for wider reference (nationally and, occasionally, internationally) exists and places added emphasis on identification and conservation of historical archaeological resources.

4. RESULTS

4.1 Summary

During the 2009 field survey a total of 18 Aboriginal sites, seven areas of PAD and three historical recordings were identified along the proposed EA corridor (NOHC 2010). An additional 13 Aboriginal sites were identified during the 2010 field survey, as well as three further historical recordings and one additional area of PAD.

Additional details were also recorded for several of the previously recorded Aboriginal sites and PADs.

Details of all new recordings and where relevant, additional information for previously recorded sites is provided below.

4.2 Aboriginal Sites

In the course of the 2010 field surveys for the HSP three isolated finds, 10 artefact scatters and one new area of PAD unassociated with surface artefacts were recorded (Figures 4.1 – 4.14). Descriptions of the sites are provided below along with an outline of sites recorded in 2009; details of the artefacts recorded at each site are provided in Appendix 2.

HSP1: *Isolated Find*
GDA Grid Reference: *754796. 6154104*

The isolated find at HSP1 was originally recorded during the 2009 field survey (NOHC 2010). The proposed pipeline easement in this location has now shifted slightly to the north; the site is 20 m south of the proposed pipeline.

HSP2: *Artefact Scatter*
GDA Grid Reference: *753083. 6152112*

The artefact scatter at HSP2 was recorded during the 2009 survey (NOHC 2010). Due to amendments to the proposed pipeline alignment, this site is now outside the corridor of impacts associated with the Project.

HSP3: *Artefact Scatter and PAD*
GDA Grid Reference: *752868. 6154800*

This site was recorded during the 2009 survey (NOHC 2010). Due to amendments to the proposed pipeline alignment, this site is now outside the corridor of impacts associated with the Project.

HSP4: *Artefact Scatter*
GDA Grid Reference: *756118. 6153963*

There are no changes to this recording or the nature of anticipated impacts at this location.

HSP5: *Artefact scatter and PAD*
GDA Grid Reference: *757078. 6153856 – 757364. 6153844*

Artefact scatter HSP5 was originally recorded in 2009 as a scatter of seven artefacts observed across an area of 70 m by 30 m on a broad low gradient spur crest, vegetated with a grove of eucalypt bushland. The artefacts were visible eroding out of a relatively deep sandy loam that has been disturbed by existing service easements, stock activity and associated sheet erosion. Artefacts observed at the site included silcrete and quartzite flakes and one silcrete core.

Exposure incidence across the spur crest averaged 30% and visibility within exposures was around 10%. Prior levels of disturbance at this site varies from high along the existing gas and

telecommunications easements (northern side of the artefact scatter) to moderate across the remainder of the spur, which has been impacted by various farming practices.

It was noted that there is a high potential for additional artefacts to occur in a subsurface context, and given that the spur is situated 300 m south of the Wollondilly River and a similar distance west of Boxers Creek (a fourth order stream that flows into the Wollondilly), it is likely that the location may have been utilised sporadically for short term camping events. As such, the low gradient spur crest has a high potential to contain Aboriginal objects of low to perhaps moderate archaeological significance; it was assessed to be an area of PAD with moderate archaeological sensitivity.

The site was revisited during 2010, at which time it is estimated that an additional 50 artefacts were observed across the spur crest. A sample of an additional 13 artefacts, including quartzite, volcanic, silcrete and quartz flakes and a silcrete geometric microlith were recorded in detail.

Visibility during the 2010 site visit was markedly improved; while exposure incidence still averaged 30%, the visibility within exposures was around 60-90%. Artefacts were observed over an area of 300 m east-west and at least 100 m north-south. The area of associated PAD at this site is estimated to extend for approximately 400 m along the proposed HSP alignment and for about 150 m either side of the proposed easement (Figure 4.20).

The proposed pipeline easement runs through the middle of the observed artefact scatter.

HSP6: *Isolated find*
GDA Grid Reference: *757416. 6153858*

This site was originally recorded during the 2009 survey (NOHC 2010). During the 2010 survey additional artefacts were recorded at the adjacent site HSP5. These findings indicate that the artefact at HSP6 is indeed likely to be associated with that site.

The recording at HSP6 is however located on the slopes to the east of the artefact scatter and PAD at HSP5; as such the potential for additional artefacts or subsurface deposits in the context of the moderate gradient slopes at this location is low.

The recording is within the proposed pipeline easement.

HSP7: *Isolated find and PAD*
GDA Grid Reference: *758532. 6153859*

This site, originally recorded in 2009 (NOHC 2010) comprises an isolated silcrete flake and an associated area of PAD on a spur crest in a bend on the Wollondilly River. The area of anticipated PAD at this site has been modified slightly since its original recording; it is estimated to measure 450 m east-west by about 200 m north-south.

The proposed pipeline runs through the middle of this recording; the PAD corresponds to a section of approximately 450 m of the proposed easement.

HSP8: *Artefact scatter and PAD*
GDA Grid Reference: *759952. 6153834*

This site was originally recorded as a surface scatter of two silcrete artefacts with an area of PAD associated across the saddle in which the site is located (NOHC 2010). During the 2010 survey the site was revisited; at least an additional five artefacts were observed at the site, within the proposed pipeline easement.

As outlined in the 2010 heritage assessment, the area of PAD at this site extends for approximately 300 m by 150 m and corresponds to a section of the proposed pipeline measuring about 150 m in length.

HSP9: *Isolated Find*
GDA Grid Reference: *759605. 6153859*

This site was originally recorded during the 2009 field survey (NOHC 2010); it is located 40 m to the north of the proposed easement. There are no changes with regard to this recording or the nature of impacts in this location.

HSP10: *Artefact scatter and PAD – AHIMS 51-6-0113*
GDA Grid Reference: *763161. 6154351*

As detailed in the original 2010 heritage assessment, this artefacts and associated PAD at this recording correspond to the previously recorded site AHIMS 51-6-0113. The PAD at this site extends for at least 200 m by 100 m along the eastern bank of Osborns Creek; it is outside the proposed pipeline easement.

HSP11: *Artefact scatter – AHIMS 51-6-0113*
GDA Grid Reference: *763304. 6154352*

This site was originally recorded during the 2009 field survey (NOHC 2010); it is located 15 m to the north of the proposed easement. There are no changes with regard to this recording or the nature of impacts in this location.

HSP12: *Artefact scatter*
GDA Grid Reference: 765034. 6154885

The artefact scatter at HSP12 was originally recorded during the 2009 field survey (NOHC 2010). In the course of the 2010 survey this site was revisited and the extent of visible artefacts checked and revised. While no changes were made to the site recording, the proposed pipeline easement has since been modified and this site will now be directly impacted.

HSP13: *Artefact scatter*
GDA Grid Reference: 766483. 6155214

This site was originally recorded during the 2009 field survey (NOHC 2010); the site was revisited during 2010 and no changes were observed at the site. HSP13 is located within 20 m of the proposed pipeline, on the southern side of the easement.

HSP14: *Artefact scatter*
GDA Grid Reference: 225474. 6155896

This site was originally recorded during the 2009 field survey (NOHC 2010); it is located 20 m to the south of the proposed easement. There are no changes with regard to this recording or the nature of impacts in this location.

HSP15: *Artefact scatter and PAD*
GDA Grid Reference: 232501. 6162074

The artefact scatter and associated PAD at HSP15 was originally recorded in 2009 (NOHC 2010). There are no changes to the site recording as the result of the 2010 field survey; the nature of impacts at the site remains the same: the proposed pipeline easement runs through the site.

The PAD at this location extends for approximately 40 m east-west by 100 m north-south, the proposed pipeline is affected for a section of about 40 m.

HSP16: *Artefact scatter and PAD*
GDA Grid Reference: 256820. 6169715

This site was originally recorded during the 2009 field survey (NOHC 2010). Since then the proposed pipeline alignment has been modified slightly. During additional fieldwork at this location in 2010 the extent of PAD at this site was confirmed; the PAD extends for approximately 50 m east-west by

about 200 m north-south. The artefacts recorded at HSP16 are approximately 90 m south of the proposed HSP alignment and the PAD at this site corresponds to a section of about 40 m of the proposed easement.

HSP 17: *Artefact scatter and PAD*
GDA Grid Reference: 772905 6157718

This site was originally recorded during the 2009 field survey (NOHC 2010), the site was revisited in the course of the 2010 field assessments and the extent of visible artefacts and PAD relative to the proposed pipeline revised.

The area of PAD at this location is estimated to extend for approximately 50 m by 70 m; the PAD corresponds to a 70 m section of the proposed pipeline, which also runs through the middle of the visible artefact scatter.

HSP 18: *Artefact scatter*
GDA Grid Reference: *233456. 6162395* – 233377. 6162352

This site was originally recorded as an isolated find situated on a moderate gradient upper slope with a westerly aspect. A single silcrete flake was observed eroding out of a skeletal sandy loam in a small area of sheet erosion just below an access track in Lot 157 DP 751298; it was immediately east of the existing gas and telecommunications pipelines (Figures 4.24). During the 2010 survey this site was revisited and an additional quartz artefact was observed approximately 80 m to the southwest of the original recording. HSP18 is approximately equidistant from Paddys River and Uringalla Creek, which flow one kilometre to the northeast and southwest respectively.

Exposure incidence at the site was around 70% and visibility within that area averaged 40%. However, across the broader area of the crest and upper slopes exposure incidence averaged 40%.

Given that there are no reliable water sources located in close proximity to this recording and, given the shallow nature of the soil deposits, the archaeological potential at this site is low. It is predicted that any additional artefacts will be present at low to very low density only. This conclusion is also supported by the fact that relatively good visibility was encountered across a broad area and only two artefacts have been recorded.

HSP19: *Isolated Find*
GDA Grid Reference: 254948. 6169393

This site comprises a single silcrete artefact situated on a crest/saddle interface along an existing service easement (Figures 4.1 and 4.27). The area has an open to northerly aspect and is highly disturbed by various factors such as vegetation clearance, stock erosion and activities associated with construction of old road reserves, power lines and underground services.

Exposure incidence across an area of about 2 x 15 m was 80%. Visibility within this exposure was approximately 30%.

The potential for subsurface material across the broader area of the saddle is moderate to high, although given the distance from reliable water, it is expected that artefacts will be present at low density only. The potential for *in situ* material is low. These factors, together with the shallow nature of the soils and the relatively high levels of prior disturbance, indicate that the research potential at this site is limited.

This artefact is situated approximately 90 m south of the proposed HSP easement.

HSP20: *Artefact scatter and PAD*
GDA Grid Reference: 752534. 6155201

This site comprises a scatter of at least 12 artefacts eroding out of a relatively deep sandy deposit situated on a low gradient spur crest in a basal slope context, approximately 120 m northeast of Kenmore Creek (Figures 4.2 and 4.19). The artefacts observed at the time of recording included

silcrete and quartz flakes scattered over an area of approximately 80 m^2 extending from the gas pipeline in the north to the proposed location of the water pipeline in the south. The area has been moderately disturbed by various factors such as land clearing, farming and rabbits.

Exposure incidence in this location was 70% and surface visibility averaged 80%. Exposure incidence across the broader area of the spur crest averaged 30%. Ground exposures across the site included the existing gas easement, rabbit burrows and sheet erosion. The highest concentration of artefacts (seven items in an area of about 100 m^2) was observed adjacent a fence, on top of the proposed pipeline route.

Soil deposits at this site appear to be relatively deep (>30 cm) and, while there has been moderate disturbance from vegetation clearance, farming, rabbits and the existing service easement in the north, there is a high potential for subsurface artefacts across the spur crest. It is likely that the density of artefacts would increase in the south, towards Kenmore Creek. It is predicted that there is a low to moderate potential for *in situ* archaeological deposits

The identified area of PAD extends south from the location of the proposed pipeline to approximately 25m south of the visible artefacts. This PAD is approximately 30 m by 50 m in area.

Figure 4.1 Isolated find HSP19, looking southwest

Figure 4.2 Artefact scatter and PAD at HSP20, looking south

HSP21: *Isolated Find*
GDA Grid Reference: 752884. 6154985

This site consists of a single quartz flake situated in a disturbed context on a gentle gradient basal slope with a southerly aspect (Figures 4.3 and 4.19). The observed artefact was located along a vehicle track on the southern side of the gas pipeline.

Exposure incidence for this site is approximately 30% with ground surface visibility of 50%. The area has been subject to high levels of disturbance from clearing, fencing, vehicles and existing service easements.

This artefact is located within 10 m east of the proposed HSP.

HSP22: *Artefact scatter*
GDA Grid Reference: 770487. 6156114

Artefact scatter HSP22 consists of six quartz artefacts eroding out of a sandy loam that has been exposed by gully and sheet erosion (Figures 4.4 and 4.21). This site is located on the south bank of a creek line in the eastern half of the Lockyersleigh property. The artefacts were visible along stock tracks and associated creek-bank erosion scours, approximately 10-20 cm below the current ground surface.

Exposure incidence across an area of 5 m by 30 m was 50% with approximately 80% ground surface visibility. The area surrounding the site provided very limited visibility with an exposure incidence of approximately 2%.

While there is a high potential for additional artefacts to be present in a subsurface context along the south side of the creek, the topographic context: upper catchment of an ephemeral creek, is such that artefact densities are likely to be low.

This artefact scatter is located approximately 80 m south of the proposed HSP.

Figure 4.3 Isolated find HSP21, looking east

Figure 4.4 Artefact scatter HSP22, looking south

HSP23: *Artefact scatter and PAD*
GDA Grid Reference: 772119. 6157322

The site HSP23 comprises a relatively extensive surface scatter of an estimated 50+ stone artefacts over an area of 180 m by 30 m (Figures 4.5 and 4.22). The site is located on a low gradient ridge crest and associated upper slopes approximately 2.0 km north of Jaorimin Creek. However, a number of natural springs were observed on this ridge, providing a relatively reliable water source within 200 m of the observed artefacts.

The artefacts were visible eroding out of a relatively shallow, sandy, gravelly loam disturbed by vegetation clearance, ant activity, sheet erosion and earth works for existing easements. Artefacts were observed across four locales and comprised silcrete, quartz, chert and volcanic flakes, flaked pieces and cores. Areal density of surface artefacts varied from as low as one per 20 m^2 to greater than one per m^2.

Exposure incidence across the visible site averaged 70% and visibility within those exposures was around 80%. While many of the exposures corresponded to areas of disturbed ground along the existing service easements, the majority of the recorded artefacts were observed on undisturbed ground to the south. Taking into consideration the broader topography of the site, on a ridge crest with views over valleys to the east and the west and a relatively reliable water source immediately adjacent, the location is likely to have been utilised for sporadic short term activities such as overnight camps. Artefact density is likely to be low to moderate. The potential for subsurface artefacts is high; an area of PAD has been identified in association with the surface artefacts, it extends across for approximately 340 m along the proposed HSP alignment and is up to 100 m wide. The archaeological potential of the site is however lowered somewhat by the shallow nature of deposits and the extent of disturbance along the existing easements.

The artefacts recorded at this site and the associated PAD will be directly impacted by the proposed pipeline.

HSP24: *Artefact scatter*
GDA Grid Reference: 772496. 6157513

This recording comprises two stone artefacts located within eight metres of one another on a spur shoulder less than 200 m to the northeast of HSP23 that is approximately 1.3km north of Jaorimin Creek (Figures 4.6 and 4.22). The crest of the spur is essentially level and has an easterly aspect; it is located immediately adjacent a spring fed stream that flows down the southern slopes of the ridge.

Exposure incidence at the site was around 70% and ground visibility within exposures averaged 80%. Visibility in surrounding areas was restricted by vegetation and leaf litter. Soils at the site consisted of a shallow sandy loam with disturbance from sheet erosion and ant nests. Further to the north, within the existing easements, disturbance levels were high.

Given the shallow nature of the soil deposits and the low number of artefacts observed in areas of good visibility, the archaeological potential at this site is low. It is predicted that any additional artefacts will be present at low to very low density only.

This site is located within the proposed HSP easement.

Figure 4.5 Artefact scatter and PAD at HSP23, looking southwest

Figure 4.6 Artefact scatter HSP24, looking southwest

HSP25: *Artefact scatter*
GDA Grid Reference: 773699. 6158037

Site HSP25 consists of a scatter of at least 24 stone artefacts located on a broad, low gradient spur crest on the northern margin of an ephemeral tributary of Jaorimin Creek. Artefacts were visible in areas of sheet erosion and ground disturbance on both sides of Brayton Road (Figures 4.7 and 4.22) over an area of approximately 100 m by 100 m. The majority of artefacts were flakes and flaked pieces and the dominant raw material was silcrete although a small number of quartz flakes were also present

Exposure incidence varied considerably across the site. The average exposure incidence was around 15% with 50% surface visibility within exposures. However, in some localised areas, particularly on the western side of Brayton Road, exposure incidence was as high as 75% with 80% ground visibility.

Site disturbance is greatest along the margins of Brayton Road and around the gas meter station at the northern end of the site. Soils across the site are characterised by a sandy loam of variable depth, with areas of good subsurface potential across much of the spur crest. The potential for subsurface artefacts is high, and given that the site is located on a well drained and level landform adjacent a tributary of Jaorimin Creek, it is predicted that artefacts will be present at low to moderate density.

The area of PAD at HSP 25 extends from the existing gas easement in the north to the banks of the creek in the south; it measures approximately 200 m from east to west and corresponds to a section of almost 300 m of the proposed pipeline alignment that curves through this landform (Figure 4.22).

The observed artefact scatter and associated PAD at HSP25 will be directly impacted by the proposed HSP easement.

HSP26: *Artefact scatter and HSP PAD4*
GDA Grid Reference: 774854. 6158581

This recording comprises a relatively disperse artefact scatter across the previously identified HSP PAD4 which is located along basal slopes and creek margins at Jaorimin Creek (NOHC 2010). The area was revisited in order to check potential impacts at the PAD and, due to changes in surface visibility encountered during the 2010 field survey, a number of artefacts were observed on both the eastern and western sides of the creek.

Artefacts were visible in areas of sheet erosion and along an old road cutting (Figures 4.8 and 4.22). Exposure incidence across the visible site averaged 80% and visibility within those exposures was around 75%. Exposure incidence in areas immediately adjacent to the road cutting was generally no more than 10%. Soils across the site were characterised by sandy loam.

A total of at least 15 artefacts were observed across five locales either side of Jaorimin Creek. Three artefacts were recorded along a 100 m section of the old road cutting to the south of the proposed pipeline, while an isolated flake was located 15 m south of the proposed easement. The remaining artefacts were recorded adjacent to the proposed pipeline, in an area of sheet erosion measuring approximately 10 m by 1 m on the eastern side of the creek. The majority of artefacts were flakes and flaked pieces, however four cores were also observed. Silcrete was the dominant material and a number of quartz artefacts were also present.

