



Lourdes Retirement Village, Killara

Aboriginal Heritage Due Diligence Assessment

Prepared by AMBS Ecology & Heritage
for Essence Project Management

Final Report

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1 Introduction

AMBS Ecology and Heritage (AMBS) has been commissioned by Essence Project Management to prepare an Aboriginal Heritage Due Diligence Assessment for a proposed rezoning of land from R2 Low Density Residential to R3 Medium Density Residential, at Lourdes Retirement Village, 95-97 Stanhope Rd, Killara (the study area) (Figure 1.1). The assessment is required to accompany a Planning Proposal for the project and to determine if future works have potential to impact Aboriginal heritage items, in accordance with Heritage NSW *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010).

1.1 The Study Area and Proposed Development

The study area comprises approximately 5.25ha within Lots 21 and 22 DP634645 at the Lourdes Retirement Village, 95-97 Stanhope Rd, Killara. It is within the Ku-ring-gai Local Government Area (LGA) and is approximately 11km north west of the Sydney Central Business District (CBD) and approximately 1km from Killara train station. Lourdes Avenue is located on the eastern and southern boundaries of the study area, and Stanhope Road is on the northern boundary. The western extent of the study area is bound by residential properties. Currently situated on the property are 108 Independent Living Units, 49 self-care housing apartments, 83-bed Residential Aged Care Facility and Headfort House (Chapel), community centre and pool/BBQ facilities.

The project proposes rezoning of land from R2 Low Density Residential to R3 Medium Density Residential. If the planning proposals are approved the following redevelopments have been put forward; a new seniors' housing development, comprising approximately: 141 independent living units, 110 bed residential aged care facility, 1,400m² of internal communal space, and a new townhouse precinct accessed by a new internal street (Figure 1.2).

1.2 Methodology

This report has been prepared in accordance with current heritage best practice and the guidelines of Heritage NSW, Department of Premier and Cabinet (Heritage NSW) as specified in the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010a). As such, the due diligence assessment has addressed the following requirements:

- identify any previously recorded Aboriginal sites;
- develop a predictive model for local Aboriginal archaeological sites, including any landscape features within the study area which are likely to indicate the presence of Aboriginal objects; and
- identify any constraints resulting from Aboriginal objects that may be present within the study area, and any requirements for additional Aboriginal heritage investigations or permits.

The following tasks have been undertaken to fulfil the above requirements:

- a search and review of the Heritage NSW Aboriginal Heritage Information Management System (AHIMS) database, to identify the location and type of any Aboriginal sites recorded within the study area or its vicinity;
- a review of relevant environmental information and the Aboriginal heritage context;
- a review of available relevant previous Aboriginal heritage reports, to determine the extent of past archaeological research into the local area; and
- the preparation of a report outlining the results of the background research; detailing whether the proposed works are likely to impact on identified Aboriginal sites or areas of potential archaeological sensitivity; identifying appropriate recommendations for avoidance of impacts to identified Aboriginal heritage sites and areas of archaeological

potential; and, if required, identifying triggers for additional archaeological assessments and recommendations for Aboriginal heritage management within the study area.

This due diligence assessment does not include consultation with representatives of the local Aboriginal community as per Heritage NSW's *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, and therefore does not address the cultural or spiritual significance of the project area. Assessments of cultural significance, which address the values of a site to the Aboriginal community itself, can only be carried out by the relevant Aboriginal communities.

1.3 Authorship

This report has been prepared by AMBS Heritage Consultant Matthew Byron and reviewed and approved by AMBS Director Aboriginal Heritage Christopher Langeluddecke.

