



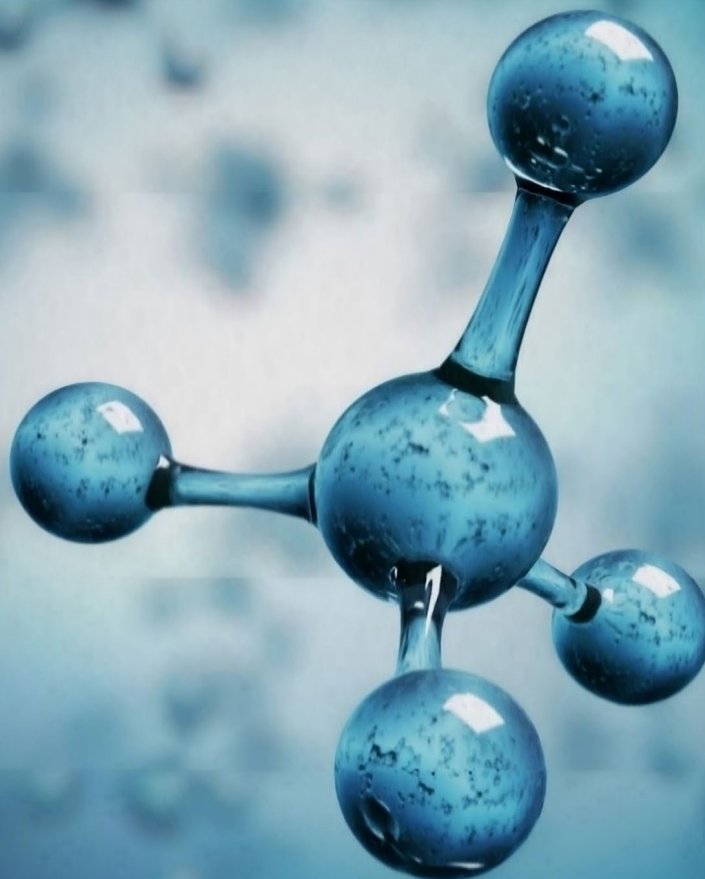
Lucas Heights Bioenergy Facility

Cultural Heritage Due Diligence Assessment

LMS Energy Pty Ltd

October 2025

→ The Power of Commitment



Project name		Lucas Heights Bioenergy Facility					
Document title		Lucas Heights Bioenergy Facility Cultural Heritage Due Diligence Assessment					
Project number		12649882					
File name		12649882_Lucas Heights Bioenergy facility AHDDA					
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S3	A	T Reid	A Ford	On file	K Rosen	On file	12/05/25
S4	0	T Reid T Holmes	A Ford	On file	K Rosen	On file	20/10/25

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Abbreviations and definitions

Abbreviation	Term
AIATSIS	Australian Institute of Aboriginal and Torres Strait Islander Studies
ACHAR	Aboriginal Cultural Heritage Assessment Report
AHIMS	Aboriginal Heritage Management System
ANSTO	Australian Nuclear Science and Technology Organisation
ATSIHP Act	<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i>
BoM	Australian Bureau of Meteorology
BP	Before Present
CHDDA	Aboriginal Cultural Heritage Due Diligence Assessment
Cleanaway	Cleanaway Pty Ltd
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EIS	Environmental Impact Statement
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
GLALC	Gandangara Local Aboriginal Land Council
GHD	GHD Pty Ltd
ha	Hectares
Heritage Act	<i>Heritage Act 1977</i>
LEP	Sutherland Shire Local Environment Plan 2015
LGA	Sutherland Shire Council Local Government Area
LHRRP	Lucas Heights Resource Recovery Park
LMS	LMS Pty Ltd
m	metres
MW	megawatt
NHL	National Heritage List
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NSW	New South Wales
NTA	<i>Native Title Act 1993</i>
PAD	Potential Archaeological Deposit
SEARs	Secretary's Environmental Assessment Requirements
SHR	State Heritage Register
SSD	State Significant Development
The code	Due Diligence Code of Practice for the protection of Aboriginal Objects

1. Introduction

1.1 Project overview

LMS proposes to upgrade the landfill biogas management infrastructure at the LHRRP, by upgrading the existing power station to produce renewable energy from landfill biogas generated at the LHRRP (the project).

The new bioenergy facility would be a like for like replacement of the existing power station, with improvements that comply with modern standards and regulations and forecasted biogas generation capacity requirements. The project ensures appropriate capacity to manage forecast peak recoverable biogas and renewable energy generation would effectively continue through the remaining landfilling and post closure periods for the landfill.

1.2 Background

The LHRRP is operated by Cleanaway Pty Ltd (Cleanaway) in accordance with State significant development (SSD) consent (No. SSD 6835). SSD 6835 allowed for an increase in landfill capacity, relocation and expansion of the garden organics (GO) facility and construction and operation of a new advanced resource recovery technology (ARRT) facility. The approval also allowed for continued operation and maintenance of the landfill biogas infrastructure within the LHRRP boundary including the progressive installation of landfill gas extraction wells and header pipes to transfer landfill biogas to a power station and flare.

The existing power station is located on Lot 102 DP 1009354, currently utilising the gas generated from LHRRP and approved under a 1996 Sutherland Shire Council consent (#970251). The development consent was amended in 2004 under Sutherland Shire Council consent DA03-2231 to allow the expansion of the facility with an additional 3 generator modules, taking the site total to 15 x 1 Megawatt (MW) engines.

The existing power station was commissioned in 1998 and is nearing the end of its design life. The bioenergy facility generators would be established within the existing power station on hardstand areas currently occupied by two workshops.

Through the production of distributed baseload renewable electricity, the utilisation of landfill biogas for energy generation provides numerous environmental and community benefits, including carbon abatement and air quality improvement through destruction of methane and other volatile organic compounds. The proposed bioenergy facility would be capable of generating up to 190,000 MWh annually, which is equivalent to powering approximately 30,000 homes in the region and abating over 1 million tonnes of CO_{2e} emissions.

The project has been declared State significant development (SSD) and must be assessed in accordance with Section 4.36 of the *Environmental Planning and Assessment Act, 1979* (EP&A Act). An Environmental Impact Statement (EIS) is required to support the application for approval for determination by the New South Wales (NSW) Minister for Planning.

This Cultural Heritage Due Diligence Assessment (CHDDA) to support the Environmental Impact Statement for the project. This CHDDA has been prepared to meet the requirements of the Secretary's Environmental Assessment Requirements (SEARs) and requirements of the NSW Office of Environment and Heritage (see section 1.4, Table 1.2 and Table 1.3).

1.2.1 Location

The location of the project is shown on Figure 1.1 and Figure 1.2.

\\ghdnet\ghd\AU\Sydney\Projects\21\12649882\GIS\Maps\Deliverables\ PDF\Environmental Impact Statement\12649882 Fig1.1 RegionalContext PowerStation 20250917.pdf

Figure 1.1 Location

\\ghdnet\ghd\AU\Sydney\Projects\21\12649882\GIS\Maps\Deliverables\ PDF\Heritage\12649882_006 ProjectSite.pdf

Figure 1.2 Project site

1.2.2 Key features

The key features of the project are summarised in Table 1.1.