There is moderate to high potential for additional artefacts to be present in a subsurface context at HSP26. The basal slopes along this section of the creek are of relatively low gradient and would have provided a suitable camping location for Aboriginal inhabitants. Furthermore, the deep sandy nature of the soil deposits in this location means that there is relatively good potential for subsurface deposits. It should however be noted that disturbance within these deposits varies from moderate to high due to impacts associated with wombat burrows, flooding/erosion and existing service easements.

In light of the additional information recorded at this site during the 2010 survey, the extent of the PAD at this location has been revised to incorporate the basal slopes on both sides of the creek. The total area of PAD at this location is now estimated to be 125 m by 155 m.

The proposed HSP alignment cuts through the northern portion of this site and the associated PAD; it traverses a 125 m section of the PAD.

Figure 4.7 Artefact scatter at HSP25, east side of Brayton road looking south

Figure 4.8 Artefact scatter and PAD at HSP26, eastern side of Jaorimin Creek, looking west

HSP27: *Artefact scatter*
GDA Grid Reference: 762877. 6154149

Site HSP27 comprises a scatter of two stone artefacts located within 5 m of each other on a gentle gradient basal slope on the western margin of Osborne Creek. The site has an easterly aspect and is located immediately south of a fence line (Figures 4.9 and 4.21). Disturbance levels at the site are moderate to high due to earth works associated with adjacent dams and bioturbation from wombats.

The artefacts recorded at this site were silcrete and quartzite flakes observed eroding out of a skeletal sandy loam with a high gravel content. Exposure incidence at the site was 10% and visibility within exposures averaged 80%. It is predicted that artefact densities across the basal slopes will be low. Furthermore, given the skeletal nature of the soils and the extent of prior disturbance in the immediate area, the potential for subsurface deposits is low.

The recording HSP27 is situated approximately 30m south of the proposed pipeline.

HSP28: *Artefact scatter*
GDA Grid Reference: 773309. 6157867

This recording consists of a small low density artefact scatter situated on a basal slope with a southerly aspect, adjacent to a tributary of Jaorimin Creek (Figures 4.10 and 4.22). The site is located approximately 350 m southwest of HSP25 and a similar distance northeast of HSP17. Four artefacts were observed in a heavily eroded area adjacent a natural spring. The exposure in which the artefacts were found extended for approximately 40 m by 10 m; exposure incidence in this area was 90% and surface visibility also averaged 90%. Much of the exposure was eroded down to the clay subsoil.

Given that only four artefacts were observed over an area of 400 m^2 with excellent exposure incidence and archaeological visibility, the site is considered to be representative of opportunistic use resulting in very low levels of artefact discard. It is predicted that, the potential for additional artefacts to be present in a subsurface context is low.

HSP28 is located approximately 50 m south of the HSP easement.

Figure 4.9 Artefact scatter HSP27, looking northeast

Figure 4.10 Artefact scatter HSP28, looking south

HSP29: *Artefact scatter*
GDA Grid Reference: 228067. 6160125

This site comprises a dispersed low density artefact scatter on a gentle mid slope/saddle with a northerly aspect (Figures 4.11 and 4.23). Five stone artefacts were observed in an area of sheet erosion located immediately south of the existing services pipelines with three of the artefacts located along the pipeline itself. The artefacts were located in a sandy, gravelly loam and were all quartz flakes with the exception being one quartz blade.

This location is approximately 200 m from an ephemeral creek and over one kilometre from Back Creek. Prior disturbance at this location includes original vegetation clearing and construction of erosion banks and service easements. Exposure incidence at this location was approximately 90% and visibility within exposures was estimated to be about 80%. Across the broader area, exposure incidence was around 15% and visibility was approximately 60%.

Relatively good levels of visibility were encountered at the site and only a small number of artefacts were observed in a discrete location. The broader landscape context is such that there are no reliable water sources or other resource zones that are likely to have been focus of Aboriginal activity. These factors, together with the shallow nature of the soils and the relatively high levels of prior disturbance, indicate that the archaeological potential at this site is low.

The artefact scatter at HSP29 is situated within the proposed pipeline easement.

HSP30: *Artefact scatter*
GDA Grid Reference: 228237. 6160275

This site comprises a dispersed low density scatter of stone artefacts along the basal slopes and margins of an ephemeral creek line (Figures 4.12 and 4.23). Artefacts were observed over an area of approximately 100 m by 200 m, eroding out of a sandy loam exposed by sheet and rill erosion. At least eight artefacts were observed at the site; however the recording of the site was curtailed by a request from a local resident to leave the area.

Artefacts observed at the site included quartz flakes and flaked pieces and a silcrete core. Exposure incidence across the site averaged 50-75% with 80% surface visibility within exposures. Prior disturbance at the site is moderate and includes vegetation clearance, fencing, grazing and erosion. Given the reasonably good visibility levels at the site and the limited number of artefacts observed, it is predicted that any additional artefacts will be present at low density only.

The proposed HSP alignment runs through the middle of the artefact scatter at HSP30.

Figure 4.11 Artefact scatter HSP29, looking south

Figure 4.12 Northern extent of artefact scatter HSP30, looking southeast

HSP31: *Isolated find*
GDA Grid Reference: 795650.6165116

Site HSP31 consists of a single stone artefact that was visible eroding out of a shallow sandy humic loam at the base of a tree. This site is situated on the interface of a spur crest and upper slope; this location has a southwesterly aspect and gentle gradient. The site is located approximately 100 m from an ephemeral creek (Figures 4.13 and 4.25).

A single silcrete flake was observed in an area of surface erosion measuring 8 m by 2 m. Ground exposure in this area was 80% and visibility averaged 90%. Exposure incidence in surrounding areas was just 5%. Prior disturbance at the site is moderate to high and includes vegetation clearance, grazing, ripping and fencing.

Given the distance to suitable water sources and the broader context of exposed, amorphous spur crests, the artefact recorded at HSP31 is predicted to be representative of low to very low density artefact distribution resultant from opportunistic landuse such as foraging and/or movement through country.

The site HSP31 is situated within the proposed pipeline easement.

Figure 4.13 Isolated find HSP31, looking southeast

Figure 4.14 Possible Aboriginal site, looking north: general view of location at top, possible ephemeral platform at bottom

HSP PAD1
GDA Grid Reference: 753051. 6154802

This PAD was originally recorded during the 2009 field survey (NOHC 2010), the extent of PAD and its relationship to the proposed HSP was confirmed during the 2010 field assessments. The PAD at this location extends for approximately 150 m by 350 m; a 150 m section of the proposed pipeline easement is affected.

HSP PAD2 (AHIMS 51-6-0364)
GDA Grid Reference: 765979. 6155077

This PAD was originally recorded during the 2009 field survey (NOHC 2010); it encompasses the location of the previously identified site AHIMS 51-6-0364. The location of this site was inspected during both phases of field work, however no evidence of the recorded artefacts was observed.

The identified area of PAD at this location extends for 400 m southwest-northeast by 50 m; it corresponds to a 250 m section of the proposed pipeline.

As noted during the 2009 field survey, the location of the previously recorded site AHIMS 51-6-0364 is situated over 100 m to the south of the proposed easement.

HSP PAD3
GDA Grid Reference: 232447. 6162064

HSP PAD3 was originally identified during the 2009 field survey (NOHC 2010); its location and extent was confirmed during the 2010 field assessments. The area of identified PAD extends for approximately 150 m north-south along the western margin of Uringalla Creek; it is approximately 50 m wide and corresponds to a 50 m section of the proposed pipeline.

HSP PAD4
GDA Grid Reference: 774835. 6158698

Originally identified as a PAD unassociated with surface artefacts, this recording has since been updated to include artefacts on both sides of Jaorimin Creek (refer to HSP26 above).

HSP PAD5
GDA Grid Reference: 256870. 6169818

The area of archaeological potential identified at HSP PAD5 was initially recorded as a 50 m wide section of river terraces opposite HSP16 and the associated PAD on Medway Rivulet (NOHC 2010). This recording has since been updated; it is now estimated that the area of PAD at this location may extend for up to 150 m to the east of Medway Rivulet, encompassing the abovementioned terrace and adjacent basal slopes. HSP PAD5 corresponds to a 120 m section of the proposed HSP alignment.

HSP PAD6
GDA Grid Reference: 249904. 6168486

This PAD was originally recorded during the 2009 field survey (NOHC 2010), the extent of PAD and its relationship to the proposed HSP was confirmed during the 2010 field assessments. The PAD at this location extends for approximately 150 m by 300 m; a 130 m section of the proposed pipeline easement is affected.

HSP PAD7
GDA Grid Reference: 251295. 6168817

The PAD identified at HSP PAD7 was originally recorded during the 2009 field survey (NOHC 2010), the extent of PAD and its relationship to the proposed HSP was confirmed during the 2010 field assessments. The PAD at this location extends for approximately 80 m north-south by 180 m east-west; it corresponds to a 180 m section of the proposed pipeline easement.

HSP PAD 8
GDA Grid Reference: 266231. 6173819

This recording corresponds to the basal slopes and creek margins along the proposed pipeline easement either side of Kellys Creek. Due to restrictions regarding land access, it was not possible to physically inspect this location during either the 2009 or 2010 field surveys.

As such, this location has been identified as a precautionary measure as an area of PAD. The area in question comprises low gradient and locally elevated basal slopes adjacent a relatively reliable water source. The area of identified PAD corresponds to a section of approximately 120 m of the proposed pipeline (Figure 4.28).

Possible Aboriginal Site
GDA Grid Reference: 263750.6173000

During the 2010 field survey, information was provided by property owner Donald Maclean (May 2010) regarding Aboriginal camping locations in the Moss Vale area during the early twentieth century. Mr Maclean described an area in an adjoining property as the location of an Aboriginal campsite/bark hut. According to Mr Maclean this site was located between two large white gum trees immediately to the west of Iona Park Drive. This location was inspected during the field survey and,

while no absolute physical evidence was observed for such a site it was noted that there are some apparent rectilinear features between the trees in question that may be the remains of tent or hut sites (Figure 4.14).

The location in question is situated within 50 m to the north of the proposed HSP alignment.

Table 4.1 Inventory of Aboriginal sites recorded during 2010 field survey

Site	Easting	Northing	Description
HSP19	754796	6154104	Isolated Find
HSP20	753083	6152112	Artefact Scatter and PAD
HSP21	752868	6154800	Isolated Find
HSP22	756118	6153963	Artefact Scatter
HSP23	757122	6153834	Artefact Scatter and PAD
HSP24	757416	6153858	Artefact Scatter
HSP25	758532	6153859	Artefact Scatter
HSP26 (HSP PAD 4)	759952	6153834	Artefact Scatter and PAD
HSP27	759605	6153859	Artefact Scatter
HSP28	763161	6154351	Artefact Scatter
HSP29	763304	6154352	Artefact Scatter
HSP30	765034	6154885	Artefact Scatter
HSP31	766483	6155214	Isolated Find
HSP PAD 8	266231	6173819	Basal slopes and bank along Kellys Creek
Possible Aboriginal Site	263750	6173000	Oral reference to Aboriginal camp

4.3 Summary of Aboriginal Sites: 2009 and 2010 Field Survey

The proposed pipeline alignment traverses a varied landscape with significant changes in topography, hydrology, geology and vegetation. Artefact scatters and PADs have been identified across the majority of landscape units, although there are definite trends in terms of site location.

A total of 19 areas of potential archaeological deposit have been identified along the HSP alignment; these comprise eight areas of PAD without surface artefacts and 11 surface scatters with associated areas of PAD.

Within Goulburn Mulwaree Shire a total of 25 recordings were identified along the HSP alignment. Artefact scatters and/or areas of PAD were identified in all landscape units except knoll crests. Spur crests, often in a basal slope context or adjacent a water course, were the most common context for sites. Seven occurrences of artefacts, comprising five artefact scatters with PAD (HSP3, HSP5, HSP17, HSP20 and HSP25), one isolated find with associated PAD (HSP7) and one low density scatter were recorded on spur crests (HSP13). In addition, there were a further two areas of PAD unassociated with surface artefacts that were identified on spur crests (HSP PAD1 and HSP PAD2). An area of PAD unassociated with surface artefacts was identified on an alluvial terrace (HSP PAD3); similarly, an artefact scatter with PAD was identified within each of the following contexts: alluvial flat (HSP10), drainage line (HSP22), ridge crest (HSP23) and saddle (HSP8). An isolated find was also recorded adjacent a drainage line (HSP1). The remainder of sites were recorded on spur and ridge slopes. These comprise two isolated finds (HSP9 and HSP21)and four low density artefact scatters on basal slopes (HSP4, HSP11, HSP27 and HSP28), two low density scatters on mid-slopes (HSP 12 and HSP14), one artefact scatter in an upper slope context (HSP24) and one isolated find on a simple slope (HSP6).

Within Wingecarribee Shire a total of 12 recordings were identified. These comprise one artefact scatter with associated PAD (HSP26/HSP PAD4) and one area of PAD unassociated with surface artefacts (HSP PAD8) in a basal slope context; two areas of PAD (HSP PAD6 and HSP PAD7) and

one low density artefact scatter (HSP31) on spur crests, an isolated find on a saddle (HSP19), an artefact scatter in a drainage (HSP30), mid-slope (HSP29) and an upper slope context (HSP18); and three PADs, two with artefacts associated (HSP15 and HSP16) and one without (HSP PAD5), on alluvial terraces.

The areas identified as having archaeological potential, both those associated with surface artefacts and those without, generally correspond to well drained, low gradient landforms in close proximity to reliable water sources. Basal slopes, spur crests in a basal slope context, and alluvial terraces are all common locations. It should however be noted that there are various instances where the proposed pipeline traverses similar landscape contexts that have not been identified as locations of archaeological interest. For example, the landforms bordering Paddys River or the Wollondilly crossings either side of HSP7. Landforms bordering substantial water courses have not automatically been identified as areas of PAD. Areas of archaeological potential have been identified where the assessed potential is moderate or greater. Landforms adjacent water sources have not been identified as PADs if they are highly disturbed, have a moderate to steep gradient, display shallow soil profiles and/or are poorly drained. Furthermore, the broader landscape context has been considered in evaluating archaeological potential. Thus, landforms associated with the confluence of two or more streams (e.g. HSP PAD1) have been identified as areas of archaeological potential as they are locations that are likely to have been targeted for repeated and/or extended periods of habitation.

Within the areas that have not been physically surveyed due to property access restrictions, one location has been identified, on the basis of literature review, field results and predictive modelling, to be of sufficient archaeological potential to warrant further investigation. The area in question is HSP PAD8 (Figure 4.28). The remainder of the unsurveyed HSP corridor is assessed to be of low archaeological potential; it is characterised by ridge crests and spur crests at considerable distance from reliable water; creek margins and basal slopes of ephemeral/upper catchment streams, and upper, mid and simple slopes (of moderate to steep gradient and/or at a considerable distance from water). Furthermore, the extensive survey coverage achieved (see Section 4.6 below) is such that the areas surveyed correspond to inspection of all landform contexts across the entire length of the proposed HSP. As such, survey coverage is sufficient to confidently assess the archaeological potential where a physical inspection of individual properties was not possible.

4.4 Aboriginal Cultural Values

At this stage, no information has been provided by either the Aboriginal groups who participated in the fieldwork, or any of the other registered stakeholders, regarding the Aboriginal cultural values of sites identified along the proposed pipeline route.

4.5 Summary of European Sites: 2009 and 2010 Field Survey

HSPH1: *House ruins and tree plantings (Kenmore Psychiatric Hospital Complex)*
GDA Grid Reference: 752907. 6154895

This recording was identified during the 2009 field survey, at which time the proposed pipeline alignment ran through the tree plantings and within 20 m of the ruins (NOHC 2010). The alignment along this section has since been modified and now runs about 30 m to the north of the tree plantings and 50 m from the house ruins.

HSPH2: *Brick Bridge*
GDA Grid Reference: 752570. 6155010

This site was originally recorded during 2009; it is situated approximately 150 m to the south of the proposed pipeline easement.

HSPH3: *House ruins – Lockyersleigh, Ruins of Kyle*
GDA Grid Reference: 765889. 6154900

This recording corresponds to a previously identified heritage item that was also recorded as a component of the 2009 HSP survey. There are no changes to the status of this site or its relationship

to the proposed HSP alignment; it is approximately 200 m south of the proposed pipeline.

HSPH4: *Chimney Mound*
GDA Grid Reference: 789962. 6163801

This site comprises an amorphous mound containing sandstock bricks with narrow rectangular frog-marks, random rubble stone work remains and pieces of iron sheeting (Figures 4.15 and 4.22) located within a clearing on a gentle slope approximately 20 m east of Jaorimin Creek. The area has been significantly disturbed by wombat burrows and erosion.

The mound appears to be the remains of a small chimney mound; the presence of sandstock bricks in association with iron sheeting indicates that the site probably dates to the second half of the nineteenth century, while the lack of structural material suggests that the associated building was constructed of perishable materials such as wood, canvas or bark. The proximity of this structure to Jaorimin Creek is a typical location for a small settlers hut to be situated.

Due to the ruinous state of this structure and the extent of subsequent disturbance from wombats and erosion, this site has low research potential and low potential for subsurface archaeological deposits.

This site is located approximately 70 m south of the HSP easement

HSPH5: *Concrete Cellar*
GDA Grid Reference: 789962. 6163801

Site HSPH5 consists of the concrete foundations/basement of a structure that has since been removed. The site is located about 15 m west of a vehicle access track on a gentle basal slope (Figure 4.16 and 4.25). There is a small doorway on the eastern side of the site, leading into a concrete walled room that may have been used as a cellar. A variety of glass bottles were recorded within the foundations. Manufacturer's markings on the bottles indicate that they were produced around the mid-twentieth century. This structure is located among pine tree plantings and the remains of a wooden fence are visible on the eastern side.

According to local sources, this site is perhaps the location of a log cabin which was relocated around 30 years ago. This site has very limited research potential.

Site HSPH5 is located about 15 m from the proposed location of the HSP.

Figure 4.15 Chimney mound at HSPH4, looking north

Figure 4.16 View of concrete cellar at HSPH5, looking south

HSPH6: *House ruins and tree plantings (Kenmore Psychiatric Hospital Complex)*
GDA Grid Reference: 752395. 6155267

This site consists of tree plantings and building remains that appear to be remnants of a house and gardens located about 30 m south of a gas meter station to the east of Taralga Road (Figures 4.17,

4.18 and 4.19). This recording is situated within the boundaries of the Kenmore Psychiatric Hospital Complex, although it is outside of the conservation area associated with that item.

The building remains include fragments of a concrete slab and brick footings that form a rectilinear platform. Sandstock bricks are scattered across the site and a circular depression adjacent to the building platform may indicate the location of a cellar or toilet pit. There are a number of introduced trees in the area and blackberries are growing adjacent to the concrete slab. Located 20 m to the southeast of the building ruins there are what appear to be artificial terraces that may have been constructed as part of an associated garden.

There is good potential for subsurface archaeological deposits at the site, however due to the extent of vegetation cover it is unclear how far such potential may extend. The proposed HSP alignment cuts through part of the garden terraces in this area and runs within 5 m of the building remains.