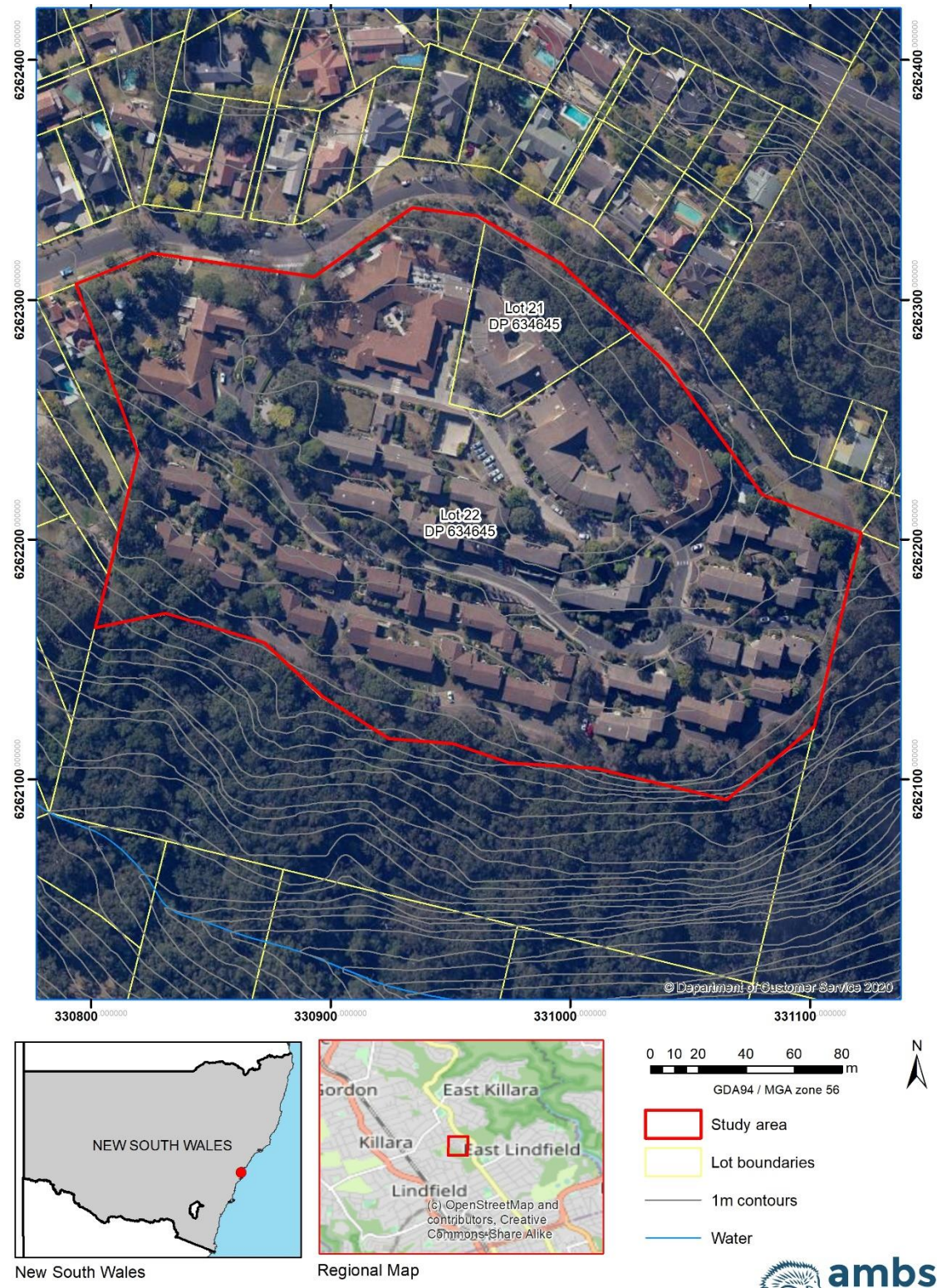


Figure 1.1 The location of the study area.



Figure 1.2 Proposed development if planning proposal is successful (Source: Plus Architecture).

2 Statutory Context

2.1 *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) aims to protect and manage places of national environmental significance. Several heritage lists, including the National Heritage List (NHL) and the Commonwealth Heritage List (CHL), are addressed by the EPBC Act. The NHL lists places that have outstanding value to the nation, while the CHL includes items and places owned or managed by Commonwealth agencies. Ministerial approval is required for controlled actions which would have a significant impact on items and places on the NHL or CHL.

There are no Aboriginal heritage items or places listed on the NHL or CHL within the study area or in its vicinity.