Table 1.1 Key features of the project

Project element	Summary
Bioenergy facility generators	20 x 1.1 MW modular lean burn generator sets
Ancillary infrastructure	<p>New proposed infrastructure</p> <ul style="list-style-type: none"> – Gas delivery and metering system – Transformers to step up the electrical output voltage from LV to HV to match the local grid voltage – Electricity metering, protection and communication equipment – Covered storage bund for chemical and coolant storage – HV Switchroom / Control room – Lightning poles – External lighting – Safety showers <p>Retained/ upgraded infrastructure</p> <ul style="list-style-type: none"> – Gas delivery, metering, filtration and condensate removal system – Lunchroom / Toilet – Offices / Workshop – Car parking for on site operators – External lighting – Gas conditioning and gas delivery infrastructure – Waste oil and clean oil tanks <p>Buildings to be decommissioned</p> <ul style="list-style-type: none"> – Workshop x 2 – Existing generators – Existing flare facility – Cooling towers
Utilities connections	<p>Proposed new connections</p> <ul style="list-style-type: none"> – New underground high voltage (HV) cable to the existing Ausgrid termination pole on site which connects to the Ausgrid 33 kilovolt (kV) distribution network via the Lucas Heights Zone Substation <p>Existing utilities</p> <ul style="list-style-type: none"> – Fibre connection to the Lucas Heights Zone Substation – Potable water connection from LHRRP
Hours of operation	<ul style="list-style-type: none"> – 6am to 6pm for operational staff – Remote operation 24 hours per day, 7 days per week

The facility would be located within the boundaries of the existing Lot 102/1009354 which has an area of 1.8 hectares (ha). Minimal ground disturbance would be required for:

- **Turbine footings** – small-scale excavation and concrete works to install modular generator units within a fenced and bunded area
- **Transmission connection** – a 37 metre (m) long underground power line would connect the facility to existing Ausgrid termination pole. The power connection would be installed beneath two existing garden beds and an internal access road. Both garden beds would be removed.
- **Ancillary infrastructure installation** – Including gas delivery units, transformers, a switchroom, and workshop all positioned within the designated project footprint.
- **Access roads** – One new internal road is proposed to connect two existing roads within the boundaries of the project site. The facility would use the existing access point from Little Forest Road.

The project site is flat, with minimal topographic variation (<4m), therefore only minimal earthworks and reprofiling would be required to establish foundations. Excavation is not proposed to exceed 2 m bgl.

A detailed description of the project is provided in Chapter 3 of the EIS.

1.3 Purpose of this report

LMS has engaged GHD to prepare an EIS for the proposed bioenergy facility. After written confirmation from Heritage NSW on 24 February 2025 it was decided that an Aboriginal Cultural Heritage Assessment (ACHA) was not required due to the heavily disturbed nature of the project site. This CHDDA has been prepared to consolidate information submitted to Heritage NSW and address non-Aboriginal heritage requirements in the SEARs (Table 1.2).

This report has been prepared in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW, 2010). This assessment does not constitute an approval under the Acts identified.

1.4 Environmental assessment requirements

The specific SEARs addressed in this report are summarised in Table 1.2.

Table 1.2 SEARs relevant to this assessment

Requirement	Where addressed in this report
<p>Non-Aboriginal Cultural Heritage</p> <p>Where there is potential for direct or indirect heritage impacts, provide a Statement of Heritage Impact and Archaeological Assessment (if potential impacts to archaeological resources are identified), prepared in accordance with the <i>Guidelines for preparing Statements of Heritage Impact</i> and guidelines <i>Archaeological Assessment</i> and <i>Assessing Significance for Historical Archaeological Sites and Relics</i>.</p>	<p>A desktop level assessment for the potential to impact non-Aboriginal heritage has been undertaken in this assessment. Outcomes of the assessment are discussed in Section 6, there is no requirement for a Statement of Heritage Impact or further Archaeological Assessment.</p>

This CHDDA has also taken into consideration the other following heritage guidelines provided in Table 1.3.

Table 1.3 SEARs policies, guidelines and plans relevant to this assessment

Policies, Guidelines & Plans	
Aspect	Policy/Methodology
Non-Aboriginal Heritage	<ul style="list-style-type: none"> – <i>Heritage Act 1977</i> – NSW Heritage Manual (HO and DUAP, 1996) – The Burra Charter (ICOMOS Australia, 2013) – Statements of Heritage Impact (HO and DUAP, 2002)
Aboriginal Heritage	<ul style="list-style-type: none"> – Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010) – Guide to Investigation, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011) – Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010)

1.5 Scope and limitations

This report: has been prepared by GHD for LMS Energy Pty Ltd and may only be used and relied on by LMS Energy Pty Ltd for the purpose agreed between GHD and LMS Energy Pty Ltd as set out in section 1.3 of this report.

GHD otherwise disclaims responsibility to any person other than LMS Energy Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 1.6 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by LMS Energy Pty Ltd and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

1.6 Assumptions

The report was developed on the following assumptions:

- This CHDDA has been prepared as a desktop assessment only and has not included consultation with Traditional Owners.
- The CHDDA has been prepared based on the project description provided in section 1.2.2. If the project description is altered, then the outcomes of this CHDDA should be reassessed.

2. Methodology

2.1 Method

This AHDDA was undertaken in line with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales 2010* (DECCW, 2010). Preparation of this CHDDA involved the following key tasks:

2.1.1 Desktop research

- Searches of the Aboriginal Heritage Information System (AHIMS).
- Searches of the World heritage List, National Heritage List, Commonwealth Heritage List, NSW State Heritage Inventory, Register of National Estate, and the National Trust Heritage Register.
- Review of all legislation relevant to heritage matters within the project site, including:
 - *National Parks and Wildlife Act 1974* (NPW Act)
 - *Heritage Act 1977*
 - Sutherland Shire Local Environment Plan 2015
 - *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act)
 - *Native Title Act 1993* (NTA)
 - *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*.
- Review of previously undertaken Aboriginal heritage assessments and archaeological reports.
- Review of the environmental context of the project site, including:
 - Geology
 - Geomorphology
 - Hydrology
 - Topography
 - Flora and Fauna.
- Development of a European land use history for the project site.
- Development of a site prediction model for Aboriginal heritage places within the project site.

2.1.2 Due Diligence Assessment

Assessing the proposed activity against the five-step assessment process set out by the with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales 2010* (DECCW, 2010).

2.2 Project participants

This CHDDA was carried out by GHD Heritage Specialist Tim Reid. Quality Assurance was undertaken by Asher Ford, GHD Technical Director – Heritage and Karl Rosen, GHD Technical Director.

The *Aboriginal cultural heritage consultation requirements for proponents* (2010) advises the preparation of an CHDDA does not formally require consultation with Aboriginal community groups. No Aboriginal groups were contacted in relation to this assessment.

3. Legislative context

3.1 Commonwealth legislation

3.1.1 Environmental Protection and Biodiversity Conservation Act 1999

Commonwealth requirements in relation to environmental (includes heritage) assessment and management are principally specified in the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), which is administered by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW). The EPBC Act provides for the listing of natural, historic or Indigenous heritage values on Commonwealth lands, under Australian Government control or that are of outstanding heritage value. Listings include the World Heritage List, National Heritage List and Commonwealth Heritage List.

A search of the Australia Heritage Database and the EPBC Protected Matters Search Tool conducted on 20 June 2025 identified no heritage values associated with the any of the above heritage lists within the project site. One Commonwealth Heritage List place, the Cubbitch Barta National Estate Area (Place ID 105405), is located 700 m south of the project site.

3.1.2 Native Title Act 1993

The *Native Title Act 1993* (NT Act) provides a legislative framework for the recognition and protection of Native Title rights across Australia.

The NT Act establishes the National Native Title Tribunal, the National Native Title Register, the Register of Native Title Claims, and the Register of Indigenous Land Use Agreements, and an approach to Future Acts.

A search of the National Native Title Register was conducted on 19 March 2025. There is one Native Title Claim within that covers the project site: NC2017/003 – South Coast People. There are no Native Title Determinations or Indigenous Land Use Agreements within the project site.