Figure 4.17 Building remains at HSPH6, looking west

Figure 4.18 General view of HSPH6, looking northwest

Table 4.2 Inventory of European sites recorded during the 2010 field survey

Site	Easting	Northing	Description
HSPH4	225132	6158638	Chimney mound
HSPH5	239888	6164691	Concrete cellar
HSPH6	752395	6155267	House ruins and tree plantings

4.6 Survey Coverage and Visibility Variables

The effectiveness of archaeological field survey is to a large degree related to the obtrusiveness of the sites being looked for and the incidence and quality of ground surface visibility. Visibility variables were estimated for all areas of comprehensive survey within the study area. These estimates provide a measure with which to gauge the effectiveness of the survey and level of sampling conducted. They can also be used to gauge the number and type of sites that may not have been detected by the survey.

Ground surface visibility is a measure of the bare ground visible to the archaeologist during the survey. There are two main variables used to assess ground surface visibility, the frequency of exposure encountered by the surveyor and the quality of visibility within those exposures. The predominant factors affecting the quality of ground surface visibility within an exposure are the extent of vegetation and ground litter, the depth and origin of exposure, the extent of recent sedimentary deposition, and the level of visual interference from surface gravels. Two variables of ground surface visibility were estimated during the survey:

- A percentage estimate of the total area of ground inspected which contained useable exposures of bare ground; and

- A percentage estimate of the average levels of ground surface visibility within those exposures. This is a net estimate and accounts for all impacting visual and physical variables including the archaeological potential of the sediment or rock exposed.

The obtrusiveness of different site types is also an important factor in assessing the impact of visibility levels. Sites based on rock exposures, such as rock shelters, open engravings and grinding grooves are more likely to be encountered than sites with no surface relief located on, or within, sedimentary matrices. Rock platform sites are still subject to visibility constraints in the form of obscuring ground litter, flood debris and sedimentation, however, rock shelters are less likely to go uninspected. The inspection rate of rock shelters is likely to be 100% in a comprehensive survey, however, the extent of leaf litter and recent sediment on a rock shelter floor may be an important factor in a recorder's ability to detect either a site, or simply a potential archaeological deposit.

In another example, artefacts made from locally occurring rock such as quartz may be more difficult to detect under usual field survey conditions than rock types that are foreign to the area. The impact of natural gravels on artefact detection was taken into account in the visibility variables estimates outlined above.

The natural incidence of sandstone platforms suitable for grinding grooves or engraving, together with the incidence of old growth trees, are important considerations in identifying both survey effectiveness and site location patterns outside of environmentally determined factors.

Table 4.3 summarises estimates for the degree to which separate landforms within the study area were examined within Goulburn Mulwaree and Wingecarribee LGAs and also indicates the exposure incidence and average ground visibility present in each case. A total of about 85% (68 km) of the proposed pipeline was surveyed. Within the Southern Tablelands end, in the Goulburn Mulwaree LGA, approximately 37.6 km of the 40 km of EA corridor were surveyed. The survey area in Goulburn Mulwaree was 188.05 ha, of which 131.37 ha were inspected with 1.4% providing useable archaeological exposures. Within the Southern Highlands end, in the Wingecarribee LGA, approximately 30.4 km of the 40 km of EA corridor were surveyed. The survey area within Wingecarribee was 151.8 ha, of which 118.4 ha were inspected with 1.9% providing useable archaeological exposures.

Taking into account survey coverage, archaeologically useable exposures, and visibility variables, the effective survey coverage (ESC), within the areas surveyed was 1.63 % (this equates to 1.38% of the total EA corridor). The ESC attempts to provide an estimate of the proportion of the total study area that provided a net 100% level of ground surface visibility to archaeological surveyors.

The ESC calculation is defined and required by the DECCW and stated to be of use in assessing and cross comparing the adequacy of archaeological surface surveys. The actual utility of the ESC calculation however is challenged by many archaeologists. The limitations of the ESC calculation are emphasised by differences in the subjective assessment of exposure and visibility levels, variations in how survey units are defined and measured, and differences in how and which variables are estimated and combined. In reality, ESC results tend only to be meaningful when compared across surveys conducted by the same surveyors and ESC measurers.

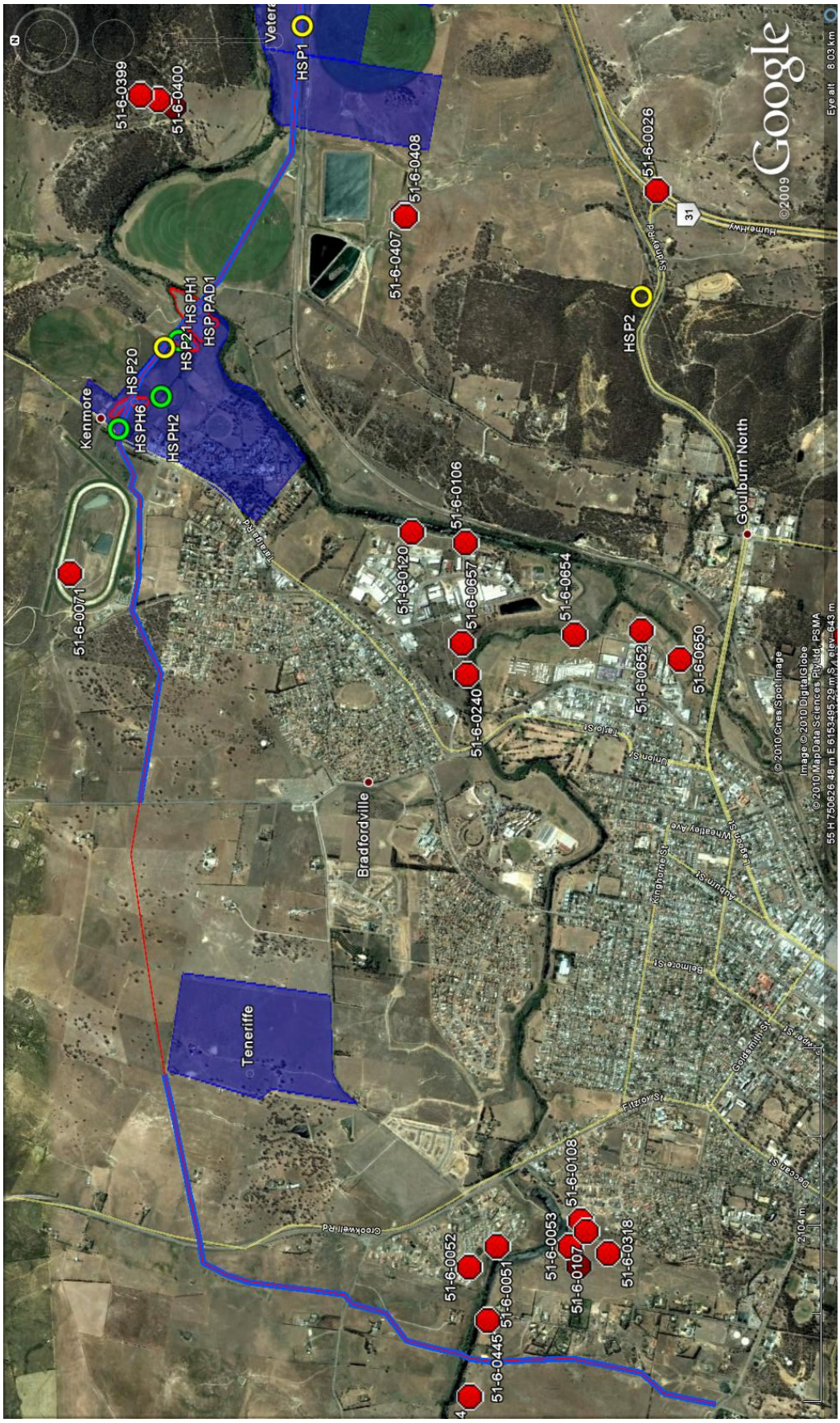

Figure 4.19 Mapping of survey coverage (blue line) and heritage sites recorded during the HSP fieldwork (Base map Google Earth 2010)

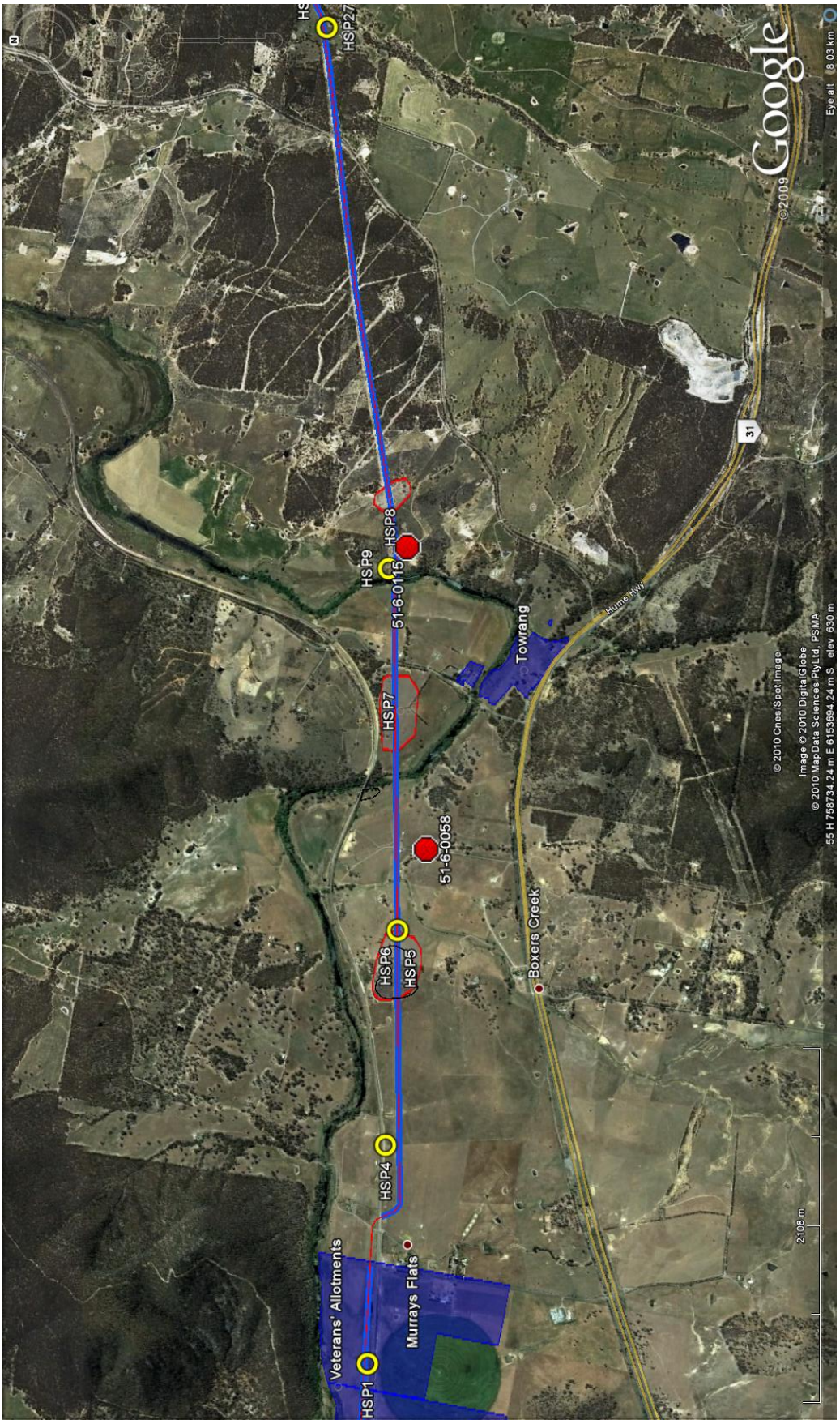

Figure 4.20 Mapping of survey coverage (blue line) and heritage sites recorded during the HSP fieldwork (Base map Google Earth 2010)

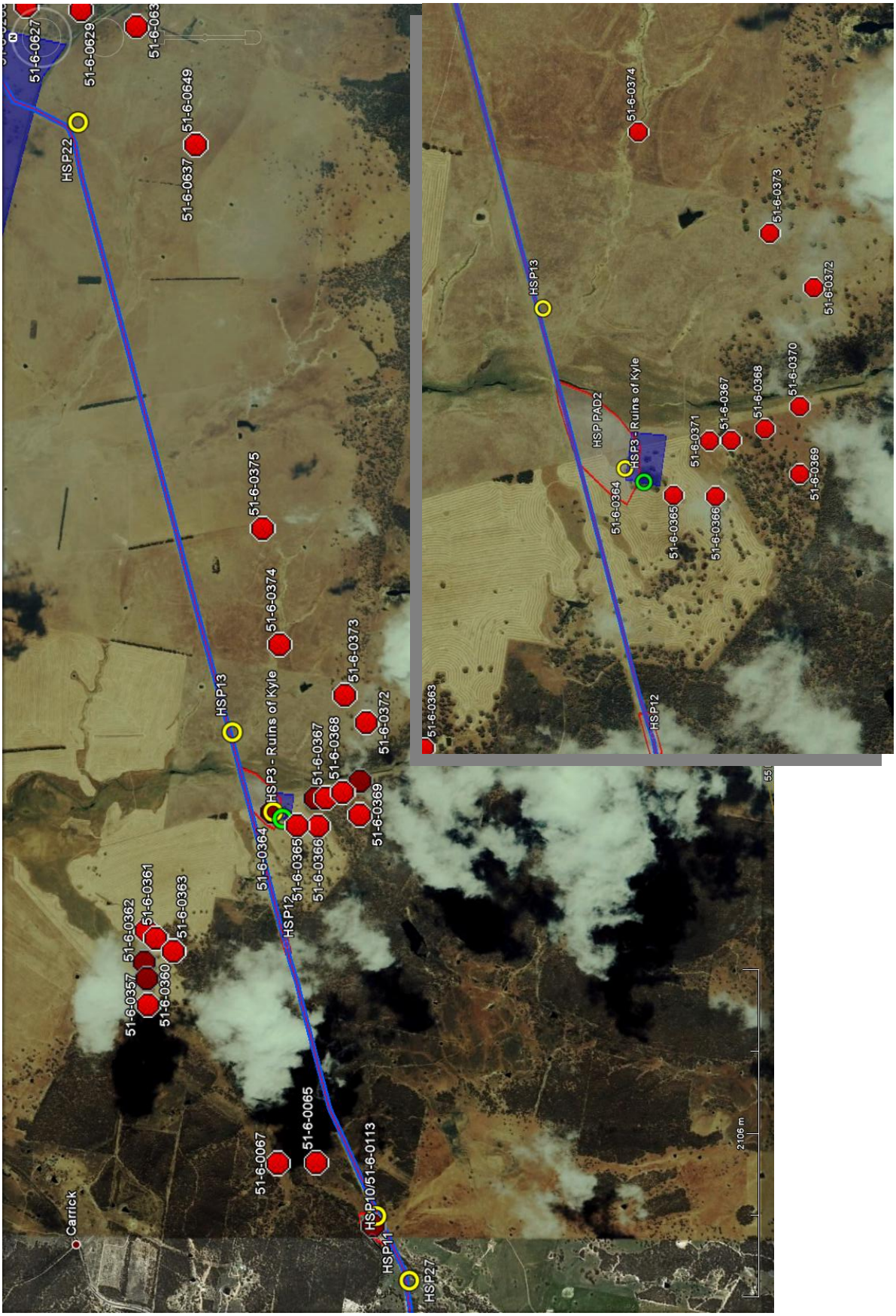

Figure 4.21 Mapping of survey coverage (blue line) and heritage sites recorded during the HSP fieldwork; inset at top right shows additional detail around HSP PAD2 (Base map Google Earth 2010)

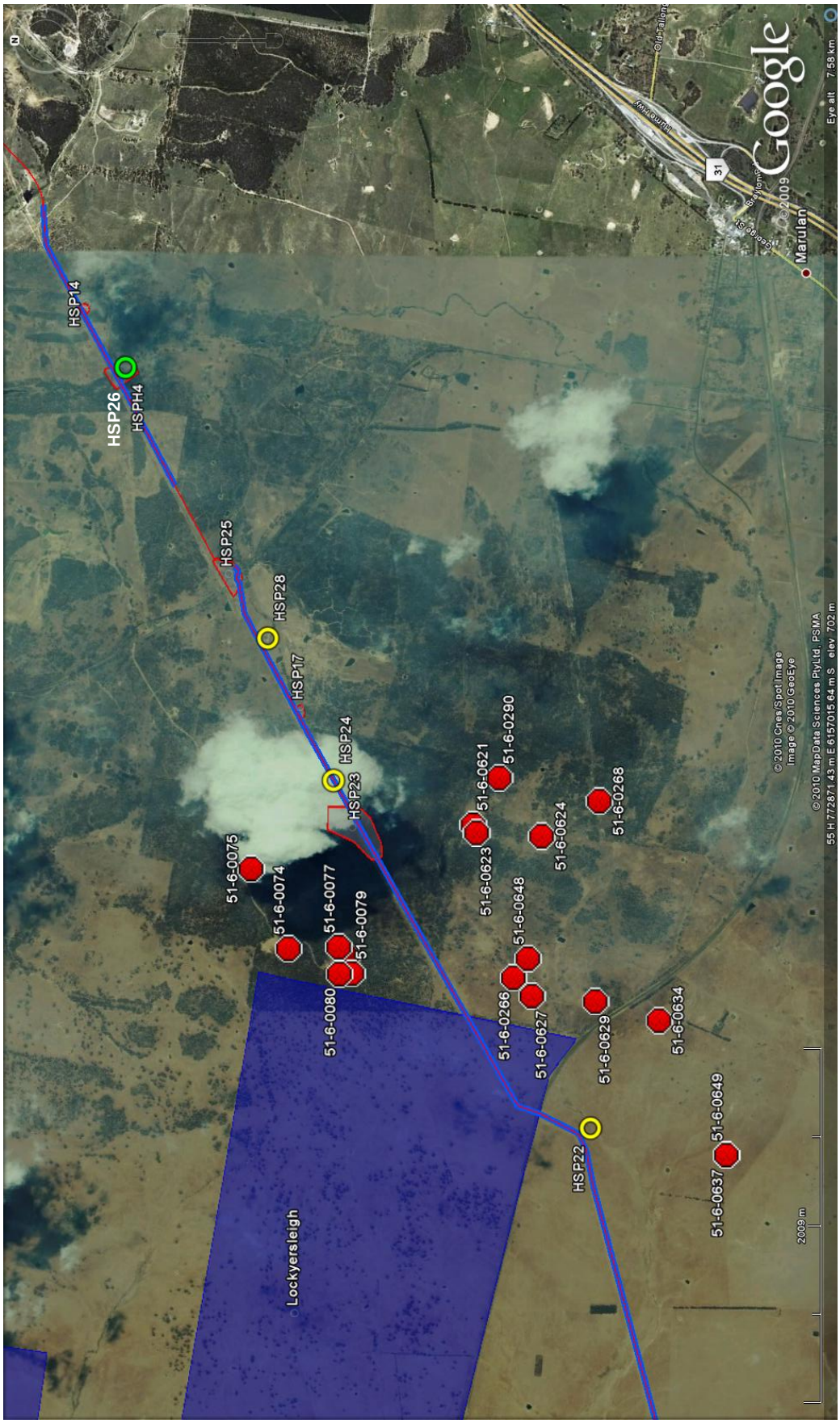

Figure 4.22 Mapping of survey coverage (blue line) and heritage sites recorded during the HSP fieldwork (Base map Google Earth 2010)

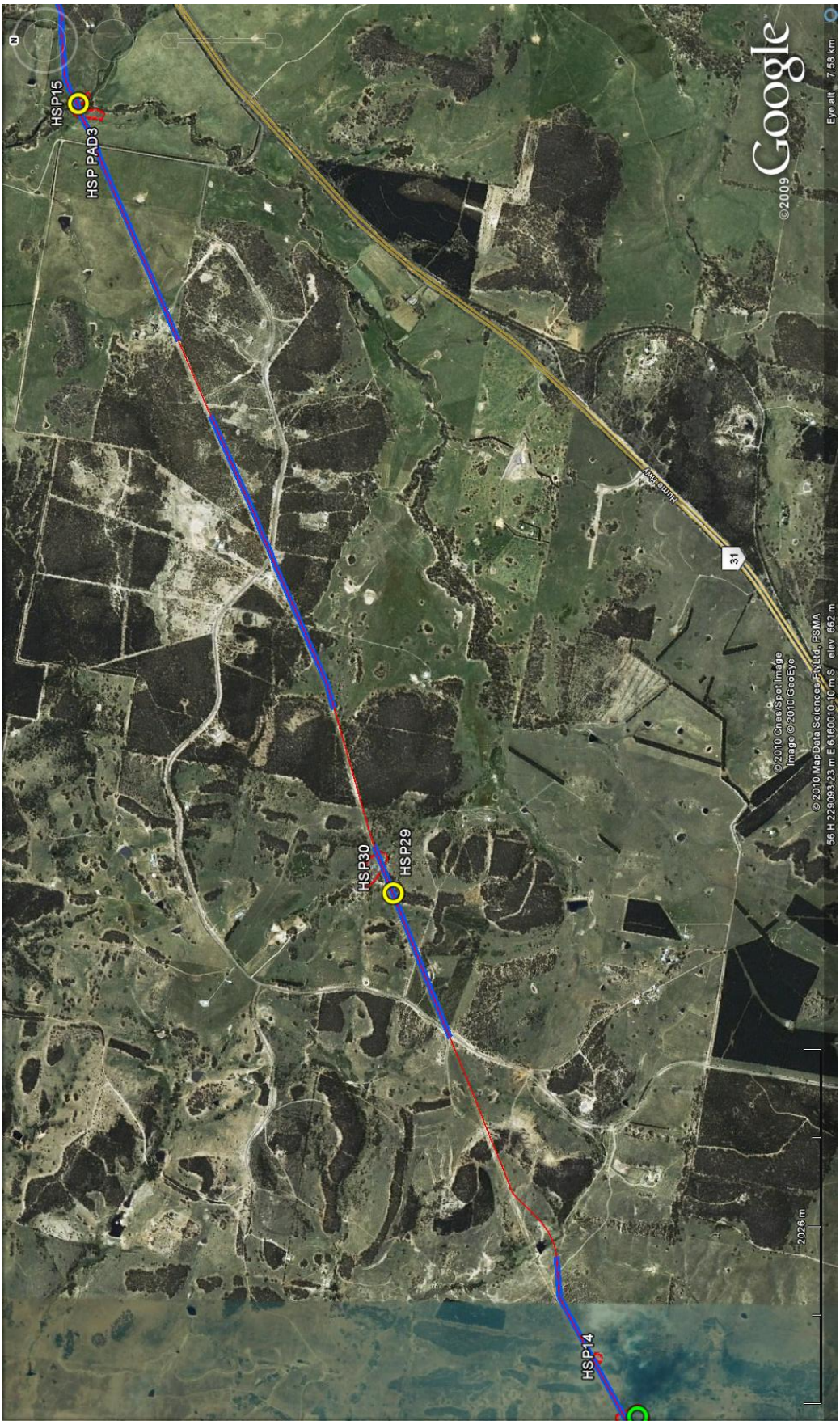

Figure 4.23 Mapping of survey coverage (blue line) and heritage sites recorded during the HSP fieldwork (Base map Google Earth 2010)

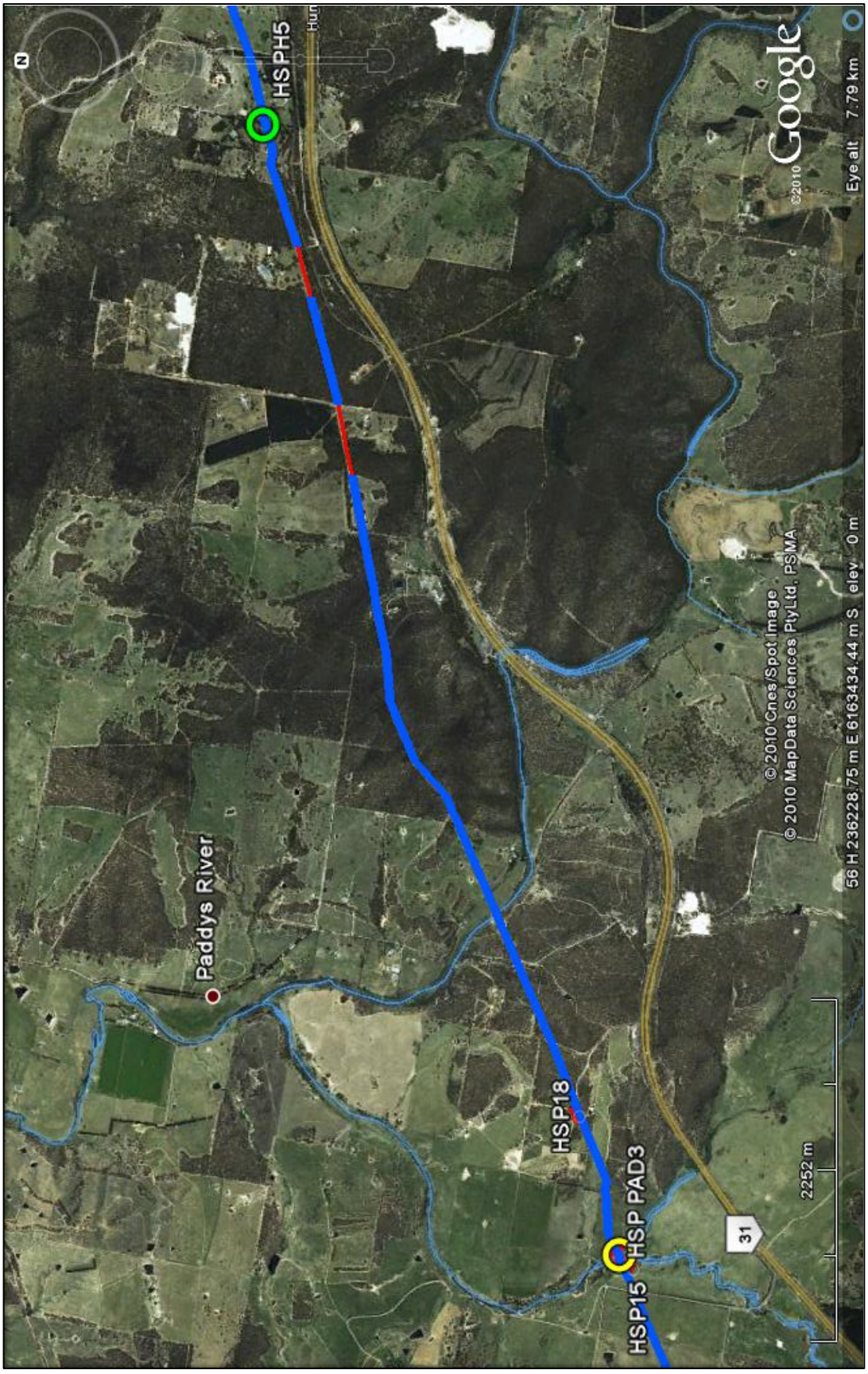

Figure 4.24 Mapping of survey coverage (blue line) and heritage sites recorded during the HSP fieldwork (Base map Google Earth 2010)

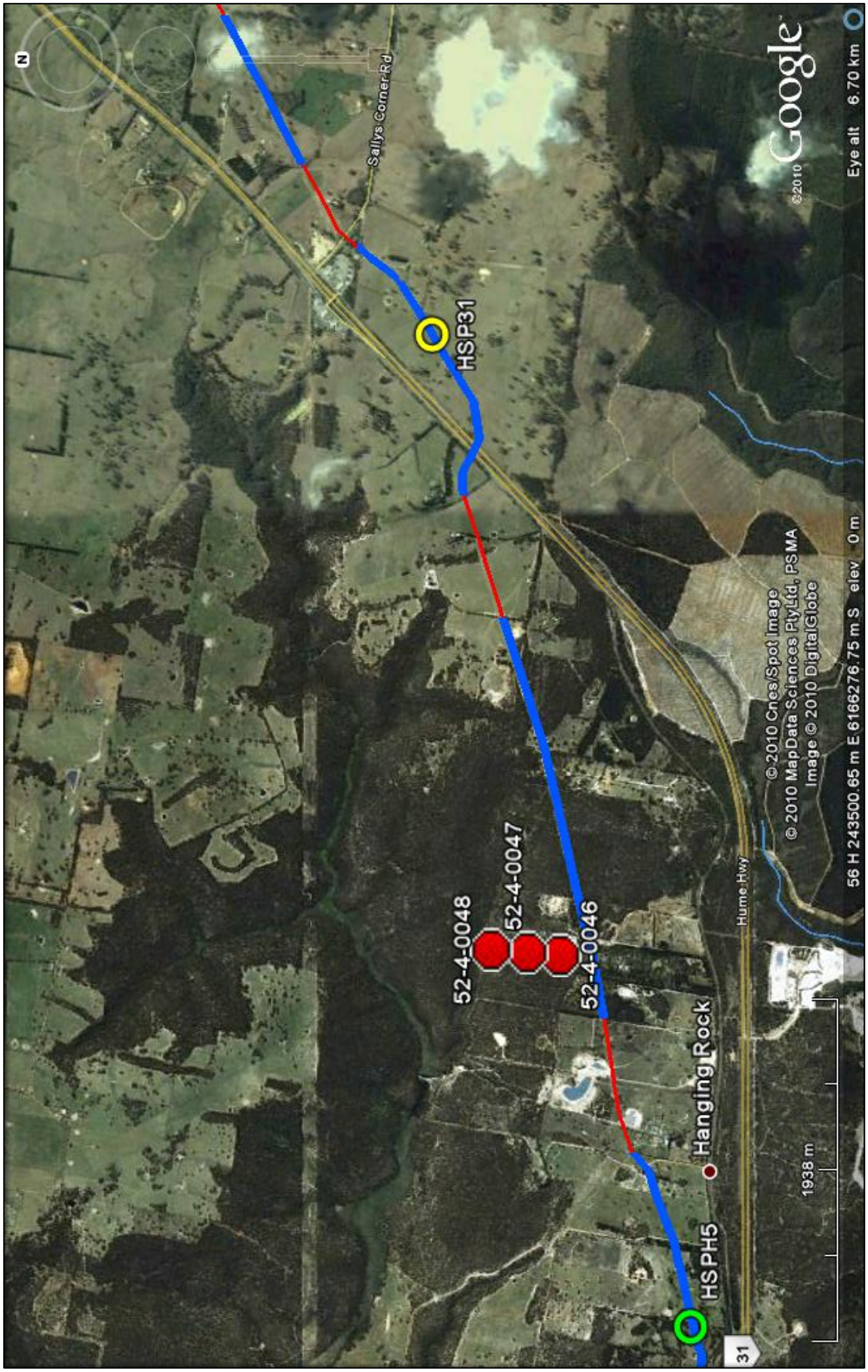

Figure 4.25 Mapping of survey coverage (blue line) and heritage sites recorded during the HSP fieldwork (Base map Google Earth 2010)

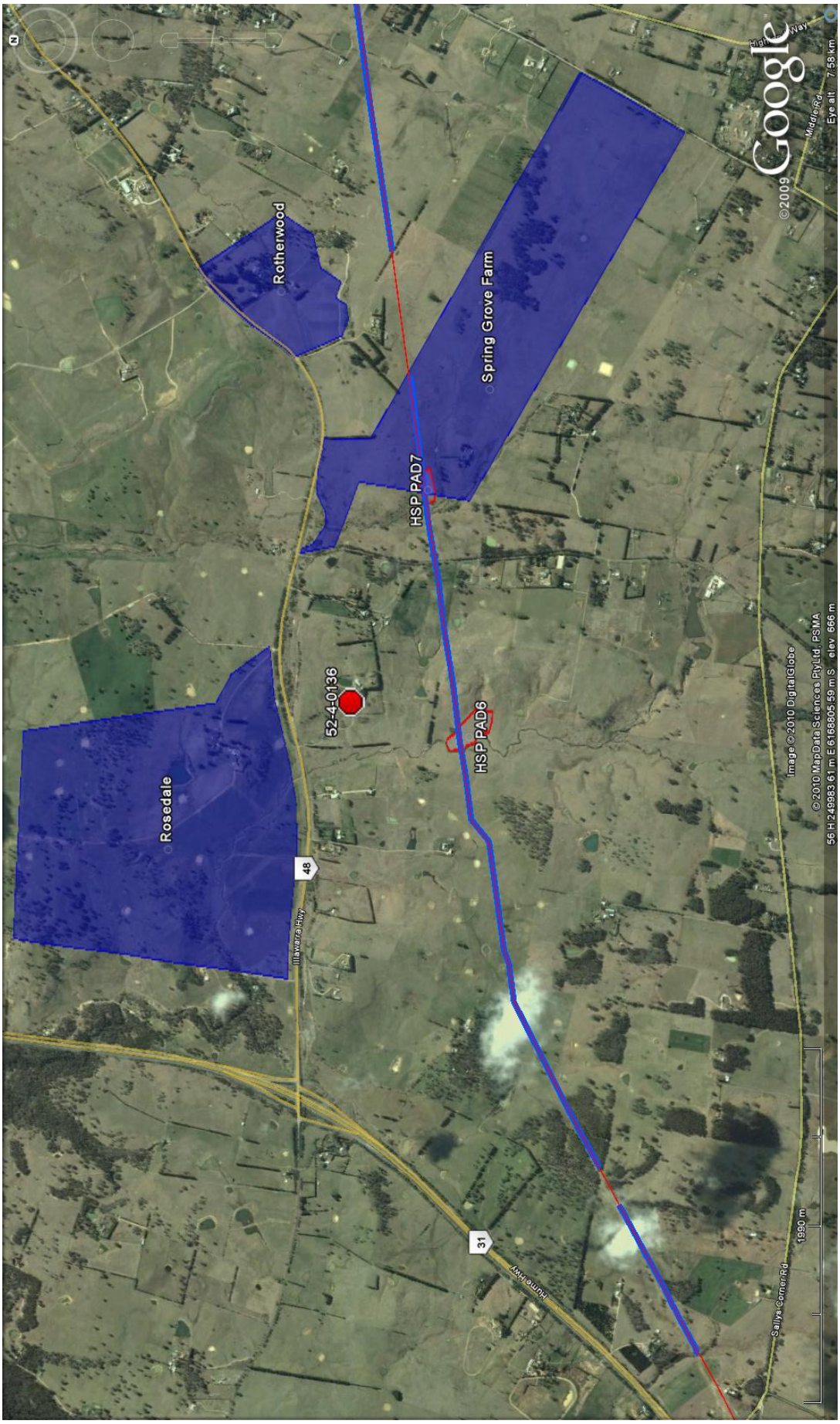

Figure 4.26 Mapping of survey coverage (blue line) and heritage sites recorded during the HSP fieldwork (Base map Google Earth 2010)

Figure 4.27 Mapping of survey coverage (blue line) and heritage sites recorded during the HSP fieldwork (Base map Google Earth 2010)

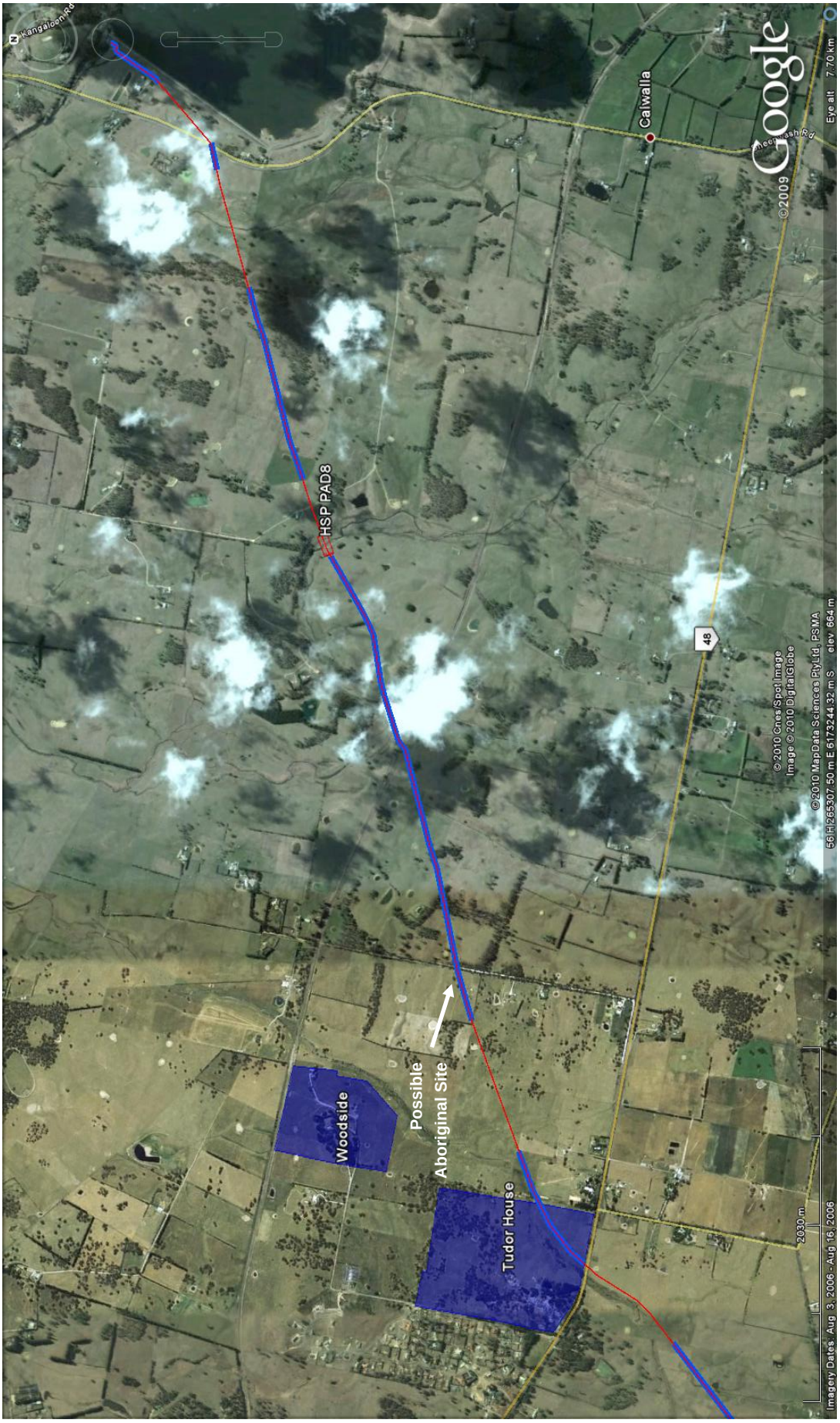

Figure 4.28 Mapping of survey coverage (blue line) and heritage sites recorded during the HSP fieldwork (Base map Google Earth 2010)

Table 4.3 Survey Coverage Data – Landforms preceded with GM and W refer to areas surveyed within Goulburn Mulwaree and Wingecarribee LGAs respectively.