3.1.3 Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSHP Act) may be used to protect places and objects of Aboriginal or historical significance where state level legislation is unable to sufficiently protect it.

Under Commonwealth legislation the ATSIHP Act provides legal protection to Aboriginal and Torres Strait Islanders that may be associated with tangible or intangible heritage values connected to a place, tradition, or idea. The ATSIHP Act allows the Commonwealth Environment Minister to, in response to an application by an Aboriginal person or group of persons, make a declaration to protect an area, object or class of objects from a threat of injury or desecration where state legislation has not provided adequate protection.

Development approvals are usually managed under relevant State/Territory or Commonwealth legislation, and there is no development approval process under the ATSIHP Act.

3.2 NSW legislation

3.2.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) requires consideration to be given to environmental impacts (including cultural heritage impacts) during the planning and development process. Part 3 of the EP&A Act relates to local and regional planning instruments. Part 4 of the EP&A Act relates to the development assessment process. Part 5 of the Act relates to development approvals by determining authorities.

The project has been declared SSD and must be assessed in accordance with Section 4.36 of the EP&A Act.

3.2.2 Heritage Act 1977

The NSW *Heritage Act 1977* covers the identification, registration, conservation and protection of NSW heritage values. Part 3A of the Act, requires that a State Heritage Register (SHR) of heritage items of significance to the State be maintained. The SHR is maintained by NSW Environment and Heritage, who also maintain a database of heritage values registered by Government agency's under Section 170 of the Act.

There are no items listed on the SHR within or nearby the project site.

3.2.3 National Parks and Wildlife Act 1974

The New South Wales (NSW) *National Parks and Wildlife Act 1974* stipulate the requirements for the assessment, management and protection of Aboriginal heritage in NSW. Requirements for assessment and approvals are regulated by the Department of Environment and Heritage. The department maintains the Aboriginal Heritage Information Management System (AHIMS), which contains information and records about Aboriginal cultural heritage places and values provided.

An extensive search of AHIMS was undertaken on the 20 June 2025. There were no Aboriginal Heritage Places within the proposed disturbance area.

AHIMS site 52-2-1029 – Mill Creek 13; Engadine, AHIMS site 52-2-1030 – Mill Creek 12; Engadine, AHIMS site 52-2-1031 – Mill Creek 11; Engadine, AHIMS site 52-2-1108 – M14; Upper Mill Creek were previously located within 1 km of the project site. These sites have been salvaged and destroyed by consent during previous works at the LHRRP (see section 4.4.2).

3.2.4 Sutherland Shire Local Environmental Plan 2015

The Sutherland Shire Local Environmental Plan 2011 (LEP) outlines protection and conservation requirements for cultural heritage in the Sutherland Shire. The project is located within the southwestern portion of the LEP adjacent Campbelltown and Liverpool LGAs.

Section 3.1(3)(d) of the LEP provides exemptions for developments of minimal environmental impact, that are not carried out on land that comprises, or on which there is, an item that is listed on the State Heritage Register under the *Heritage Act 1977* or that is subject to an interim heritage order under the *Heritage Act 1977*.

Schedule 5 of the LEP provides a list of locally significant heritage items (Part 1), heritage conservation areas (Part 2), archaeological sites (Part 3), and Aboriginal objects and Aboriginal places of heritage significance (Part 4).

There are no items listed in the LEP within the disturbance area. *Eucalyptus paniculata* (Grey Ironbark) item number 2802 is located approximately 1 km north of the project site.

4. Desktop assessment

This desktop assessment examines technical data to establish a high-level cultural, environmental, archaeological and historic context for the project site. This context is provided to understand the potential for archaeological and intangible heritage values to be present in the project site and associated heritage risks or legislative obligations for the project.

4.1 Environmental context

The environmental context of the project site provides information relating to the historical and pre-European occupation use of the area. This information helps inform the predictive model for Aboriginal and non-Aboriginal heritage in the landscape, the likely condition of those objects and the factors which may have influenced the disposition of archaeological material over time.

4.1.1 Geology and geomorphology

Geology

The geological significance of the Sydney Basin for the Tharawal People is evident through interactions with the local geology for numerous reasons. The project site is wholly encompassed within the Mittagong Formation within the Sydney Basin. The Mittagong Formation is located below and adjacent the Ashfield Shale both of which overlie the Hawkesbury Sandstone Formation. The Ashfield Shale sporadically forms lithic soil materials (regolith) across this landscape (NSW Government, 2025). The Mittagong sandstone formation is a finer grained sandstone than surrounding Hawkesbury sandstones. The Mittagong formation is a transition of several metres of alternating sandstones and shales (Martyn, 2025). The variability is in part due to the nature of the dwindling flood plain and braided river system which deposited the Hawkesbury Sandstone. This vast system eventually lost its strength and became a plain of scattered sandbanks, swamps and lagoons. Clays settled in the swamps and lagoons but were periodically overwhelmed by sand brought by late floods leading to a sandstone/shale alternation of very variable thickness (Martyn, 2025).

The Mittagong Formation is a thin layer containing a disproportionate effect on local vegetation due to the creation of broad benches atop the Hawkesbury Sandstone's steep rocky cliff lines. Soil retention is good on top of these benches which can collect downwash from overlying Ashfield Shales where present. The level surfaces attract the accumulation of laterite formations in parts (Martyn, 2025; NSW Government, 2025).

The shale lenses create richer soils than the sandstone, though more stony, lateritic, and less fertile than the overlying Ashfield Shales (Martyn, 2025). The yellowish soils are classified as belonging to the Lucas Heights soil landscape highlighting similarities between the Mittagong and Hawkesbury Sandstone with its shale lenses in the Lucas Heights area (Martyn, 2025).

Soil landscapes

The LHRRP is in the 1h Lucas Heights 9029 Residual soil landscape. The soil landscape is dominated by loose, greyish brown fine sandy loams; bleached, stony, hard setting sandy clay loam; earthy, yellowish brown sandy clay loam; pedal, yellowish brown clay (NSW Government, 2025).

The crests and slopes are dominated by loose greyish brown fine sandy loam (Figure 4.1: horizon 1h1) which overlies sandy clay loam (Figure 4.1: horizon 1h3). Crests and plateau surfaces contain 10-20 cm of hard setting loam (Figure 4.1: horizon 1h2) that typically overlays yellow pedal clay (Figure 4.1: horizon 1h4) that extends to a depth of one m. There is an abundance of ironstone, predominantly on elevated positions. The soil boundaries are clear with total soils depths estimate to one m. Valley flats and depressions contain apedal sands and sandy loams (Figure 4.1: horizon 1h1) up to depths of one to two m (NSW Government, 2025). The project site consists of large areas that have been disturbed by past construction works and has likely impacted depths greater than one m though it could potentially be between 20-30 m deep (Heritage, 2015).