Landform	Main exposure types	Unit area (ha)	Proportion of unit surveyed	Area of unit surveyed (ha)	Exposure incidence %	Average exposure visibility %	Net effective exposure (ha)	Effective survey coverage of survey unit %	Archaeological recordings
GM Alluvial flat	Stock tracks, animal burrows, sheet erosion, vehicle tracks	12.75	80%	10.2	2	10	0.0204	0.16	HSP10
GM Basal slopes	Sheet and rill erosion, stock tracks, animal tracks, service easements, dams	31.9	80%	25.52	10	10	0.2552	0.8	HSP4, HSP9, HSP11, HSP21, HSP27, HSP28
GM Drainage	Dams, gully erosion, sheet erosion, animal burrows and tracks	17.00	75%	12.75	5	20	0.1275	0.75	HSP1, HSP22
GM Knoll Crest	Sheet erosion, animal and vehicle tracks, service easements	3.15	80%	2.52	15	15	0.0567	1.8	
GM Mid slopes	Sheet erosion, animal and vehicle tracks, service easements, animal burrows	17.4	70%	12..18	10	10	0.1218	0.7	HSP12, HSP14
GM Ridge crest	Sheet erosion, animal and vehicle tracks, service easements	15.1	80%	12.08	15	40	0.7248	4.8	HSP23
GM Alluvial Terrace	Animal tracks and burrows, sheet erosion	0.7	80%	0.56	2	10	0.00112	0.16	HSP PAD3
GM Saddle	Sheet erosion, animal and vehicle tracks, service easements	0.95	90%	0.855	20	30	0.0513	5.4	HSP8

Landform	Main exposure types	Unit area (ha)	Proportion of unit surveyed	Area of unit surveyed (ha)	Exposure incidence %	Average exposure visibility %	Net effective exposure (ha)	Effective survey coverage of survey unit %	Archaeological recordings
GM Simple slope	Sheet erosion, animal and vehicle tracks, service easements, dams	54.85	70%	38.395	10	15	0.575925	1.05	HSP6
GM Spur crest	Sheet erosion, animal and vehicle tracks, service easements	21.85	85%	18.5725	15	20	0.557175	2.55	HSP3, HSP5, HSP7, HSP13, HSP17, HSP20, HSP 25, HSP PAD1, HSP PAD2
GM Upper slopes	Sheet erosion, animal and vehicle tracks, service easements	12.4	80%	9.92	10	15	0.1488	1.2	HSP24
W Alluvial flat	Animal tracks and burrows, vehicle tracks, service easements	15.8	85%	13.43	2	10	0.02686	0.17	
W Basal slopes	Animal tracks and burrows, vehicle tracks, dams, service easements	5.25	80%	4.2	8	10	0.0336	0.64	HSP PAD4/HSP26, HSP PAD8
W Drainage	Dams, gully erosion, sheet erosion, animal burrows and tracks	3.1	80%	2.48	5	15	0.0186	0.6	HSP30
W Mid slopes	Sheet erosion, animal and vehicle tracks, service easements, animal burrows	7.95	70%	5.565	10	15	0.083475	1.05	HSP29
W Ridge crest	Sheet erosion, animal and vehicle tracks, service easements	8.1	85%	6.885	10	25	0.172125	2.125	
W Alluvial Terrace	Animal tracks and burrows, sheet erosion	1.75	70%	1.225	2	2	0.00049	0.028	HSP15, HSP16, HSP PAD5

Landform	Main exposure types	Unit area (ha)	Proportion of unit surveyed	Area of unit surveyed (ha)	Exposure incidence %	Average exposure visibility %	Net effective exposure (ha)	Effective survey coverage of survey unit %	Archaeological recordings
W Saddle	Sheet erosion, animal and vehicle tracks, service easements	0.65	90%	0.585	10	15	0.008775	1.35	HSP19
W Simple slope	Sheet erosion, animal and vehicle tracks, service easements, animal burrows, dams	58.6	70%	41.02	15	20	1.2306	2.1	
W Spur crest	Sheet erosion, animal and vehicle tracks, service easements	24.95	90%	22.455	15	30	1.010475	4.05	HSP31, HSP PAD6, HSP PAD7
W Upper slopes	Sheet erosion, animal and vehicle tracks, service easements	25.65	80%	20.52	10	15	0.3078	1.2	HSP18
Goulburn Mulwaree Total		*188.05*		*131.3725*			*2.6353*	*1.40*	*25*
Wingecarribee Total		*151.8*		*118.365*			*2.8945*	*1.91*	*12*
Combined Total		**339.85**		**249.7375**			**5.5298**	**1.63**	**37**

5. SIGNIFICANCE ASSESSMENT

This section relates to sites identified during the 2010 field survey. Please refer to Section 9 of the report on the 2009 Survey (NOHC 2010) for assessment of sites recorded during the first stage of survey.

5.1 Aboriginal Heritage

5.1.1 Assessment Criteria

The Burra Charter of Australia defines cultural significance as 'aesthetic, historical, scientific or social value for past, present and future generations' (Aust. ICOMOS 1987). The assessment of the cultural significance of a place is based on this definition but often varies in the precise criteria used according to the analytical discipline and the nature of the site, object or place.

In general, Aboriginal archaeological sites are assessed using five potential categories of significance:

- significance to contemporary aboriginal people;
- scientific or archaeological significance;
- aesthetic value;
- representativeness; and
- value as an educational and/or recreational resource.

Many sites will be significant according to several categories and the exact criteria used will vary according to the nature and purpose of the evaluation. Cultural significance is a relative value based on variable references within social and scientific practice. The cultural significance of a place is therefore not a fixed assessment and may vary with changes in knowledge and social perceptions.

Cultural significance can be defined as the cultural values of a place held by and manifest within the local and wider contemporary Aboriginal community. Places of significance may be landscape features as well as archaeologically definable traces of past human activity. The significance of a place can be the result of several factors including: continuity of tradition, occupation or action; historical association; custodianship or concern for the protection and maintenance of places; and the value of sites as tangible and meaningful links with the lifestyle and values of community ancestors. Aboriginal cultural significance may or may not parallel the archaeological significance of a site.

Scientific significance can be defined as the present and future research potential of the artefactual material occurring within a place or site. This is also known as archaeological significance.

There are two major criteria used in assessing scientific significance:

1. The potential of a place to provide information which is of value in scientific analysis and the resolution of potential research questions. Sites may fall into this category because they: contain undisturbed artefactual material, occur within a context which enables the testing of certain propositions, are very old or contain significant time depth, contain large artefactual assemblages or material diversity, have unusual characteristics, are of good preservation, or are a constituent of a larger significant structure such as a site complex.

2. The representativeness of a place. Representativeness is a measure of the degree to which a place is characteristic of other places of its type, content, context or location. Under this criteria a place may be significant because it is very rare or because it provides a characteristic example or reference.

The value of an Aboriginal place as an educational resource is dependent on: the potential for interpretation to a general visitor audience, compatible Aboriginal values, a resistant site fabric, and feasible site access and management resources.

The principal aim of cultural resource management is the conservation of a representative sample of site types and variation from differing social and environmental contexts. Sites with inherently unique features, or which are poorly represented elsewhere in similar environment types, are considered to have relatively high cultural significance.

The cultural significance of a place can be usefully classified according to a comparative scale which combines a relative value with a geographic context. In this way a site can be of low, moderate or high significance within a local, regional or national context. This system provides a means of comparison, between and across places. However it does not necessarily imply that a place with a limited sphere of significance is of lesser value than one of greater reference.

The following assessments are made with full reference to the scientific, aesthetic, representative and educational criteria outlined above. Reference to Aboriginal cultural values has also been made where these values have been communicated to the consultants. It should be noted that Aboriginal cultural significance can only be determined by the Aboriginal community, and that confirmation of this significance component is dependent on written submissions by the appropriate representative organisations.

5.1.2 The Study Area

The majority of sites identified along the EA corridor for the HSP are surface scatters of artefacts, although in some cases a moderate to high potential for associated archaeological deposits has also been identified. A number of areas of PAD unassociated with surface indicators of sites have also been identified.

In general terms, areas of PAD have only been identified at sites that display moderate to high archaeological research potential. The remainder of sites have been assessed to be unlikely to contain significant archaeological deposits. They are characterised by small and/or low density artefact scatters in locations that are unlikely to have been frequented for camping and other similar activities. These sorts of smaller sites are common across the Southern Tablelands and the Southern Highlands; they offer limited educational value and are assessed to be of low scientific significance. However, these sites may have Aboriginal cultural value.

The following sites have been assessed to be of low significance on the basis of being a common site type (isolated find or small low density scatter), low educational value and low scientific significance: HSP19, HSP21, HSP27, HSP28, HSP29, HSP 30 and HSP31.

A scatter of six artefacts was recorded at HSP22 located on an eroded creek margin in an upper catchment context. While this site is relatively small and likely to reflect opportunistic landuse, it forms a component of a larger suite of sites across the Marulan area. As such, it is assessed to be of low to moderate scientific significance as a site that may add to our understanding of landuse patterns in this area.

The scatter of 12 artefacts and associated PAD at HSP20 is situated on a spur crest approximately 150 m northeast of Kenmore Creek. This location has a high potential for subsurface deposits and is predicted to contain low to moderate densities of artefacts. Subject to the results of further investigations it is predicted to potentially be of moderate archaeological significance at a local level.

HSP23 comprises a moderate sized artefact scatter and PAD situated on the upper slopes of a spur shoulder approximately 1.5m north of Joaramin Creek. Site HSP24 is located about 160m to the east and consists of a small artefact scatter. It is predicted that these sites and any associated subsurface deposits at these sites are likely to be of moderate to perhaps high local significance; they are components of a larger complex of sites known to exist across the Marulan area.

The moderate sized artefact scatter at HSP25 is located on a low gradient spur crest. It is predicted to contain low/moderate artefact densities and to have a moderate potential for in situ artefacts. This site is potentially of moderate archaeological significance in a local context.

The recording of a moderate sized artefact scatter at HSP26 (previously identified as PAD4) comprises low gradient basal slopes either side of Jaorimin Creek. This location corresponds to a sheltered and locally elevated landform with high potential to contain low/moderate artefact densities.

It is predicted to potentially be of low/moderate archaeological significance at a local level.

While field survey could not confirm the presence of an Aboriginal camp site on the Menzies property, west of Iona Park Drive (Possible Aboriginal Site), if such a site does exist, any archaeological deposits at this location have the potential to be of moderate to high significance.

Table 5.1 Summary of significance assessments for the Aboriginal sites recorded during the 2010 field survey

Site	Significance
HSP19	*Low archaeological significance at a local level*
HSP20 and PAD	*Moderate archaeological significance at a local level*
HSP21	*Low archaeological significance at a local level*
HSP22	*Low/moderate archaeological significance at a local level*
HSP23 and PAD	*Moderate/high archaeological significance at a local level*
HSP24	*Low/moderate archaeological significance at a local level*
HSP25 and PAD	*Moderate archaeological significance at a local level*
HSP26 and PAD4	*Low/moderate archaeological significance at a local level*
HSP27	*Low archaeological significance at a local level*
HSP28	*Low archaeological significance at a local level*
HSP29	*Low archaeological significance at a local level*
HSP30	*Low archaeological significance at a local level*
HSP31	*Low archaeological significance at a local level*
HSP PAD8	*Moderate archaeological significance at a local level*
Possible Aboriginal Site	*Moderate to high cultural/archaeological significance at a local level*

5.2 European Heritage

5.2.1 Assessment Criteria

The NSW Heritage Office has defined a methodology and set of criteria for the assessment of cultural heritage significance for items and places, where these do not include Aboriginal heritage from the pre-contact period (NSW Heritage Office & DUAP 1996, NSW Heritage Office 2000). The assessments provided in this report follow the Heritage Office methodology.

The following heritage assessment criteria are those set out for Listing on the State Heritage Register. In many cases items will be significant under only one or two criteria. The State Heritage Register was established under Part 3A of the Heritage Act (as amended in 1999) for listing of items of environmental heritage that are of state heritage significance. Environmental heritage means those places, buildings, works, relics, moveable objects, and precincts, of state or local heritage significance (section 4, Heritage Act 1977).

An item will be considered to be of State (or local) heritage significance if, in the opinion of the Heritage Council of NSW, it meets one or more of the following criteria:

Criterion (a) an item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (b) an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (c) an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);

Criterion (d) an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;

Criterion (e) an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (f) an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (g) an item is important in demonstrating the principal characteristics of a class of NSW's

- cultural or natural places; or
- cultural or natural environments.

(or a class of the local area's

- cultural or natural places; or
- cultural or natural environments.)

An item is not to be excluded from the Register on the ground that items with similar characteristics have already been listed on the Register. Only particularly complex items or places will be significant under all criteria.

In using these criteria it is important to assess the values first, then the local or State context in which they may be significant.

Different components of a place may make a different relative contribution to its heritage value. For example, loss of integrity or condition may diminish significance. In some cases it is constructive to note the relative contribution of an item or its components. Table 8.1 provides a guide to ascribing relative value.

Table 5.2 Guide to ascribing relative heritage value

Grading	Justification	Status
Exceptional	Rare or outstanding item of local or State significance. High degree of intactness Item can be interpreted relatively easily.	Fulfils criteria for local or State listing.
High	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for local or State listing.
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.	Fulfils criteria for local or State listing.
Little	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
Intrusive	Damaging to the item's heritage significance.	Does not fulfil criteria for local or State listing.

5.2.2 The Study Area

The building ruins at HSPH4 are situated in an isolated location on a gentle slope adjacent to Jaorimin Creek. This site is in poor condition. On the basis of available information it cannot be demonstrated to be of importance in terms of local history, individuals or communities. It is a relatively common site type and does not display significant potential to yield additional information. This site is not assessed to be of sufficient value against any of the significance criteria to warrant heritage listing.

Similarly, the recording at HSPH5 is not assessed to be of sufficient value to warrant heritage listing. This site appears to date to the mid twentieth century and cannot be demonstrated to be of importance in terms of local history, individuals or communities on the basis of available information.

The recording HSPH6 comprises house ruins, tree plantings and possible garden terraces on a gentle slope to the north of the main Kenmore Psychiatric Hospital complex. It is unclear exactly how old this site is and what the nature of its relationship with the Kenmore Psychiatric Hospital may be. However, it appears to potentially date to the late nineteenth or early twentieth century and there is good potential for subsurface archaeological deposits. Essentially, while assessment of this site would benefit from additional research, it is clear that it has the potential to yield information that will contribute to an understanding of the history of settlement at Goulburn and the history of Kenmore.

On the basis of the information currently available this site is assessed to be of local significance against criterion e. It should however be noted that subject to the results of additional investigations this site may have significance against additional criteria at local and/or state levels.

Table 5.3 Summary of significance assessments for the European sites recorded during the 2010 field survey

Site	Significance
HSPH4	Does not meet the criteria for local or state listing
HSPH5	Does not meet the criteria for local or state listing
HSPH6	Local significance against criteria e

6. STATUTORY AND POLICY CONTEXT[1]

6.1 Environmental Planning and Assessment Act 1979

This Act (EP&A Act) and its regulations, schedules and associated guidelines require that environmental impacts are considered in land use planning and decision making. Environmental impacts include cultural heritage assessment. The Act was reformed by the *Environmental Planning and Assessment Amendment (Infrastructure and other Planning Reform) Act 2005*.

There are four main areas of protection under the Act:

- Planning instruments allow particular uses for land and specify constraints. Part 3 governs the preparation of planning instruments. Both Aboriginal and Historical (Non-Indigenous) cultural heritage values should be assessed when determining land use;

- A separate streamlined and integrated development assessment and approvals regime for major infrastructure and other projects of significance to the State is defined by Part 3A;

- Section 90 lists impacts which must be considered before development approval is granted. Part 4 relates to the development assessment process for local government authorities. Impact to both Aboriginal and Historical (Non-Indigenous) cultural heritage values are included; and

- State Government agencies which act as the determining authority on the environmental impacts of proposed activities must consider a variety of community and cultural factors in their decisions, including Aboriginal and Historical (Non-Indigenous) cultural heritage values. Part 5 relates to activities which do not require consent but still require an environmental evaluation, such as proposals by government authorities.

Part 3A of the EP&A Act

Part 3A of the Act is an amendment which establishes a separate streamlined and integrated development assessment and approvals regime for major State government infrastructure projects, development that was previously classified as State Significant development, and other projects, plans or programs declared by the Minister for Planning.

Part 3A removes the stop-the-clock provisions and the need for single-issue approvals under eight other Acts, including the NP&W Act and the Heritage Act 1977. Environmental planning instruments such as the heritage provisions within REP and LEPs, (other than State environmental planning policies) do not apply to projects approved under Part 3A.

Where warranted the Minister may declare any project subject to Part 3A to be a critical infrastructure project. These projects only require a concept approval in contrast to other Part 3A projects which require project approval. In most circumstances, a concept approval will be obtained to establish the environmental performance requirements and consultation requirements for the implementation of the subsequent stages of the project.

Under the provisions of Part 3A, proponents of major and infrastructure projects must make a project application seeking approval of the Minister. The application is to include a preliminary assessment of the project. Application may be for concept plan approval or full approval. Following input from relevant agencies and council(s), DoP will issue the proponent with requirements for the preparation of an Environmental Assessment and a Statement of Commitments. The Statement of Commitments will include how the project will be managed in an environmentally sustainable manner, and consultation requirements.

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[1] The following information is provided as a guide only. Readers are advised to seek qualified legal advice relative to legislative matters.