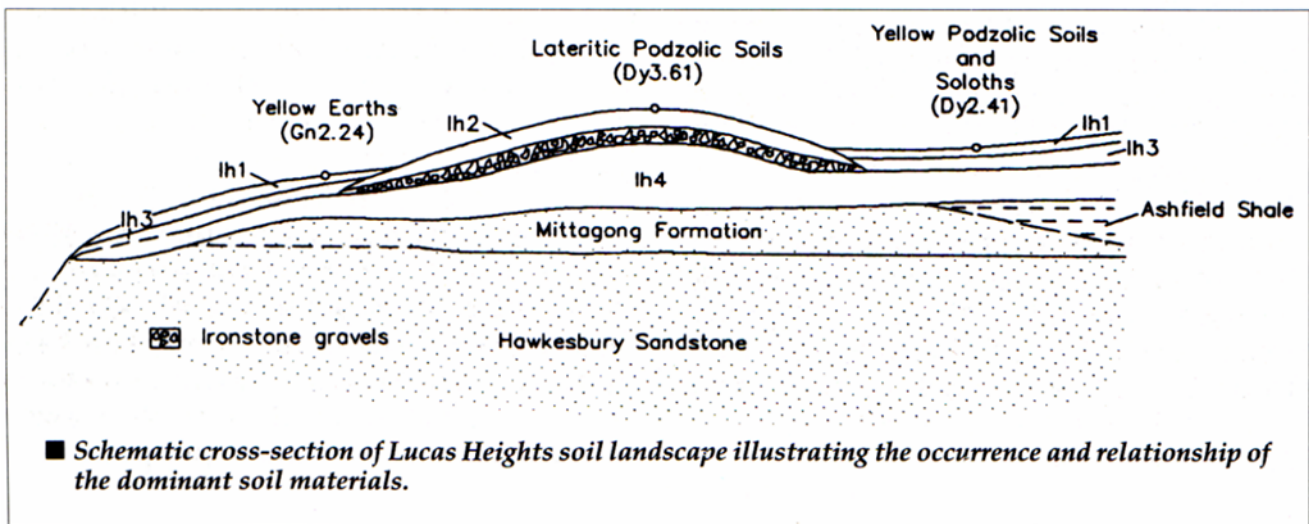


Figure 4.1 Cross section of the lh Lucas Heights 9029 Residual soil landscape and underlying simplified geology (NSW Government, 2025)

Expected soil profile: The expected soil profile in the project site is likely to have been impacted to depths up to 1 m from land reprofiling works and excavation associated with previous landfilling activities, and works to establish the existing power station in the 1990's.

It is unlikely that any remains of the original lh Lucas Heights 9029 Residual soil landscape remain intact. In the unlikely chance that it does the soils can be expected to be located on crests and plateau surfaces of hard setting loam to depths of 10-20 cm overlaying pedal clay to a maximum depth of one m before hitting the Mittagong Sandstone or Ashfield Shale. The expected location for Aboriginal artefacts to occur would be in the first 10-20 cm in the hard setting loam.

Geotechnical investigation

Geotechnical investigations show that the project site has been subject to significant past disturbance, with a layer of fill material (gravel and sandy clay) placed across the site to depths of around 1.4 m (GHD, 2025). Beneath this, only shallow residual soils derived from weathered sandstone are present before transitioning into Hawkesbury Sandstone bedrock, typically within 1–4 m below ground level (Stroud et al., 1985; Hazelton & Tille, 1990). The existing re-profiling of the site, combined with shallow soil development and fill, indicates that the potential for intact cultural deposits or archaeological material to be present is low.

4.1.2 Hydrology

The project site is located within the Sydney BA Bioregional sub region of the Sydney Basin Interim Biogeographic Regionalisation for Australia. Do Hydrology within the project site consists of spring-fed and ephemeral streams with a streamwise occurrence of 800-2400 m (NSW Government, 2025). The project site consists of sub catchments 3209 which is in moderate condition and sub catchment 3223 which is in very good condition according to the River Condition Index (NSW Government, 2025a). The closest water source to the project site is Bardens Creek, and its tributaries which are approximately 300 m northeast of the project site. Bardens Creek joins with Mill Creek to the north. Bardens Creek is a confined, bedrock margin-controlled headwater containing a bedrock base. Both Mill Creek and Bardens Creek directly and indirectly feed Georges River to the north respectively (NSW Government, 2025b). Georges River is one of the main river systems in Southern Sydney which supported multiple Aboriginal groups along its length.

The area is subject to varying weather conditions throughout the year. According to the Australian Bureau of Meteorology (BoM), Lucas Heights has received an average mean rainfall of 1,030 millimetres (mm) between 1958 and 2025 (BoM, 2025). Most of the rainfall in the Lucas Heights area occurs throughout the February and March as well as November and December. The average mean temperature is recorded as 20 degrees between 1962 and 1982 recorded at 9am (BoM, 2025). The prevalence of good water ways in the area increases the likelihood of Aboriginal People using this landscape in the past.

4.1.3 Flora and fauna

The Sydney Basin Bioregion contains the highest levels of species diversity in Australia due to the variety of rock types, topography and climates in the bioregion. These biogeographical varieties consist of lagoons, estuaries and coastal lake systems, as well as a variety of vegetation types such as rainforest, wet and dry sclerophyll forest, and hanging swamps (Australian Government, 2025).

The flora and fauna of the project site is constrained by a combination of geology and geomorphological factors and the frequency of surface hydrological features and the weather events (NSW Government, 2025). The flora and fauna of on the plateaux landscapes within the Lucas Heights soil landscape are affected chiefly by soil depths and frequency of water. The landscape is cover extensively with cleared eucalypt low-open forest and eucalypt low woodland with sclerophyllous shrub understorey (NSW Government, 2025). Turpentine (*Syncarpia glomulifera*), Smooth-barked apple (*Angophora costata*), Red bloodwood (*Corymbia gummifera*), Silvertop ash (*Eucalyptus sieberi*), Snappy gum (*Eucalyptus racemosa*) and Sydney peppermint (*Eucalyptus piperita*) are the most dominant tree species. Understorey species include Black she-oak (*Allocasuarina littoralis*), Blue mountains mallee ash (*Eucalyptus stricta*) and Heath banksia (*Banksia ericifolia*) (NSW Government, 2025). Wild honey was exploited by Tharawal people as well as various plant parts for the construction of objects, weaving, and for medicinal purposes. This is not an exhaustive list of all floras that could occur within the project site, as there is likely invasive species present due to contemporary anthropogenic activities.

The flora and fauna that existed prior to the waste facilities establishment likely contained the above flora which local fauna subsisted on and was provided with shelter from the flora. The fauna was in turn exploited by Aboriginal people in the past. Virtually all natural resources were exploited by the original inhabitants where the project site is located (Attenbrow T. N., 1981). The Gabrogal/Witchetty grub (*Endoxyla leucomochla*) goanna, black brim, kangaroo and oysters were some of the faunae exploited in this area (University of Sydney, 2025; Attenbrow V. , 2010). This is not an exhaustive list as the area that was inhabited by the Tharawal People was large giving access to a wide variety of food sources at different times of the year.

Flora and fauna within the project site is a combination of remnant regenerated native vegetation and low level native garden beds installed for landscaping purposes.

4.2 Aboriginal heritage

4.2.1 Tharawal people

The project site is within the Aboriginal custodian group of Tharawal and is managed and coordinated by the Gandangara Local Aboriginal Land Council (GLALC). Gandangara does not refer to the traditional custodians of the area that is being managed by GLALC, moreover the Land Council acts as an intermediary group for local Aboriginal people who have connections to the area. The reason for this is that the colonial and post-colonial periods have impacted the social fabric of the area to a great extent, making the identification of those who speak for country difficult (Aboriginal Heritage Office, 2025; Ingrey, 2013). There is a single Native Title Claim that has been accepted over the land that the project is located. The South Coast People – NC2017/003 is a large claim that extends from Holsworthy south to the Snowy Mountains just before Kiah (NNTT, 2025). The South Coast People are supported through the South Coast Medical Service Aboriginal Corporation and the Illawarra Aboriginal Medical Service Aboriginal Corporation (IAMSAC).

Early ethnographic accounts of the area were conducted haphazardly, with some very early descriptions coming from Watkin Tench, William Dawes, and David Collins (GLALC, 2025a). The areas inhabitants though were not understood until much later when Europeans began to take an interest in Aboriginal culture. Reverend John Rowley succeeded in establishing the first language dictionary of the area around Georges River around 1878 (Charles C. Greenway, 1878). This was followed up by others such as surveyor R. H. Mathews who wrote extensively on Aboriginal people on the East Coast and further inland. Mathews is notable for gathering his information from Aboriginal people rather than from second-hand sources that others, such as, Howitt who was a tireless critic of Mathews work (Matthews, 1899; Howitt, 1904). Norman Tindale (1974, p. 198) attributed Tharawal to inhabit “From south side of Botany Bay and Port Hacking to north of Shoalhaven River. Inland to Campbelltown and Camden”. The early disagreements between these sources and others led Val Attenbrow (2010) to indicate that the most likely pre-European inhabitants of the area to be Tharawal.

The Tharawal People language is the northern most dialectical group of the coastal Yuin languages spoken between Botany Bay and Jervis Bay. Yuin is part of the larger Pama-Nyungan language family of which there are four distinct sub-dialects (Bower, 2025; AIATSIS, 2024). These subdialects according to Moseley (Moseley, 2007) are:

- Nyamudy
- Ngarigo
- Ngunnawal
- Tharawal.

The Tharawal language shares a unique connection with the neighbouring Gandangara language. Gandangara has a distinct regional characteristic, sharing nominal possessive suffixes, being derived from the two language sub-branches of Yuin and Kuri (Claire Bower, 2004, p. 21). This dual quality bears resemblance to Tharawal in structure though the dialect is different (Claire Bower, 2004, p. 21). Tharawal's shared language characteristics indicates an intimate connection between the two groups.

The Tharawal people had a complex social structure upheld by strong belief systems. They believed that their ancestors came to inhabit the land around Illawarra Lakes through the retelling of the Whale Dreaming Story. These stories are retold in ceremonies through songs and dances (1899, pp. 7-10). They also contained details of how animals look the way they look, often containing important societal teachings and advice that would support upholding totemic traditions (Matthews, 1899). Tharawal had an ambilateral kinship system that is dictated by a person's skin group. Skin groups allow a person to understand their place within society and are assigned at birth (Charles C. Greenway, 1878). Skin groups were assigned totems additional to personal and family totems that gave each person a range of additional responsibilities within society (Les Bursill, 2001). Some known major totems for Tharawal are the Humpback Whale, kangaroo, and the snake, while some of the family and skin totems are kangaroo/*marloo* or a lace monitor/*jindoda* though there were likely many more (Todd, 2025; Les Bursill, 2001). Marriage was thus dictated by both skin group and totems associated with the skin group assigned at birth. For women this meant that they were betrothed from birth (Charles C. Greenway, 1878). Marriages conducted incorrectly or with the wrong person were known as 'wrong way marriages' (Rogers, 2024).

Ceremonies were conducted by Tharawal for numerous reasons. One well documented ceremony is the Bunan ceremony where boys celebrate becoming men. This is important in Aboriginal society as further responsibilities are bestowed on them at the conclusion of the ceremony. The ceremony itself can also indicate the reason for a camp in the area. Mathews (1896) describes this ceremony:

"When the women who have been to a bundan before see [sic] this procession and hear the noise they know there is to be a general gathering of the tribes for the purpose of initiating the boys. The whole tribe-men, women, and children-next day remove to the place selected for the general encampment, generally on a moderately level piece of ground, not far from water, and where plenty of wood for fuel is obtainable. The local tribe is the first to pitch its camp, and the other tribes encamp around this. On a cleared space in the central part of the camp corroborees are held almost every night".

The Bunan ceremony was celebrated by Aboriginal groups between southern Sydney and Cape Howe with Tharawal being the northern-most group to celebrate it.

Tharawal People have a complex society that has survived colonisation and continues into contemporary periods. Tharawal in the past conducted their activities free from oppression. Tharawal established regional trading complexes, internal and external social organisations, as well as extensive cross-cultural exchange through objects, marriage, and the upholding of spiritual beliefs through local and regional ceremonies (Stokes, 2015). The larger gatherings were particularly important for upholding their beliefs around marriage and totems as well as connecting to neighbouring groups. These well-established social systems were interrupted by European colonisation efforts which interrupted many of these systems.

4.3 European heritage

Europeans and many Asian nations had contact with Aboriginal Australia for hundreds of years prior to the European colonization of Australia. Captain Cook laid claim for the British Empire over the east coast of Australia in 1770. Following this was the landing of the First Fleet in Botany Bay in 1788 which began European colonisation efforts in Australia (AG, 2025; AWM, 2025; NMA, 2025). Initial contact was typically amicable though conflict over the land was conducted almost immediately in the first 40 years of European occupation followed by bursts of conflict following transgressions by Europeans (Dunn, 2020; Gapps, 2018). Europeans were slow to move into the area around Lucas Heights.

Early industry near the project site included watermills established by John Lucas who was a carpenter and mill wright. The first mill in the area was established at Harris Creek in 1822, and a second mill was established along the Woronora River in 1825. Several products were sold out of the mills such as flour, sugar, cloth, files, nails and rum. Lucas' milling operations ceased in 1832 due to a succession of droughts and increased pressure from steam mills (Rodwell, 2023). A land grant to David Duncomb of 700 acres in 1823 as a quit-rent lease to help provide wheat to for the mill on Woronora River (Sydney Herald, 1831). The Little Forest Estate Company was then formed and a purchase of 735 acres of land in Little Forrest (Byron, 2023, pp. 9-10).

Between 1860 and the 1880s small farms were established along Mill Creek with the aid of Tharawal woman and English husband Bidy and Billy Giles (Cadzow, 2025). The farmers established orchards, crops and had herds of goats. The farms here declined due to increasing soil salinity which poisoned the established orchards and crops (Cadzow, 2025). The limited development in the area led to the establishment of the world's second National Park, the Royal National Park in 1872, located east of the project site (Heritage Office and Department of Urban Affairs and Planning, 1996; DCCEE, 2025). The construction of the Illawarra Rail Line commenced in 1884 and was completed in 1893 to support a growing coal industry near Coalcliff. The line passed through Heathcote which was established in 1825 (Oakes, 2024). Little Forrest was acquired in 1889 by the Barden Brothers for timber felling and cattle grazing, likely leading to the naming of Bardens Creek (Byron, 2023).

The Illawarra Road borders the LHRRP site and has existed in some form since the 1850s south of Giles Junction (Mackay, 1997a). The Illawarra Road has conflicting sources to its origin, though the original portions were constructed by convicts and was surveyed by Thomas Mitchell in 1843. The road was then expanded north of Giles Junction following old Aboriginal pathways that followed the ridges. This new section was originally called Eckersley Rd in 1908, though by the 1930s had become a military road and renamed the Illawarra Road (Mackay, 1997a).

During the 1940s the area had several developments near the project site. The establishment of Defence Road No. 512 between 1940 and 1943 was established by joining a series of smaller roads in the area (Roads and Maritime Services, 2025; Land & Water Conservation, 1960). This later became Heathcote Road. In 1941 the Woronora River was dammed by constructing a weir on it to provide water to Sydney's expanding population. During the national emergency during 1942 a demolition program was enacted with Defence Road No 512 designated a significant road, it was undermined for defence purposes between 20 January and 17 July 1942 with road mines O.M.1/14 and O.M.1/15. These were likely de-mined in 1943 as the threat of a Japanese invasion receded (Department of Main Roads, 1942).