Following submission of an Environmental Assessment and draft Statement of Commitments to DoP, these documents are variously evaluated, reviewed, circulated and exhibited. The proponent may modify the proposal to minimise impacts in response to submissions received during this process. The proponent then provides a Statement of Commitments and, following any project changes, a Preferred Project Report. An assessment report is then drafted by the Director-General and following consultation with relevant agencies, a final report with recommendations for approval conditions or application refusal is submitted to the Minister. The Minister may refuse the project, or approve it with any conditions considered appropriate.

7. IMPACT ASSESSMENT

7.1 Environmental Risk Assessment

The Project would have some impacts on heritage items in and adjacent the EA corridor and may introduce new risks that would require careful management. A detailed assessment of the identified impacts was undertaken by considering the risks that would be associated with them.

The risk assessment was conducted to:

- prioritise the identified impacts in terms of the potential relative risk each may pose to cultural heritage and the consequences that may arise from any changes; and
- identify targeted actions and initiatives that would need to be adopted to monitor and manage the risks during the proposed Project operations.

A qualitative risk assessment approach was used. The relative risk for each identified impact was determined as a function of the likelihood of a certain impact event occurring as well as the consequences that may be associated with it. Initially the risk was assessed on the basis of the Project description, the information available regarding indigenous and non-indigenous heritage site locations in the Southern Tablelands and Southern Highlands and system understanding (*i.e.* how the current systems operate, the controls that already exist to manage some of the risks, *etc.*) documented in this report. For the impacts with the higher relative risk scores, additional management and control activities have been identified for consideration, and the risks were reassessed assuming that these controls/actions would have been implemented. (It is these additional identified management activities and controls that make up the recommended impact mitigation measures described in Section 12).

The details and outcomes of the risk assessment are provided in Appendix 6 of the original heritage assessment (NOHC 2010).

Broadly, the issues that would be a priority for management during the Project construction phase would be:

- Construction activities may disturb archaeological deposits at a historical site of heritage significance.
- Construction activities may disturb archaeological deposits at an indigenous site of cultural/archaeological significance.
- Construction activities may disturb artefacts at potential archaeological deposits (PAD)

The issues that would be a priority for management during the Project operation phase would be:

- Vehicles causing physical disturbance at a historical site
- Vehicles causing physical disturbance at an indigenous site

7.2 Impacts at Aboriginal Sites

In terms of specific impacts at Aboriginal sites, the main risks relate to the construction phase. A summary of potential impacts at each site is provided below in Table 7.1. Potential impacts are divided into three basic groups: *direct impacts* where the easement intersects a site, *potential impacts* where the easement is within 100 m of a site and *no impacts* where the easement is more than 100 m from a site.

Table 7.1 Summary of potential impacts at Aboriginal sites along the HSP

Site	Potential Impacts
HSP1 Isolated find	Potential impacts, ie within20 m of the pipeline
HSP2 Artefact scatter	Not impacted, outside study area of preferred alignment.
HSP3 Artefact scatter, PAD	Potential impacts, i.e. within 15m of the pipeline
HSP4 Artefact scatter	Potential impacts, i.e. within 80 m of the pipeline
HSP5 Artefact scatter, PAD	Site and PAD directly impacted
HSP6 Isolated find	Directly impacted
HSP7 Isolated find, PAD	Site and PAD directly impacted
HSP8 Artefact scatter, PAD	Site and PAD directly impacted
HSP9 Isolated find	Potential impacts, i.e. within 40 m of the pipeline
HSP10 Artefact scatter, PAD	Potential impacts, i.e. within 25 m of the pipeline
HSP11 Artefact scatter	Potential impacts, i.e. within 15 m of the pipeline
HSP12 Artefact scatter	Directly impacted
HSP13 Artefact scatter	Potential impacts, i.e. within 20 m of the pipeline
HSP14 Artefact scatter	Potential impacts, i.e. within 20 m of the pipeline
HSP15 Artefact scatter, PAD	Site and PAD directly impacted
HSP16 Artefact scatter, PAD	PAD directly impacted
HSP17 Artefact scatter, PAD	Site and PAD directly impacted
HSP18 Isolated find	Directly impacted
HSP19 Isolated find	Potential impacts, i.e. within 90m of the pipeline
HSP20 Artefact scatter, PAD	Site and PAD directly impacted
HSP21 Isolated find	Potential impacts, i.e. within 10m of the pipeline
HSP22 Artefact scatter	Potential impacts, i.e. within 80m of the pipeline
HSP23 Artefact scatter, PAD	Site and PAD directly impacted
HSP24 Artefact scatter	Directly impacted
HSP25 Artefact scatter; PAD	Site and PAD directly impacted
HSP26 Artefact scatter, PAD	Site and PAD directly impacted
HSP27 Artefact scatter	Potential impacts, i.e. within 30m of pipeline

Site	Potential Impacts
HSP28 Artefact scatter	Potential impacts, i.e. within 60m of pipeline
HSP29 Artefact scatter	Directly impacted
HSP30 Artefact scatter	Directly impacted
HSP31 Isolated find	Directly impacted
HSP PAD1	PAD directly impacted
HSP PAD2	PAD directly impacted
HSP PAD3	PAD directly impacted
HSP PAD4	PAD directly impacted
HSP PAD5	PAD directly impacted
HSP PAD6	PAD directly impacted
HSP PAD7	PAD directly impacted
HSP PAD8	PAD directly impacted
Possible Aboriginal SIte	Potential impacts, i.e. within 50m of pipeline

7.3 Impacts at European Sites

As is the case with Aboriginal sites, the main risks associated with European sites relate to the construction phase of the HSP. A summary of potential impacts at each site is provided below in Table 7.2.

The only sites that will potentially be directly impacted by the Project are HSPH6 and the Veteran's Allotments. However, it should be noted that the impacts proposed within the Veteran's Allotments would be restricted to a narrow corridor between two existing easements (the gas pipeline to the north and the railway to the south). Given that impacts would be within an already disturbed portion of these allotments and that impacts would be similar to those already sustained by the neighbouring easements, the overall impact on the heritage value of these allotments is assessed to be negligible.

In the case of the ruins at HSPH6, the site has been assessed to have heritage value due to its potential to yield information relating to the local history of the area. Disturbance at this site would directly compromise the heritage value of HSPH6.

Table 7.2 Summary of potential impacts at European sites along the HSP

Site	Potential Impacts
HSPH1	Potential impacts, ie within 50 m of the pipeline
HSPH2	Potential impacts, ie within 150 m of the pipeline
HSPH3 (Ruins of Kyle)	Potential impacts, ie within 200 m of the pipeline
HSPH4	Potential impacts, ie within 80m of pipeline
HSPH5	Potential impacts, ie within 15m of pipeline
HSPH6	Directly impacted
Teneriffe	House not impacted – property outside the proposed pipeline

Site	Potential Impacts
Kenmore Psychiatric Hospital Complex	Conservation area not impacted – potential impacts at features HSPH1, HSPH2 and HSPH6 (see above)
Veteran Allotments	Directly impacted
Veteran Allotments	Directly impacted
Lockyersleigh	House and gardens not impacted
Spring Grove Farm	House and gardens not impacted
Tudor House	House and gardens not impacted

8. MITIGATION MEASURES

An overview of general options that might be considered in order to reduce risks at various site types is provided in the risk register in Appendix 6 of the cultural heritage assessment report for the 2009 survey (NOHC 2010). The sections below discuss mitigation options specific to individual sites

8.1 Aboriginal Sites

The Aboriginal sites identified in the course of this study fall into four general categories:

1. sites that will not be impacted

2. sites that are in proximity to areas of direct impacts

3. artefact scatters that will be directly impacted

4. areas of PAD (associated or unassociated with artefact scatters) that will be directly impacted

Mitigation measures are applicable to categories 2 to 4 above and are summarised below in Table 8.1.

In the case of sites located in proximity to areas of direct impacts (e.g. HSP1, HSP9 etc), the most applicable management strategies are to clearly mark the extent of the site with high visibility fencing, and where feasible, to limit the width of the pipeline easement in order to minimise impacts. In these instances, the site could also be clearly marked on all mapping and plans used by contractors working on the Project.

Where artefact scatters of low archaeological significance will be directly impacted there are two main options for mitigation. The first option is to modify the pipeline route so that it no longer impacts the site (in which case the above management strategies for sites in proximity to the easement would then apply). The second option is to salvage artefacts from the site prior to impacts. In this instance the collected items could be stored at an appropriate keeping place as agreed to by the relevant Aboriginal stakeholders (e.g. the Australian Museum), or as guided by advice from the DECCW.

In situations where areas of PAD will be directly impacted there are again two main management options. The first is to modify the pipeline route so that impacts to the PAD will be avoided. However, in many cases this may not be feasible as the area of PAD is likely to continue for some distance either side of the proposed pipeline easement and/or moving the pipeline will simply result in impacts to an additional area of PAD. The option of modifying the pipeline will also inevitably require additional archaeological investigations in the form of survey work along the new sections of the alignment.

The second mitigation measure applicable to areas of PAD is further archaeological investigation in the form of subsurface testing. An option such as this would enable the nature and extent of archaeological deposits to be ascertained, which would also result in a more detailed assessment of their archaeological significance. Depending upon the results of such investigations it may also be necessary to undertake a program of salvage excavations at some or all of these sites.

8.2 European Sites

The majority of European sites identified in the course of this study will not be impacted by the HSP. While the pipeline alignment passes through and adjacent properties that contain heritage listed items, in most cases it will not directly impact the curtilage associated with these items and, the distance between the listed items and the construction zone is such that they will not be directly impacted by dust and vibrations (Table 8.2).

As is the case with Aboriginal sites located in proximity to the proposed pipeline, measures such as high visibility fencing and appropriate mapping of heritage features on contractor plans and maps, might assist in ensuring that impacts are avoided at these sites.

HSPH6 is the only site where direct impacts may occur that would compromise the heritage value of the item. In this instance, it may be possible to minimise impacts through additional research and survey at the site, together with narrowing of the pipeline corridor across the area where HSPH6 is situated. Other mitigation options for this site include archival recording and/or salvage excavation prior to commencement of construction works.

Table 8.1 Summary of management options for Aboriginal sites along the HSP

Site	Significance	Potential Impacts	Management Options
HSP1 Isolated find	Low archaeological significance at a local level	Potential impacts, ie within20 m of the pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans
HSP2 Artefact scatter	Low archaeological significance at a local level	Not impacted, outside study area of preferred alignment.	No further action
HSP3 Artefact scatter, PAD	Moderate archaeological significance at a local level	Potential impacts, i.e. within 15m of the pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans
HSP4 Artefact scatter	Low archaeological significance at a local level	Potential impacts, i.e. within 80 m of the pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans
HSP5 Artefact scatter, PAD	Moderate archaeological significance at a local level	Site and PAD directly impacted	Collection of surface artefacts across affected areas, subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP6 Isolated find	Low archaeological significance at a local level	Directly impacted	Collection of surface artefact
HSP7 Isolated find, PAD	Moderate archaeological significance at a local level	Site and PAD directly impacted	Collection of surface artefacts across affected areas, subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP8 Artefact scatter, PAD	Low/moderate archaeological significance at a local level	Site and PAD directly impacted	Collection of surface artefacts across affected areas, subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP9 Isolated find	Low archaeological significance at a local level	Potential impacts, i.e. within 40 m of the pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans

Site	Significance	Potential Impacts	Management Options
HSP10 Artefact scatter, PAD	Moderate archaeological significance at a local level	Potential impacts, i.e. within 25 m of the pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans
HSP11 Artefact scatter	Low archaeological significance at a local level	Potential impacts, i.e. within 15 m of the pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans
HSP12 Artefact scatter	Low archaeological significance at a local level	Directly impacted	Collection of surface artefacts
HSP13 Artefact scatter	Low archaeological significance at a local level	Potential impacts, i.e. within 20 m of the pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans
HSP14 Artefact scatter	Low archaeological significance at a local level	Potential impacts, i.e. within 20 m of the pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans
HSP15 Artefact scatter, PAD	Moderate/high archaeological significance at a local level	Site and PAD directly impacted	Collection of surface artefacts across affected areas, subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP16 Artefact scatter, PAD	Moderate archaeological significance at a local level	PAD directly impacted	High visibility fencing around recorded artefacts, mark site location on all relevant maps and plans. Subsurface testing within affected PAD and development of additional management options as appropriate (e.g. salvage excavation)
HSP17 Artefact scatter, PAD	Low/moderate archaeological significance at a local level	Site and PAD directly impacted	Collection of surface artefacts across affected areas, subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP18 Artefact scatter	Low archaeological significance at a local level	Directly impacted	Collection of surface artefacts

Site	Significance	Potential Impacts	Management Options
HSP19 Isolated find	Low archaeological significance at a local level	Potential impacts, i.e. within 90m of the pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans
HSP20 Artefact scatter, PAD	Moderate archaeological significance at a local level	Site and PAD directly impacted	Collection of surface artefacts across affected areas, subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP21 Isolated find	Low archaeological significance at a local level	Potential impacts, i.e. within 10m of the pipeline	High visibility fencing around the site, limit width of pipeline corridor as necessary
HSP22 Artefact scatter	Low/moderate archaeological significance at a local level	Potential impacts, i.e. within 80m of the pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans
HSP23 Artefact scatter, PAD	Moderate/high archaeological significance at a local level	Site and PAD directly impacted	Collection of surface artefacts across affected areas, subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP24 Artefact scatter	Low/moderate archaeological significance at a local level	Directly impacted	Collection of surface artefacts
HSP25 Artefact scatter	Moderate archaeological significance at a local level	Site and PAD directly impacted	Collection of surface artefacts across affected areas, subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP26 (PAD4) Artefact scatter, PAD	Low/moderate archaeological significance at a local level	Site and PAD directly impacted	Collection of surface artefacts across affected areas, subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP27 Artefact scatter	Low archaeological significance at a local level	Potential impacts, i.e. within 30m of pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans

Site	Significance	Potential Impacts	Management Options
HSP28 Artefact scatter	Low archaeological significance at a local level	Potential impacts, i.e. within 60m of pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans
HSP29 Artefact scatter	Low archaeological significance at a local level	Directly impacted	Collection of surface artefacts
HSP30 Artefact scatter	Low archaeological significance at a local level	Directly impacted	Collection of surface artefacts
HSP31 Isolated find	Low archaeological significance at a local level	Directly impacted	Collection of surface artefact
HSP PAD1	Moderate archaeological significance at a local level	PAD directly impacted	Subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP PAD2	Moderate archaeological significance at a local level	PAD directly impacted	Subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP PAD3	Moderate/high archaeological significance at a local level	PAD directly impacted	Subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP PAD5	Moderate archaeological significance at a local level	PAD directly impacted	Subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP PAD6	Moderate archaeological significance at a local level	PAD directly impacted	Subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP PAD7	Moderate archaeological significance at a local level	PAD directly impacted	Subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
HSP PAD8	Moderate archaeological significance at a local level	PAD directly impacted	Subsurface testing and development of additional management options as appropriate (e.g. salvage excavation)
Possible Aboriginal Site	Moderate to high cultural/archaeological significance	Potential impacts, i.e. within 50 m of pipeline	High visibility fencing around the site, mark site location on all relevant maps and plans

Table 8.2 Summary of management options for European recordings along the HSP

Site	Significance	Potential Impacts	Management Options
HSPH1	Local significance against criterion e	Potential impacts, ie within 50 m of the pipeline	High visibility fencing around the site/mark site location on all relevant maps and plans
HSPH2	Does not meet the criteria for local or state listing	Potential impacts, ie within 150 m of the pipeline	High visibility fencing around the site/mark site location on all relevant maps and plans
HSPH3 (Ruins of Kyle)	Local significance against criterion e	Potential impacts, ie within 200 m of the pipeline	High visibility fencing around the site/mark site location on all relevant maps and plans
HSPH4	Does not meet the criteria for local or state listing	Potential impacts, ie within 80m of the pipeline	High visibility fencing around the site/ mark site location on all relevant maps and plans
HSPH5	Does not meet the criteria for local or state listing	Potential impacts, ie within 50m of pipeline	High visibility fencing around the site/mark site location on all relevant maps and plans
HSPH6	Local significance against criterion e	Directly impacted	Limit width of construction corridor. Archival recording, monitoring, subsurface testing and/or salvage excavation to identify extent and nature of deposits
Teneriffe	Local significance	House not impacted – property outside the proposed pipeline	Mark site on all relevant maps and plans
Kenmore Psychiatric Hospital Complex	Significance against all of the criteria (a-g) at local, state and national levels	Conservation area not impacted – potential impacts at features HSPH1, HSPH2 and HSPH6 (see above)	Mark site on all relevant maps and plans Also refer to management options for sites HSPH1, HSPH2 and HSPH6
Veteran Allotments	Local significance	Directly impacted	Statement of Heritage Impact
Veteran Allotments	Local significance	Directly impacted	Statement of Heritage Impact
Lockyersleigh	Local significance	House and gardens not impacted	Mark site on all relevant maps and plans
Spring Grove Farm	Local significance	House and gardens not impacted	Mark site on all relevant maps and plans
Tudor House	Local significance	House and gardens not impacted	Mark site on all relevant maps and plans

9. CONCLUSIONS AND RECOMMENDATIONS

This cultural heritage assessment has considered potential impacts to both previously identified heritage sites and items identified in the course of survey along the proposed pipeline route.

It is concluded that, on the basis of previous research and the results of both phases of field survey, there are no Aboriginal or European heritage issues that would pose an absolute constraint to the Project.

9.1 Management Recommendations

The following recommendations have been formulated on the basis of the results of both the 2009 and 2010 field surveys and the results of previous heritage studies across the Southern Highlands and the Southern Tablelands.

It is recommended that:

1. No action is required for HSP2.

2. The sites HSP1, HSP3, HSP4, HSP9, HSP10, HSP11, HSP13, HSP14, HSP19, HSP22, HSP27, HSP28 and the Possible Aboriginal Site should be fenced prior to commencement of construction and their locations should be clearly marked on all relevant maps and plans (these measures should also be considered for the previously recorded AHIMS sites 51-6-0364 and 51-6-0115, which are not within the EA corridor but are situated in proximity to the proposed pipeline).

3. Prior to commencement of construction activities, salvage of artefacts should be conducted at HSP6, HSP12, HSP18, HSP24, HSP29, HSP30 and HSP31.

4. Prior to commencement of construction activities, salvage of artefacts should be conducted at HSP5, HSP7, HSP8, HSP15, HSP17, HSP20, HSP23, HSP25 and HSP26 (PAD4) and, a program of archaeological subsurface testing should be conducted within the affected sections of PAD at these sites; depending upon the results of that testing, it may be necessary to undertake salvage excavations in these locations.

5. A program of archaeological subsurface testing should be conducted within the affected sections of HSP PAD1, HSP PAD2, HSP PAD3 HSP PAD4, HSP PAD5, HSP PAD6, HSP PAD7 and HSP PAD8 and, depending upon the results of that testing, it may be necessary to undertake salvage excavations in these locations.