After World War Two the land around the LHRRP became public lands. During this period the landscape had a range of proposals for the use of the land. These proposals included the mining of the land for gravels, shales, and clays, proposed establishment of showgrounds (Sutherland Shire, 2025a), several rifle clubs were also proposed to be established in the area. Of these only the establishment of the rifle ranges, mining for gravels, shales, and clays occurred. The rifle clubs (Sutherland Small Bore Rifle Club, and the Sydney Marconi Clay Target Company) operated between the 1960s and 1970s (Byron, 2023). The rifle clubs possibly merged into the Sydney International Clay Target Association after the 1970s. Mineral extraction is difficult to track for this area though according to Brayshaw (1982, p. 43) the LHRRP was used for clay and shale extraction. An attempt to establish pits for mining shale and Clay was proposed on the middle portion of the LHRRP site by a Q. L. Application submitted by Harringtons Clay & Shale Pits (LB 75/1149) but is shown as refused around 1976 (Land & Water Conservation, 1960).

In 1955 the High Flux Nuclear Reactor was opened by the Honourable Robert Menzies after the establishment of the Australian Atomic Energy Commission in 1953. Some clearing occurred over the project site during the early stages of establishment for this (ANSTO, 2025). This site is located adjacent the LHRRP and was renamed to the Australian and Nuclear Science and Technology Organisation (ANSTO) in 1987 coinciding with the establishment of the Lucas heights Waste Disposal site, which would become the LHRRP. The LHRRP is located on Commonwealth land owned by ANSTO (AMBS, 2009). The area around the Lucas Heights High Flux Nuclear Reactor and LHRRP remained lightly populated until 1984 when Sydney housing demand increased dramatically, leading to the development of housing at Lucas Heights in 1984 (AMBS, 2009).

4.4 Archaeological context

Evidence of the Aboriginal occupation in NSW can be dated to approximately 50,000 to 60,000 years at Lake Mungo and around 30,000 years at Paramatta (Attenbrow V. , 2010). Archaeology on the Woronora Plateau indicates a likelihood of 30 000 years of occupation cross referencing from dates acquired from gravels in the Cranebrook Terrace on the Nepean River (AMBS, 2009). Late Pleistocene occupation sites have also been identified around the fringes of Sydney dating to 14 700 Before Present (BP) at Shaw's Creek in the foothills of the Blue Mountains (J. L. Kohen, 1984) c. 11 000 BP at Mangrove Creek and Loggers Creek (Attenbrow V. , 1981; Attenbrow V. , 2004), and 20 000 BP at Burril Lake on the South Coast (Lampert, 1971). Most sites date to between 3000- and 5000-years BP with many researchers suggesting a period of intensification from this period (AMBS, 2009). Additionally, archaeology of the Sydney Basin area falls within the Eastern Regional Sequence which was first introduced by Macarthy in 1940 and has been adapted progressively through time (McDonald J. , 2008; Attenbrow V. , 2010; Attenbrow P. H., 2005; Hiscock, 1993; Hiscock, 2008). The current characterisation of the sequence is pre-Boundaiaian 30 000 – 8000 PB, Early Boundaiaian 8000 – 4000 BP, Middle Boundaiaian 4000-1000 BP, and Late Boundaiaian 1000 BP – European Contact. This dating convention was adapted by Jo McDonald for artwork by following stylistic conventions with the late and middle Boundaiaian period of the Eastern Regional Sequence being merged (McDonald J. , 2008).

Section 4.4.1 provides an overview of archaeological assessments undertaken within the vicinity of the project site.

4.4.1 Previous reporting

There have been several archaeological investigations undertaken near the project site. The information summarised in this section is based on reports that have been registered with the Heritage NSW AHIMS, which contain the most relevant data for the archaeological background of the current project site.

Silcox (1980) conducted an archaeological heritage survey over the Bardens Creek area for the Metropolitan Waste Disposal Authority. This survey identified four sites with grinding grooves (52-2-856, 52-2-858, 52-2-775, 52-2-779) one site with engravings associated with grinding grooves (52-2-772), three shelters with occupation material (52-2-770, 52-2-771, 52-2-774), two shelter with occupation material, art and grinding grooves (52-2-772, 52-2-778), three shelters with art (52-2-773, 52-2-776, 52-2-777) along the creek. Site 52-2-774 was recommended for excavation and salvage. This was subject to a thorough investigation by Negerevich and Attenbrow (1981). These sites are all located greater than 1 km north of the project site but within the Mill Creek and Barden Creek catchment areas.

Negerevich and Attenbrow (1981) prepared an archaeological report for the Metropolitan Waste Disposal Authority to facilitate the expansion of the waste facility. The sites originally identified by Silcox (1980) were test excavated within Bardens Creek and Mill Creek. It was established that the area contained a minimum date range between 2, 800 and 1, 600 BP placing the area within the late Holocene, Middle Bondaiaian period.

Helen Brayshaw (1982) conducted an archaeological report for Trevor Morgan Pty Ltd to inform an LEP for the West Menai urban development release. The survey area covered the northern portions of Bardens and Mill Creeks. The survey identified 13 potential occupational shelters (MP01, MP02, MP03, MP04, MP05, MP06, MP07, MP08, MP09, MP10, MP11, MP12, MP13), four shelters with occupational material (M2, M3, M4, M5), three art with potential archaeological deposits (45-6-690 – M1, 45-2-225 – M8, M6), one grinding grooves and associated shelter (M9), and one grinding grooves with additional larger groove (M10). Site M9 is the closest to the project site located approximately 1.5 km northwest near the boundary of the LHRRP boundary. This is followed by M10 which is approximately 750 m north of M9. The majority of these sites follow Mill Creek and were added to the sites identified by Silcox (1980) and recorded by Negerevich and Attenbrow (1981). The report recommended that all PADs identified be excavated and all sites located be studied in depth as a mitigation measure.

M. Koetig and J. McDonald (1984) prepared an archaeological survey and excavation report for the Metropolitan Waste Disposal Authority seeking an alternative site for the Lucas Heights Waste Disposal Depot of the Upper Mill Creek area. This survey covered the area that the project site is located within. The survey identified AHIMS sites M11 (AHIMS 52-2-1031) art (pigment, engraving) and shelter and two shelters with deposits M12 (AHIMS 52-2-1030), and M13 (AHIMS 52-2-1029). M12 was test excavated recovering 100 stone artefacts of quartz, FGS, silcrete, and another unidentified material. The assemblage consisted of bipolar cores and flakes with some flakes containing use wear and retouch. The recommendations indicated that the Metropolitan Waste Disposal Authority obtain consent to destroy sites within the footprint with the condition that M12 be further excavated, M11 must have its art fully recorded and the shelter be archaeologically excavated, and if artefacts were located on the track below M12 they had to be salvaged and archaeological investigations had to be conducted to salvage any material remains. This report and recommendations laid the groundwork for further investigations in the area.

M. Koettig (1990) provided a salvage report for the NSW Waste Management Authority for the expansion of operations at the Lucas Heights Waste Disposal facility. The report was of the excavation of shelters M11 (AHIMS 52-2-1031) and M12 (AHIMS 52-2-1030) and the subsequent excavation of open campsite M14 (AHIMS 52-2-1108), which was identified during the excavation after recommendations from M. Koetig and J. McDonald (1984) recommended that this area be further investigated. A magnetometer survey was used to assist the identification of the site extent of M14. The excavation included four test pits dug between a track and M11. All the pits excavated contained cultural material in the upper 40-50 cm of sandy deposit. Further excavations were recommended between M11 another site which became open camp site M14 (AHIMS 52-2-1108) to determine the extent of occupation along the slope. This field season included an open area excavation expanded from trenches where high densities of artefacts were located in test pits. In total M11 had four test pits and returned an approximate date of 2690 and 2110 BP, M12 also had 4 test pits, and M14 had 53 shovel trenches excavated one m by 0.25 m to determine the site extent while 18 larger open areas were excavated ranging from 0.5 to 4.5m². A total of 7546 artefacts were recovered at M14 including a hearth dating to 2160 BP.