6. The artefacts recorded at site HSP16 should be fenced prior to commencement of construction and their locations clearly marked on all relevant maps and plans. In addition, a program of archaeological subsurface testing should be conducted within the affected sections of PAD; depending upon the results of that testing, it may be necessary to undertake salvage excavations at this site.

7. Site HSP21 should be fenced prior to commencement of construction activities and the width of the pipeline corridor be limited as necessary.

8. Prior to commencement of construction activities, a statement of heritage impact should be prepared and submitted to Goulburn Mulwaree Council for the two Veteran Allotments on the Wollondilly River at Murrays Flat.

9. Sites HSPH1, HSPH2, HSPH3, HSPH4 and HSPH5 should be fenced prior to commencement of construction and their location should be clearly marked on all relevant maps and plans.

10. Prior to commencement of construction activities, an archival recording should be completed of site HSPH6 with monitoring carried out during construction. The width of the pipeline corridor

should be limited where feasible adjacent this site. Depending upon the results of monitoring, it may be necessary to undertake salvage excavations at this location.

11. The following heritage items will not be impacted by the Project, however it would be prudent given their proximity to the pipeline to mark their location on all relevant maps and plans:

    - The dwelling at Teneriffe;
    - Conservation area at the Kenmore Psychiatric Hospital Complex;
    - The homestead and gardens at Lockyersleigh;
    - The house and gardens at Spring Grove Farm; and
    - The Tudor House Preparatory School buildings and gardens.

12. The protocols for the unanticipated discovery of archaeological material and suspected human remains (presented in Appendix 3) be adopted and complied with during construction activities involving ground surface disturbance and excavation.

13. Three copies of this report should be provided to the DECCW for its information and records, at the following address:

    NSW Department of Environment, Climate Change and Water
    Planning & Aboriginal Heritage Section
    PO Box 733
    Queanbeyan NSW 2620

14. One copy of this report should be provided to the NSW Heritage Council for its information and records, at the following address:

    NSW Heritage Council
    Locked Bag 5020
    Parramatta NSW 2124

15. A draft copy of this report should be forwarded to the following registered Aboriginal stakeholders:

    Buru Ngunawal Aboriginal Corporation
    PO Box 6900
    Charnwood ACT 2615

    Pejar Local Aboriginal Land Council
    PO Box 289
    Goulburn NSW 2580

    Illawarra Local Aboriginal Land Council
    3 Ellen Street
    Wollongong NSW 2500

    Gundungurra Aboriginal Heritage Association Inc.
    PO Box 31
    Lawson NSW 2783

    Ngunawal Heritage Aboriginal Corporation
    Lot 114 Ash Road
    Prestons NSW 2170

    Peter Falk
    PO Box 1018
    Mittagong NSW 2575

King Brown Tribal Group Pty Ltd
73 Southbar Rd
Queanbeyan NSW 2620

Goulburn Mulwaree Council
Locked Bag 22
Goulburn NSW 2580

10. REFERENCES

Australia ICOMOS 1987 *The Australia Icomos Charter for the Conservation of Places of Cultural Significance (The Burra Charter), Guidelines to the Burra Charter: Cultural Significance and Conservation Policy.* Pamphlet, Australia Icomos (Inc).

DEC 2005 *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation*, Department of Environment and Conservation.

Navin Officer Heritage Consultants 2010 Highlands Source Pipeline Project: Cultural Heritage Assessment. Report to Goulburn Mulwaree Council.

Navin Officer Heritage Consultants 2009 Highlands Source Pipeline Project: Desktop Archaeological Assessment. Report to Goulburn Mulwaree Council.

NSW Heritage Office 2000 *Assessing Heritage Significance.* Update for NSW Heritage Manual, (Final Approved Text August 2000), NSW Heritage Office, Sydney.

NSW Heritage Office and Department of Urban Affairs and Planning 1996 *NSW Heritage Manual.* NSW Heritage Office and Department of Urban Affairs and Planning, Sydney.

APPENDIX 1

RECORD OF ABORIGNAL FIELD PARTICIPATION AND CONSULTATION

Record of Aboriginal Representative Participation*

Name(s) of Aboriginal Representative: CHRIS (JIM) HALLS

Name of Aboriginal Organisation: .....Gundungurra Aboriginal Heritage Association Inc.. ....

Archaeologist(s): name & address Rebecca Parkes
Navin Officer Heritage Consultants Pty Ltd
4/71 Leichhardt Street, Kingston, ACT 2604

Project Name. **Highlands Source Project**

Client: name & address: GHD
(please send your invoice ...Level 7, 16 Marcus Clarke Street
to this address) .....Canberra, ACT 2601
james.earle@ghd.com.au

Type of participation:

- ☐ Guided inspection of study area and sites
- ☑ Accompanied/participated in archaeological survey
- ☐ Separate inspection or survey
- ☐ Accompanied/participated in excavation program

Period of participation:

Date(s)	Start	Finish
24 /5/10	11.30AM	5.00PM
25 /5/10	8.00AM	4.30PM
26 /5/10	8.00AM	4.30PM
27 /5/10	8.00AM	4.30PM
28 /5/10	8.00AM	4.30PM

Issues raised:

.....

.....

Signed *(archaeologist)*: R. Parkes

Signed *(Aboriginal representative(s))*: .....

* *please note this form is not an invoice. For payment, please send an invoice from your organisation to the client name and address provided above.*

Record of Aboriginal Representative Participation*

Name(s) of Aboriginal Representative: LUKE BURGESS

Name of Aboriginal Organisation: .....Pejar Local Aboriginal Land Council. .....

Archaeologist(s): name & address Rebecca Parkes
Navin Officer Heritage Consultants Pty Ltd
4/71 Leichhardt Street, Kingston, ACT 2604

Project Name. **Highlands Source Project**

Client: name & address: GHD
(please send your invoice ...Level 7, 16 Marcus Clarke Street
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Type of participation:

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- ☑ Accompanied/participated in archaeological survey
- ☐ Separate inspection or survey
- ☐ Accompanied/participated in excavation program

Period of participation:

Date(s)	Start	Finish
26/5/10	8.00AM	4.30pm
27/5/10	8 AM	4.30PM
28/5/10	8 AM	4.30 PM
1/6/10	10.30AM	4.30 PM

Issues raised:

.....

.....

Signed *(archaeologist)*: .....

Signed *(Aboriginal representative(s))*: .....

* *please note this form is not an invoice. For payment, please send an invoice from your organisation to the client name and address provided above.*

Record of Aboriginal Representative Participation*

Name(s) of Aboriginal Representative: RICHARD CAMPBELL

Name of Aboriginal Organisation: .....Illawarra Local Aboriginal Land Council. .....

Archaeologist(s): name & address Rebecca Parkes
Navin Officer Heritage Consultants Pty Ltd
4/71 Leichhardt Street, Kingston, ACT 2604

Project Name. **Highlands Source Project**

Client: name & address: GHD
(please send your invoice ...Level 7, 16 Marcus Clarke Street
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james.earle@ghd.com.au

Type of participation:

- ☐ Guided inspection of study area and sites
- ☑ Accompanied/participated in archaeological survey
- ☐ Separate inspection or survey
- ☐ Accompanied/participated in excavation program

Period of participation:

Date(s)	Start	Finish
24/5/10	11:30AM	5:00PM
25/5/10	8:00AM	4:30PM

Issues raised:

.....

.....

Signed *(archaeologist)*: R Parkes

Signed *(Aboriginal representative(s))*:

* *please note this form is not an invoice. For payment, please send an invoice from your organisation to the client name and address provided above.*

Record of Aboriginal Representative Participation*

Name(s) of Aboriginal Representative: RICHARD CAMPBELL

Name of Aboriginal Organisation: .....Illawarra Local Aboriginal Land Council. .....

Archaeologist(s): name & address Rebecca Parkes
Navin Officer Heritage Consultants Pty Ltd
4/71 Leichhardt Street, Kingston, ACT 2604

Project Name. **Highlands Source Project**

Client: name & address: GHD
(please send your invoice ...Level 7, 16 Marcus Clarke Street
to this address) .....Canberra, ACT 2601
james.earle@ghd.com.au

Type of participation:

- ☐ Guided inspection of study area and sites
- ☑ Accompanied/participated in archaeological survey
- ☐ Separate inspection or survey
- ☐ Accompanied/participated in excavation program

Period of participation:

Date(s)	Start	Finish
1/6/10	10-30AM	5 PM
2/6/10	8-00AM	5 PM

Issues raised:

.....

.....

Signed *(archaeologist)*: .....

Signed *(Aboriginal representative(s))*: .....

* *please note this form is not an invoice. For payment, please send an invoice from your organisation to the client name and address provided above.*

Record of Aboriginal Representative Participation*

Name(s) of Aboriginal Representative: BUDDY WALKER

Name of Aboriginal Organisation: ILLAWARRA Local Aboriginal Land Council.

Archaeologist(s): name & address Rebecca Parkes
Navin Officer Heritage Consultants Pty Ltd
4/71 Leichhardt Street, Kingston, ACT 2604

Project Name. **Highlands Source Project**

Client: name & address: GHD
(please send your invoice ...Level 7, 16 Marcus Clarke Street
to this address) .....Canberra, ACT 2601
james.earle@ghd.com.au

Type of participation:

- ☐ Guided inspection of study area and sites
- ☑ Accompanied/participated in archaeological survey
- ☐ Separate inspection or survey
- ☐ Accompanied/participated in excavation program

Period of participation:

Date(s)	Start	Finish
3/6/10	8AM	4.30PM.

Issues raised:

.....

.....

Signed *(archaeologist)*: .....

Signed *(Aboriginal representative(s))*: .....

* *please note this form is not an invoice. For payment, please send an invoice from your organisation to the client name and address provided above.*

Illawarra Local Aboriginal Land Council

3 Ellen Street WOLLONGONG NSW 2500 Ph: 42263338 Fax: 42263360

NAVIN OFFICER HERIAGE CONSULTANTS

ARCHAEOLOGIST: REBECCA PARKES

REPORT

HIGHLANDS SOURCE PROJECT

ABORIGINAL SITE OFFICERS

RICHARD CAMPBELL
MONDAY 24 TUESDAY 25 MAY 2010
TUESDAY 1 WEDNESDAY 2 JUNE 2010

ALLAN WALKER
THURSDAY 3 JUNE 2010

Illawarra Local Aboriginal Land Council
3 Ellen Street WOLLONGONG NSW 2500 Ph: 42263338 Fax: 42263360

SURVEY AIM:

Conduct an Aboriginal survey along 80klm of a proposed underground pipeline between Wingecarribee Reservoir and Goulburn to identify Aboriginal artefacts and Aboriginal Cultural Heritage Sites.

SURVEY EXAMINATION:

24 May 2010

Today I accompanied Archaeologist Rebecca Parkes on a field survey to identify Aboriginal artefacts and Aboriginal cultural Heritage Sites along the proposed pipeline corridor. We walked 5k and surveyed five properties, no artefacts were identified.

25 May 2010

Today we surveyed a number of properties, only one artefact was identified.
5cm long x 3cm wide, white in colour worked on one side, this artifact was returned to Country.

1 June 2010

Today while surveying the property we found one artefact:
One-white in colour, quartz stone, 5cm long x 3 cm wide

In the same vicinity we came across a few more artefacts approx. 5 in total
Quartz white in colour
Looks like flint flakes (3)
One artifact was worked
All over used a few times

There is potential of finding more artefacts but due to the thick vegetation (Grassy areas) we were unable to survey more of the area.

2 June 2010

Today we surveyed possible sites and came across a small PAD of artefacts:
Quartz flakes (3 in total) near river bank on northern side.
One artifact brown/grey in colour 5cm long x 3cm wide

We then moved onto another property and found 22 artefacts in total which were all out of the buffer zone of the proposed pipeline.

3 June 2010

Today I accompanied Archaeologist Rebecca Parkes on a field survey to identify Aboriginal artefacts and Aboriginal cultural Heritage Sites along the proposed pipeline corridor. We surveyed nine properties, no artefacts were identified.

As I climbed the barb wire fence I injured my right foot (barb wire went through my boot into my foot.)

Illawarra Local Aboriginal Land Council

3 Ellen Street WOLLONGONG NSW 2500 Ph: 42263338 Fax: 42263360

OUTCOME:

A number of artefacts were identified during this survey but were not within the buffer zone of the proposed pipeline.

RECOMMENDATIONS

- The area where the artefacts were previously identified will need further investigation before any excavation or construction work is carried out.
- Any Aboriginal artefacts identified during construction should remain in their place; if this is not possible then a care and control process should be discussed with the relevant Aboriginal stakeholders.

If you require any further information regarding this report, please don't hesitate to contact me on the numbers listed below.

Yours in Unity

Sharralyn Robinson
CEO
PH: 42 26 3338
FAX: 42 26 3360
M: 0410 125 463

APPENDIX 2

DATABASE OF STONE ARTEFACTS RECORDED AT SITES HSP1 – HSP31

Site	Easting	Northing	Artefact	Length (mm)	Width (mm)	Thickness (mm)
HSP1	754796	6154104	Brown volcanic flake with 70% terrestrial cortex	36	23	11
HSP2	753083	6152112	Grey chert flake	21	11	5
HSP2	753083	6152112	Grey silcrete flaked piece	28	20	9
HSP2	753083	6152112	White quartz flake	32	16	9
HSP2	753083	6152112	Grey silcrete flake	19	14	7
HSP2	753083	6152112	Grey silcrete flake	30	23	9
HSP3	752868	6154800	White quartz flake	16	10	3
HSP3	752868	6154800	White quartz flake, proximal portion	12	11	6
HSP4	756118	6153963	Grey silcrete blade core, three platforms and six negative scars	36	22	15
HSP4	756118	6153963	White quartz flake	22	12	4
HSP5	757122	6153834	Grey silcrete lithic fragment with potlid scars	22	18	7
HSP5	757151	6153864	Grey quartzite flake	35	24	6
HSP5	757167	6153865	Red silcrete flake with 30% pebble cortex	9	6	2
HSP5	757167	6153865	Grey silcrete flake	35	15	4
HSP5	757167	6153865	Grey quartzite flake, 5% cortex, snapped termination	25	16	7
HSP5	757167	6153865	Mottled grey silcrete core, 30% cortex,six flake scars	30	28	20
HSP5	757167	6153865	Grey quartzite flake, proximal portion	37	46	7
HSP5	757167	6153865	Grey volcanic flake,lateral portion	24	16	6
HSP5	757111	6153833	White quartz flake	18	10	5
HSP5	757085	6153833	Grey silcrete flaked piece	14	10	10
HSP5	757085	6153833	Grey quartzite flaked piece	19	17	13
HSP5	757078	6153856	Grey silcrete flaked piece	23	20	15
HSP5	757105	6153878	White quartz flake	30	31	11
HSP5	757145	6153870	Grey silcrete geometric microlith, fully backed	31	16	4
HSP5	757345	6153836	Grey silcrete core	20	18	12

Site	Easting	Northing	Artefact	Length (mm)	Width (mm)	Thickness (mm)
HSP5	757345	6153836	Grey silcrete flaked piece	14	15	10
HSP5	757363	6153845	Grey silcrete flake	20	22	8
HSP5	757363	6153845	Grey silcrete flaked piece	32	25	15
HSP5	757365	6153848	Grey silcrete flaked piece	30	23	15
HSP5	757365	6153848	Grey silcrete blade	25	10	3
HSP6	757416	6153858	Grey quartzite flake, platform faceting	30	28	19
HSP7	758532	6153859	Grey silcrete flake, 5% cortex, hinge termination	41	23	11
HSP8	759952	6153834	Red silcrete flake, distal portion, step termination	34	20	11
HSP8	759952	6153834	Grey silcrete flake, 15% cortex on platform and dorsal surface, possible use wear on one margin	41	27	10
HSP9	759605	6153859	Grey silcrete flake, hinge termination, longitudinal break	25	14	7
HSP10 (51-6-0113)	763179	6154317	White silcrete flake, hinge termination	22	19	3
HSP10 (51-6-0113)	763161	6154351	Grey silcrete core, 10% coretx	37	27	13
HSP10 (51-6-0113)	763161	6154351	White quartz flake, proximal portion	12	6	4
HSP10 (51-6-0113)	763161	6154351	White quartz flake	12	8	2
HSP10 (51-6-0113)	763161	6154351	Grey silcrete flake, medial portion	14	14	2
HSP10 (51-6-0113)	763161	6154351	Grey silcrete flake, feather termination	27	27	7
HSP10 (51-6-0113)	763161	6154351	Grey silcrete flake, outrepassé termination	41	12	5
HSP10 (51-6-0113)	763161	6154351	Grey silcrete flake, 50% cortex	25	11	7
HSP10 (51-6-0113)	763161	6154351	Grey silcrete flake, hinge termination	13	14	2
HSP10 (51-6-0113)	763161	6154351	Grey silcrete flake, distal snap	19	11	3
HSP10 (51-6-0113)	763161	6154351	Grey silcrete flake, medial portion	15	11	2
HSP10 (51-6-0113)	763161	6154351	Grey silcrete flake	16	7	4
HSP10 (51-6-0113)	763161	6154351	Grey silcrete flake, proximal portion	20	12	3
HSP10 (51-6-0113)	763161	6154351	Grey silcrete flake	11	9	2
HSP10 (51-6-0113)	763161	6154351	Grey silcrete flake	10	10	3
HSP10 (51-6-0113)	763161	6154351	Red silcrete flake, medial portion	18	21	7

Site	Easting	Northing	Artefact	Length (mm)	Width (mm)	Thickness (mm)
HSP10 (51-6-0113)	763161	6154351	Grey silcrete core, bifacially flaked, seven scars	40	34	34
HSP10 (51-6-0113)	763161	6154351	17 orange-brown quartzite flakes within an area of approximately 0.25m²			
HSP11	763304	6154352	Grey silcrete flake, broken in two	40	29	8
HSP11	763304	6154352	White quartz flake	11	6	3
HSP12	765034	6154885	Grey silcrete flake, feather termination	25	10	2
HSP12	765034	6154885	Grey quartzite flake, feather termination	35	35	5
HSP12	765034	6154885	Grey silcrete flake, proximal portion	9	19	8
HSP12	765034	6154885	Grey silcrete core fragment	26	16	13
HSP12	765161	6154914	Grey silcrete flake, hinge termination and possible usewear	42	18	4
HSP12	765161	6154914	Grey silcrete flake, hinge termination	46	45	10
HSP12	765161	6154914	Grey silcrete core fragment	25	20	13
HSP12	765161	6154914	Grey silcrete flake	25	21	6
HSP12	765161	6154914	Grey silcrete backed blade	19	8	2
HSP12	765161	6154914	Brown quartzite flake	11	21	3
HSP12	765161	6154914	Grey silcrete flake, feather termination	16	12	2
HSP12	765161	6154914	Grey silcrete flaked piece	19	5	5
HSP12	765161	6154914	Grey silcrete flaked piece	17	14	3
HSP12	765161	6154914	Grey quartzite flake	10	15	3
HSP13	766483	6155214	Grey silcrete flake, possible usewear on one margin	34	15	5
HSP13	766483	6155214	Red silcrete core, platform faceting, 20% pebble cortex	50	29	14
HSP14	225446	6158858	Red quartzite flake, distal portion	21	21	5
HSP14	225446	6158858	White quartz flaked piece	26	24	10
HSP14	225446	6158858	Purple-grey quartzite flake, potlid scar on ventral surface	17	25	4
HSP14	225446	6158858	White quartz blade core, single platform, three scars	27	24	11
HSP14	225474	6155896	White quartzite flake, outrepassé termination	41	22	9