Brayshaw and McDonald (1990) were commissioned by the Department of Housing to review Brayshaws original (1982) report *Archaeological Survey in West Menai Urban Release Area*. This was due to the requirement to engage with the newly formed Gandangara Local Aboriginal Land Council which had not existed during the original survey. This report updated and reassessed the heritage sites from the original report and provided updated heritage management recommendations for the Department of Housing. The two AHIMS Heritage sites 52-2-1060 and 52-2-1061 were slightly altered during this reassessment due to natural processes uncovering larger portions of the sites. AHIMS site 52-2-1060 is on or within the western border of the LHRRP approximately 1 km to the northwest of the project site. Some landscape changes were noted at some sites which required additional recording as more of those sites had been exposed due to weather and anthropomorphic activities.

Artefact Heritage (2015) were commissioned to prepare an Aboriginal Due Diligence Assessment for GHD to support the SSD of the LHRRP, the works of which were undertaken by SICTA Australia. The Due Diligence covered the entire LHRRP land. During this assessment Artefact conducted a visual assessment of AHIMS sites 52-2-1029 and 52-2-1030, 52-2-1031 and 52-2-1108 which were excavated in by Koettig (1990). The report confirmed that these sites were removed after consent to destroy was granted in 1985. These sites were located less than 1 km from the project site and are now most likely buried under 20-30 m of landfill. No further assessment was needed for these sites. The details of the previously impacted sites are provided in Table 4.1.

Table 4.1 Sites noted as destroyed in Artefact (2015) report

Site Name	AHIMS ID	Type
Mill Creek 13; Engadine	52-2-1029	Shelter with Deposit
Mill Creek 12; Engadine	52-2-1030	Shelter with deposit
Mill Creek 11; Engadine	52-2-1031	Shelter with art (pigment or engraved)
M14; Upper Mill Creek	52-2-1108	Artefact; open campsite

AMBS Ecology (2009) was commissioned by WSN Environmental Solutions to undertake an Aboriginal and non-Aboriginal heritage assessment for the proposed Alternative Waste Technology (AWT) facility at Lucas Heights. The assessment was conducted on land adjacent to the current project site directly east and south over Lot 111 DP 1050235 and Lot 1 DP 23333 totalling 11 ha. As part of this assessment a heritage survey was conducted on 17 September 2008 which did not identify additional Aboriginal or non-Aboriginal heritage sites due to the majority of the area being previously disturbed.

In (2023) AMBS Ecology and Heritage was commissioned by Cleanaway Pty Ltd (Cleanaway) to prepare an Aboriginal Heritage Due Diligence Assessment for potential land clearing in Lucas Heights for future landfill purposes. The study area was located approximately 1 km to the north and west. This is the most updated Due Diligence Assessment of the surrounding area and covered a large area beyond 1 km from the current project site.

GHD (2025) conducted an Aboriginal Cultural Heritage assessment for Cleanaway for the expansion of the LHRRP to the north and west. The assessment was conducted over the same area as the AMBS (2023) Due Diligence Assessment and identified no additional information relevant to the project site.

Summary of archaeological context

The inhabitants of the Woronora Plateau were likely the Tharawal People who have a strong cultural connection to the landscape. The greater Sydney Basin region has been occupied for thousands of years, with the best current estimates of earliest occupation between 30,000 and 35,000 years BP. To assist archaeologists with understanding deep time contexts the Eastern Regional Sequence was established. All archaeological assessments within the Woronora Plateau have been conducted with this framework as the groundwork for interpretation.

The earliest survey of the Mill Creek and Bardens Creek area was conducted by Silcox (1980) which identified an area rich in occupied shelters, artefact scatters, grinding grooves, and art (pigment or engraving). Recommendations from this report led to additional studies that included magnetometry, site recording, and salvage excavations. The results from this additional work led to the establishment of the age of occupation for the area being between 3000 - 4000 BP. Recent studies have added additional sites to the general area, though no large-scale efforts to acquire additional dates or research has been conducted since the late 1990s. Assessments of the LHRRP in the last five years indicate that the LHRRP has continued to be developed and expanded, which has included extensive land surface reprofiling works and excavation associated with previous landfilling activities. Because of this extensive disturbance, the project site is unlikely to contain Aboriginal cultural material.

4.4.2 AHIMS search results

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) was undertaken on 20 June 2025. The search identified four previously recorded sites of Aboriginal heritage significance within 1 km of the project site. According to the Artefact (2015) report these sites no longer exist and have been removed by consent in 1985. Table 4.2 shows the central coordinates and types of previously recorded AHIMS sites within 1 km of the project site.

A variety of site types occur on the Woronora Plateau though none occur within the project site.

Table 4.2 AHIMS sites within 1 km of the project site

Site type	Occurrences	Frequency (%)
Artefact scatters	1	25
Shelter with deposit	2	50
Shelter with Art	1	25
Total	4	100

Three shelters were identified representing 75% (n=3) and an artefact scatter representing 25% (n=1) of the total assemblage. Of the rock shelters two contained deposits and the third contained art. Previous studies have indicated that potential archaeological deposits (PADs), shelters and art (pigment or engraved) are the most likely Aboriginal site to be found in the area. These occur within the dissected valleys and close to running water in the area. There are no notable differences with previous Aboriginal Due Diligence Assessments for this area.

4.4.3 Land use history and ground disturbance

The land underlying the project site was substantially cleared of native vegetation from at least 1980 and has since been extensively modified to support ongoing industrial uses. Development of the existing power station, constructed around 1996, involved levelling and backfilling the area with gravel, further altering the original landform. Previous investigations of the Lucas Heights Resource Recovery Park (LHRRP), particularly within and around the power station site (Lot 102), have consistently found the area to be highly disturbed. The LHRRP has been in continuous operation since 1987, originally accommodating the Lucas Heights Waste Management Disposal Facility. This activity began in a relatively small area south of the current project site and expanded gradually between 1988 and 2004, followed by a period of more rapid development between 2004 and 2015 (refer to Figure 4.2, Figure 4.3 and Figure 4.5).

Consent to remove Aboriginal heritage sites previously located within the LHRRP was obtained in 1985, with significant mitigation works, including large-scale excavations, undertaken in 1990. Since that time, the site has been extensively altered through the deposition of waste material, with infill depths estimated at approximately 20 to 30 m and potentially up to 40 m.

Given this extensive landscape modification, the risk of disturbing Aboriginal cultural heritage within Lot 102 is considered to be very low. The sandstone formations that previously supported rock shelter sites recorded as AHIMS 52-2-1030, 52-2-1031, and 52-2-1029, as well as the open campsite 52-2-1108, are no longer. Previous assessments confirm that appropriate approvals were obtained.



Figure 4.2 Aerial Image of the approximate project site, 1980 (Geoscience Australia, 2025c)



Figure 4.3 Satellite Imagery of project site, 2004 (Google Earth, 2025)



Figure 4.4 *Satellite Imagery of project site, 2015 (Google Earth, 2025)*

4.5 Site prediction statements

The project site is in an area that contains historic ground disturbance. The former landscape of the project site has been cleared of vegetation with extensive landscape reprofiling and development of the existing power station occurring since 1988. For this reason, the likelihood of the project site containing any cultural heritage values for Aboriginal or non-Aboriginal heritage is low.