Site	Easting	Northing	Artefact	Length (mm)	Width (mm)	Thickness (mm)
HSP14	225474	6155896	Crystal quartz flake, distal portion	7	14	2
HSP15	232501	6162074	White quartz flake, feather termination	17	22	7
HSP15	232501	6162074	White quartz flake	32	15	11
HSP15	232501	6162074	White quartz flaked piece	11	12	3
HSP15	232501	6162074	White quartz flaked piece	25	22	2
HSP15	232501	6162074	White quartz flake	12	8	2
HSP15	232501	6162074	White silcrete flake, feather termination	10	11	2
HSP15	232501	6162074	White quartz flake, longitudinal break	12	9	2
HSP15	232501	6162074	Orange silcrete flake, possible usewear on one margin	35	40	9
HSP15	232501	6162074	Grey acid volcanic flake, 20%pebble cortex	40	35	10
HSP15	232501	6162074	Orange quartzite flake	27	10	5
HSP15	232501	6162074	White quartz flaked piece	10	5	2
HSP15	232501	6162074	White quartz flaked piece	12	8	2
HSP15	232501	6162074	Crystal quartz flake	7	7	1
HSP15	232501	6162074	White quartz flaked piece	7	6	2
HSP15	232501	6162074	White quartz flaked piece	7	5	2
HSP16	256820	6169715	Grey quartzite flake, step termination	31	29	7
HSP16	256820	6169715	Red quartzite flake, 15% cortex	11	10	3
HSP16	256820	6169715	Grey quartzite flaked piece	10	5	3
HSP16	256820	6169715	Rose quartz flake, distal portion	15	8	4
HSP17	772905	6157718	Red chert flake, proximal portion	19	10	3
HSP17	772905	6157718	Red chert flaked piece, 20% cortex	18	23	4
HSP17	772905	6157718	Red chert flake, proximal portion, faceted platform	28	19	3
HSP17	772905	6157718	Red silcrete flake, proximal portion	24	29	9
HSP17	772905	6157718	Red chert core, 2 platforms, 7 scars	32	18	20
HSP17	772905	6157718	Red chert flaked piece	18	12	7
HSP17	772905	6157718	Grey silcrete flake, distal portion	16	14	4

Site	Easting	Northing	Artefact	Length (mm)	Width (mm)	Thickness (mm)
HSP17	772905	6157718	Grey silcrete core, 2 platforms, 7 scars	35	17	12
HSP17	772905	6157718	Grey silcrete flake, medial portion	9	19	4
HSP17	772905	6157718	Grey quartzite flaked piece	21	24	5
HSP17	772905	6157718	Grey silcrete flake, distal portion	12	7	4
HSP17	772905	6157718	Grey silcrete core, 1 platform, 6 scars	20	16	9
HSP17	772905	6157718	Grey silcrete flaked piece	19	14	7
HSP17	772905	6157718	Grey silcrete flaked piece	14	6	4
HSP17	772905	6157718	Grey silcrete flake, medial portion	14	11	4
HSP17	772905	6157718	Grey silcrete flaked piece	14	5	2
HSP18	233455	6162395	Grey silcrete flake	20	25	10
HSP20						
HSP22	770487	6156114	Translucent quartz flaked piece	21	17	7
HSP22	770487	6156114	White quartz flaked piece	19	25	13
HSP22	770487	6156114	Translucent quartz flake	15	13	6
HSP22	770487	6156114	White quartz blade, proximal portion	14	8	4
HSP22	770487	6156114	White quartz flake	12	8	4
HSP22	770487	6156114	White quartz flake, proximal portion	16	11	6
HSP18	233377	6162352	White/rose quartz blade	26	15	7
HSP19	254948	6169393	Light grey silcrete flaked piece	31	18	10
HSP20	752534	6155201	Grey silcrete flake, lateral portion, 100% terrestrial cortex	27	13	4
HSP20	752534	6155201	Grey silcrete flake	20	10	4
HSP20	752534	6155201	Grey silcrete flake, evidence of core reversal, flaked scars from distal end	41	26	8
HSP20	752534	6155201	Orange/red silcrete flake, poor quality stone	40	25	9
HSP20	752534	6155201	Translucent quartz flake	10	11	2
HSP20	752534	6155201	White quartz flake	12	8	2

Site	Easting	Northing	Artefact	Length (mm)	Width (mm)	Thickness (mm)
HSP20	752534	6155201	White quartz flaked piece	18	7	6
HSP20	752534	6155201	White quartz flake	15	11	5
HSP20	752538	6155237	White quartz flake	18	18	6
HSP20	752540	6155270	Grey silcrete flake	34	26	11
HSP20	752540	6155270	Grey silcrete flake	25	29	10
HSP20	752540	6155270	Grey silcrete flake	11	7	3
HSP21	752884	6154985	White quartz flake/blade, proximal portion	57	26	13
HSP23	772119	6157322	Grey silcrete flaked piece	22	17	6
HSP23	772119	6157322	White quartz flake	16	8	3
HSP23	772119	6157322	Grey silcrete flaked piece	20	11	7
HSP23	772155	6157343	Banded grey chert flaked piece	25	25	7
HSP23	772155	6157343	Banded grey chert flake, proximal portion	16	21	6
HSP23	772155	6157343	Grey silcrete flake	30	27	7
HSP23	772155	6157343	Red chert flaked piece, 40% cortex	40	37	12
HSP23	772155	6157343	Grey quartzite flaked piece	31	25	11
HSP23	772155	6157343	Red chert flaked piece	20	12	14
HSP23	772155	6157343	Red chert flaked piece	15	19	6
HSP23	772196	6157358	Grey quartzite flake, proximal portion	32	21	5
HSP23	772196	6157358	Grey silcrete flake	31	25	10
HSP23	772196	6157358	Grey silcrete flake	22	25	16
HSP23	772196	6157358	Grey silcrete flake	24	16	6
HSP23	772196	6157358	Grey silcrete flaked piece	20	16	7
HSP23	772196	6157358	Grey silcrete flake, proximal portion	7	8	3
HSP24	772496	6157513	Grey silcrete core, 1 platform, 6 scars	40	40	30
HSP24	772496	6157513	White quartz flake piece	32	25	11
HSP25	773699	6158037	Grey silcrete flaked piece	32	20	8
HSP25	773699	6158037	White quartz flaked piece	30	20	11

Site	Easting	Northing	Artefact	Length (mm)	Width (mm)	Thickness (mm)
HSP25	773699	6158037	Smokey quartz core, 2 platforms, 6+ scars	26	35	32
HSP25	773700	6158060	White quartz flake	9	7	4
HSP25	773700	6158060	White quartz flake	15	8	3
HSP25	773700	6158060	Grey silcrete flaked piece	24	25	20
HSP25	773700	6158060	White quartz flake	8	7	3
HSP25	773636	6158101	Grey silcrete flake, distal portion	16	13	6
HSP25	773636	6158101	Smokey quartz flake	21	23	5
HSP25	773636	6158101	Grey silcrete flake	21	21	10
HSP25	773636	6158101	Grey silcrete blade	37	15	5
HSP25	773637	6158044	Grey silcrete flake	27	22	5
HSP25	773637	6158044	Grey silcrete flake	29	18	7
HSP25	773637	6158044	Grey silcrete flake	27	14	10
HSP25	773637	6158044	Grey silcrete flake	26	23	4
HSP25	773637	6158044	Grey silcrete flake	21	11	5
HSP25	773637	6158044	Grey silcrete flake	16	9	3
HSP25	773637	6158044	Grey silcrete flake	16	11	3
HSP25	773637	6158044	Grey silcrete flake	14	10	3
HSP25	773637	6158044	Grey silcrete flake	17	10	2
HSP25	773637	6158044	White quartz flake	17	16	4
HSP25	773637	6158044	Grey silcrete flaked piece	27	24	7
HSP25	773637	6158044	Grey silcrete flaked piece	30	22	13
HSP25	773637	6158044	Grey silcrete flaked piece	21	18	8
HSP26	774854	6158581	Grey silcrete flake	23	31	12
HSP26	774854	6158581	Grey silcrete flaked piece	23	22	9
HSP26	774854	6158581	Grey silcrete flake	30	36	10
HSP26	774778	6158654	White quartz flake	16	17	5
HSP26	774854	6158581	Coarse grain grey silcrete flake	37	31	14

Site	Easting	Northing	Artefact	Length (mm)	Width (mm)	Thickness (mm)
HSP26	774854	6158581	White quartz flake, 100% pebble cortex	24	12	6
HSP26	774854	6158581	White quartz core, ≥6 scars, ≥ 2 platforms	26	33	24
HSP26	774854	6158581	Smokey quartz core, ≥3 scars, ≥1 platform	20	48	39
HSP26	774870	6158715	White quartz core, ≥ 5 scars ≥ 3 platforms	38	31	31
HSP26	774871	6158707	Grey silcrete flake	22	12	7
HSP26	774871	6158707	Grey silcrete flaked piece	30	13	10
HSP26	774871	6158707	White quartz flaked piece	20	16	11
HSP26	774871	6158707	White silcrete flake	67	46	12
HSP26	774871	6158707	Grey silcrete flaked piece	16	13	7
HSP26	774871	6158707	Grey silcrete core	25	20	14
HSP27	762877	6154149	Red silcrete flake	30	20	6
HSP27	774862	6158707	Yellow quartzite flake	20	15	5
HSP28	773309	6157867	White quartz flake	11	6	3
HSP28	773309	6157867	White quartz flake	18	13	5
HSP28	773309	6157867	Grey silcrete flake	47	36	12
HSP28	773309	6157867	Grey silcrete flake	26	35	7
HSP29	228067	6160125	White quartz blade	33	17	7
HSP29	228067	6160125	White quartz flake	12	11	4
HSP29	228067	6160125	Grey quartz flake	20	19	5
HSP29	228067	6160125	White quartz flake	30	20	7
HSP29	228067	6160125	White quartz flake, distal portion	9	12	3
HSP30	228237	6160275	Grey silcrete flake	39	32	13
HSP30	228110	6160272	Rose quartz flake, proximal portion	13	14	4
HSP30	228110	6160272	White quartz flake	19	19	6
HSP30	228110	6160272	Grey silcrete flake	43	17	5
HSP30	228110	6160272	Rose quartz flake	33	25	10
HSP30	228110	6160272	White quartz flaked piece	33	23	15

Site	Easting	Northing	Artefact	Length (mm)	Width (mm)	Thickness (mm)
HSP30	228110	6160272	White quartz flake, distal portion	13	15	4
HSP31	245485	6166342	Grey-red silcrete flake, distal portion	25	30	9

APPENDIX 3

UNANTICIPATED DISCOVERY PROTOCOLS

- Aboriginal Objects Revealed during Construction Works
- Non-Aboriginal (European) Objects Revealed during Construction Works
- Human Remains Revealed During Construction Works

Protocol to be followed in the event that previously unrecorded or unanticipated Aboriginal object(s) are encountered

1. All ground surface disturbance in the area of the finds should cease immediately the finds are uncovered.

    a. The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted; and

    b. The site supervisor and the development proponent (GMS) will be informed of the find(s).

2. If there is substantial doubt regarding an Aboriginal origin for the finds, then consider if it is possible to gain a qualified opinion (such as from the project archaeologist) within a short period of time. If feasible, gain a qualified opinion (this can circumvent proceeding further along the protocol for remains which turn out not to be archaeological). If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.

3. Immediately notify the following authorities or personnel of the discovery:

    a. DECCW (Queanbeyan Office 62297000)

    b. The Heritage Branch of the Department of Planning (DoP)

    c. Representatives from the registered Aboriginal stakeholder groups or individuals (as appropriate); and

    d. The project archaeologist (if not already present).

4. Facilitate, in co-operation with the appropriate authorities and stakeholders:

    a. The recording and assessment of the finds. This will include determining if the find(s) are from a new or previously recorded site, and lodgement of a DECCW site card for all new recordings;

    b. Fulfilling any legal constraints arising from the find(s). This will include complying with DECCW directions, and HMP requirements in the case of a previously recorded site; and

    c. The development and conduct of appropriate management strategies. Strategies will depend on stakeholder requirements and the assessed significance of the find(s).

5. Where the management of find(s) involves the salvage excavation or collection of artefacts, this material will be curated according to the provisions of this HMP, unless otherwise directed by DECCW.

6. Where the find(s) are determined to be Aboriginal Objects as defined by the *National Parks and Wildlife Act 1974*, any re-commencement of construction related ground surface disturbance may only resume in the area of the find(s) following compliance with any consequential legal requirements and gaining written approval from DoP and/or DECCW (as required).

Protocol to be followed in the event that previously unrecorded or unanticipated non Aboriginal relics (historical artefacts) are encountered

1. All ground surface disturbance in the area of the finds should cease immediately the finds are uncovered.

    a. The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted; and

    b. The site supervisor and the development proponent (GMS) will be informed of the find(s).

2. If there is substantial doubt regarding a human or non-Aboriginal origin for the finds, then consider if it is possible to gain a qualified opinion (such as from the project archaeologist) within a short period of time. If feasible, gain a qualified opinion (this can circumvent proceeding further along the protocol for remains which turn out not to be archaeological). If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.

3. Immediately notify the following authorities or personnel of the discovery:

    a. The Heritage Branch of the Department of Planning (DoP)

    b. The project archaeologist (if not already present).

4. Facilitate, in co-operation with the appropriate authorities and stakeholders:

    a. The recording and assessment of the finds. This will include determining if the find(s) are from a new or previously recorded site;

    b. Fulfilling any legal constraints arising from the find(s). This will include complying with Heritage Branch (DoP) directions, and Heritage Management Plan requirements in the case of a previously recorded site; and

    c. The development and conduct of appropriate management strategies. Strategies will depend on stakeholder requirements and the assessed significance of the find(s).

5. Where the management of find(s) involves the salvage excavation or collection of artefacts, this material will be curated according to the provisions of this Heritage Management Plan, unless otherwise directed by the Heritage Branch, DoP.

6. Where the find(s) are determined to be relics as defined by the *Heritage Act 1977* any re-commencement of construction related ground surface disturbance may only resume in the area of the find(s) following compliance with any consequential legal requirements and gaining written approval from DoP.

Protocol to be followed in the event of that suspected human remains are encountered

1. All ground surface disturbance in the area of the finds should cease immediately the finds are uncovered.

    a. The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be temporarily halted; and

    b. The site supervisor and the development proponent (GMS) will be informed of the find(s).

2. If there is substantial doubt regarding a human origin for the remains, then consider if it is possible to gain a qualified opinion within a short period of time. If feasible, gain a qualified opinion (this can circumvent proceeding further along the protocol for remains which turn out to be non-human). If conducted, this opinion must be gained without further disturbance to any remaining skeletal material and its context (Be aware that the site may be considered a crime scene containing forensic). If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.

3. Immediately notify the following people of the discovery:

    a) The local Police (this is required by law);

    b) The Heritage Branch of the Department of Planning (DoP)

    c) A DECCW archaeologist or Aboriginal Heritage Officer from the Queanbeyan Office (62297000);

    d) Representative(s) of Aboriginal stakeholders (where appropriate); and

    e) The project archaeologist (if not already present).

4. Facilitate the evaluation of the find(s) by the statutory authorities and comply with any stated requirements. Depending on the evaluation of the find(s), the management of the find(s) and their location may become a matter for the Police and/or Coroner.

5. Construction related works in the area of the find(s) may not resume until the proponent receives written approval from the relevant statutory authority: from the Police or Coroner in the event of an investigation, from DECCW in the case of Aboriginal remains outside of the jurisdiction of the Police or Coroner, and from the Heritage Office, Department of Planning in the case of non-Aboriginal remains outside of the jurisdiction of the Police or Coroner.

6. In the event that the proponent continues an active role in the evaluation and/or management of the find(s), via a direction or advice from the Police, Coroner and/or Heritage Council, then all or some of the following steps may be conducted:

7. Facilitate, in co-operation with the appropriate authorities, the definitive identification of the skeletal material by a specialist (if not already completed). This must be done with as little further disturbance to any remaining skeletal material and its context as possible.

8. If the specialist identifies the bone as non-human then, where appropriate, the protocol for the discovery of historical or Aboriginal artefacts (above) should be followed.

9. If the specialist determines that the bone material is human, then the proceeding course of action may be of three types:

a. The bone(s) are of an Aboriginal or non-Aboriginal person who died less than 100 years ago. All further decisions and responsibilities regarding the remains and find location rest with the Police and/or the State Coroner.

b. The bone(s) are of a non-Aboriginal person who died more than 100 years ago. In this case, and where the Police have indicated that they have no interest in the find(s), the following steps may be followed:

    i. Ascertain the requirements of the Heritage Branch of the Department of Planning, the proponent, the project archaeologist, and the views of any relevant community stakeholders;

    ii. Based on the above, determine and conduct an appropriate course of action. Possible strategies could include one or more of the following:

        1. Avoiding further disturbance to the find and conserving the remains in situ (this option may require relocating the development and this may not be possible in some contexts);

        2. Conducting (or continuing) archaeological salvage of the finds following receipt of any required statutory approvals;

        3. Scientific description (including excavation where necessary), and possibly also analysis of the remains prior to reburial;

        4. Recovering samples for dating and other analyses; and/or

        5. Subsequent reburial at another place and in an appropriate manner determined by the Heritage Council and in consultation with other relevant stakeholders.

c. The bone(s) are of an Aboriginal person who died more than 100 years ago. In this case the following steps may be followed:

    i. Ascertain the requirements of the relevant Aboriginal stakeholders, the DECCW, the proponent, and the project archaeologist;

    ii. Based on the above, determine and conduct an appropriate course of action. Possible strategies could include one or more of the following:

        1. Avoiding further disturbance to the find and conserving the remains in situ, (this option may require relocating the development and this may not be possible in some contexts);

        2. Conducting (or continuing) archaeological salvage of the finds following receipt of any required statutory approvals;

        3. Scientific description (including excavation where necessary), and possibly also analysis of the remains prior to reburial;

        4. Recovering samples for dating and other analyses; and/or

        5. Subsequent reburial at another place and in an appropriate manner determined by the Aboriginal stakeholders and the DECCW.

Reference

Donlan, D., McIntyre-Tamwoy, S. and A. Thorne 2002 Aboriginal Skeletal Remains Manual. NSW National Parks and Wildlife Service, Hurstville.