The most likely heritage values to be located within the project site are low density Aboriginal artefact scatters or isolated artefacts out of a stratified context. This means that if artefacts are identified within the project site, they would not likely contribute to a greater understanding of the archaeological context for the region or for the Mill Creek and Barden Creek localities. Artefacts within the project site would indicate that the area was formerly used by the Tharawal People but is unlikely to establish for what purpose the location was occupied for.

5. Due diligence assessment

The generic due diligence process as prescribed by the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (2010) is set out as a series of steps in a question answer flowchart format and are applied to project impacts and the responses documented (see Figure 5.1).

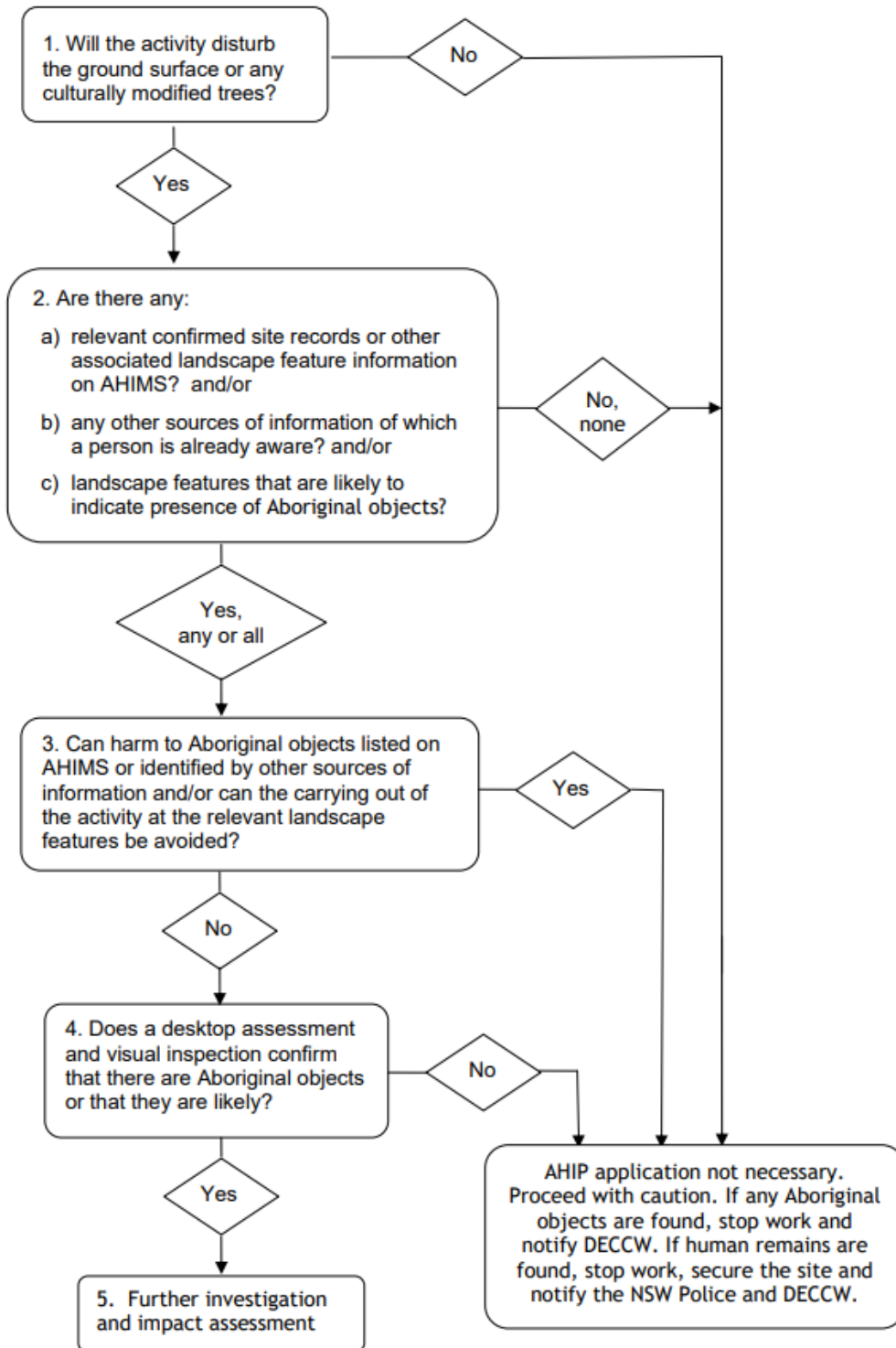


Figure 5.1 The generic due diligence process (DECCW 2010)

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

The project site has undergone ground disturbance as a result of:

- installation of services, utility and industrial infrastructure including road surfacing
- vegetation clearance.

The project would disturb previously disturbed ground surface and will not result in the removal or disturbance of any culturally modified trees.

Step 2: Are there any:

a) Relevant confirmed site records or other associated landscape feature information on AHIMS?

A search of the Aboriginal Heritage Information Management System (AHIMS) undertaken on 19 March 2025 identified no previously recorded AHIMS sites within the project site. There are four previously recorded AHIMS site located within 1 km of the project site, however, these have been removed (since the early 2000s) after consent was given in 1985.

b) Any other sources of information of which a person is already aware?

No

c) Landscape features that are likely to indicate presence of Aboriginal objects?

The Code identifies the following landscape features as likely to be associated with Aboriginal objects:

- located on a ridge top, ridge line or headland, or
- located within 200 m below or above a cliff face, or
- within 20 m of or in a cave, rock shelter, or a cave mouth.

The project is located on the Woronora Plateau with some dissected water ways located nearby or previously close to the project site. The area surrounding the project site contains archaeological evidence of human occupation dating to at least 4000 years BP. However, the disturbance generated from development of the existing power station has rendered much of the original landscape disturbed. This indicates that the likelihood of Aboriginal artefacts being located on the surface and subsurface is unlikely.

The above assessment, undertaken in accordance with the generic due diligence process (DECCW, 2010), has determined that the chance of harm to Aboriginal material present in the landscape is minimal due to the extensive disturbance present (detailed in section 6) within the project site. Further investigation is not required, but standard unexpected finds procedures should be followed.

6. Summary and harm mitigation measures

Following the completion of this assessment in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects*, it is concluded that:

- the likelihood of Aboriginal material being present in the project site is minimal due to the extensive disturbance present
- further investigation is not required, but standard unexpected finds procedures should be followed.

In regard to non-Aboriginal heritage, it is concluded that:

- The desktop assessment has not identified any previously listed non-Aboriginal heritage in the project site.
- The likelihood of non-Aboriginal material being present in the project site is minimal due to the extensive disturbance present.
- Further investigation is not required, but standard unexpected finds procedures should be followed.

The results of section 6 have determined that the project is unlikely to impact or cause harm to objects or places of Aboriginal or non-Aboriginal heritage significance, providing the harm mitigation measures outlined in section 6.1 are applied.

6.1 Recommendations

Recommendation 1: Induction

Whilst considered low risk, non-Aboriginal heritage material, Aboriginal cultural material or ancestral remains may be unexpectedly encountered during construction and a heritage induction should be included into the general induction package for all individuals undertaking or supervising ground disturbing works. Information in the heritage induction should include descriptions of potential non-Aboriginal heritage, Aboriginal heritage cultural materials within the project site that will allow for the visual identification of these items.

Recommendation 2: Contingency plan

Ensure the inclusion of a contingency plan for the discovery of unanticipated non-Aboriginal heritage material, Aboriginal cultural material or ancestral remains as part of the Construction Management Plan. The Plan should outline clear notification and stop work processes in the case of Aboriginal cultural material or ancestral remains.

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