2.2 *National Parks and Wildlife Act 1974 and National Parks and Wildlife Amendment Regulation 2010*

The *National Parks and Wildlife Act 1974* (NPW Act) specifies that the Director-General of the National Parks and Wildlife Service (NPWS; now Heritage NSW) is responsible for the care, control and management of various natural and cultural areas, including Aboriginal places and objects throughout NSW. Under this Act, all Aboriginal Objects are protected regardless of significance or land tenure. Such Aboriginal Objects include pre-contact features like scarred trees, middens and open camp sites, and post-contact features such as Aboriginal fringe camps. The Act also protects Aboriginal Places, which can only be declared by the Minister administering the NPW Act; these are defined as being a place that is or was of *special significance with respect to Aboriginal culture*.

There are no declared Aboriginal Places within the study area. There are several AHIMS sites located in the near vicinity, but none previously recorded within the study area itself, see Section 4.2.1, and Figure 4.1- Figure 4.2.

Under Section 90 of the NPW Act, it is an offence to destroy, deface, damage or desecrate an Aboriginal Object or Aboriginal Place, unless an Aboriginal Heritage Impact Permit (AHIP) has been issued by the Conservation and Regional Delivery Division and Communities and Greater Sydney Division of Heritage NSW. The Act requires that reasonable precautions and due diligence be undertaken to avoid impacts on Aboriginal Objects.

The *National Parks and Wildlife Amendment Regulation 2010* excludes activities carried out in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* from the definition of harm in the NPW Act, meaning that test excavations may be carried out in accordance with this Code of Practice, without requiring an AHIP. The Regulation also outlines Aboriginal community consultation requirements as detailed in the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, and a Due Diligence Code of Practice which specifies activities that are low impact, thus providing a defence to the strict liability offence of harming an Aboriginal object.

2.2.1 *Aboriginal Heritage Information System*

The Aboriginal Heritage Information Management System (AHIMS) is part of the regulatory framework for the implementation of the NPW Act. Maintained by Heritage NSW, the AHIMS includes a database of Aboriginal heritage sites, items, places and other objects that have been reported to Heritage NSW, as well as site cards describing Aboriginal sites registered in the database and associated Aboriginal heritage assessment reports. Section 89A of the NPW Act requires individuals and corporations to notify Heritage NSW of the location of Aboriginal sites

identified during field investigations, regardless of land tenure or any likely impacts to such sites. Nevertheless, the AHIMS is not a comprehensive list of all Aboriginal heritage sites in NSW; it only includes information that has been reported to Heritage NSW. The accuracy of site co-ordinates in the database therefore varies depending on the method used to record locations.

The results of a site search for the local area are presented in Section 4.2.1.

2.3 Heritage Act 1977

The *Heritage Act 1977* protects heritage places, buildings, works, moveable objects, precincts and archaeological sites that are important to the people of NSW. Items that have particular importance to the State of NSW are listed on the State Heritage Register (SHR). Such items can include those of Aboriginal and non-Aboriginal heritage significance.

There are no Aboriginal heritage items or places in the vicinity of the study area listed on the SHR.

2.4 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) regulates land use planning and development in NSW, including the making of environmental planning instruments (EPIs). The two types of EPIs are State Environment Planning Policies (SEPPs), which cover areas of State or regional environmental planning significance; and Local Environmental Plans (LEPs), which cover LGAs. SEPPs and LEPs identify and provide for the protection of local heritage items and heritage conservation areas. The study area is located within the Eurobodalla Shire Council LGA.

2.4.1 Ku-ring-gai Local Environmental Plan 2015

Part 5, Clause 5.10 Heritage Conservation of the Ku-ring-gai LEP is consistent with current heritage best practice guidelines. It provides for the protection of environmental heritage of Ku-ring-gai, the heritage significance of heritage items and heritage conservation areas (including associated fabric, settings, and views), archaeological sites, Aboriginal objects, and Aboriginal places of heritage significance. Schedule 5 Environmental Heritage does not include any Aboriginal objects or Aboriginal places of heritage significance within the study area. The study area is the vicinity of three items listed on the LEP, the Seven Little Australians Park (Item number I1100), adjoining the study area to the south and the east. The Crown Blocks Heritage Conversation Area (C22) adjoins the study to the east, south and west and entering the study area at the northern section of the west side. While the Swain Gardens heritage item (I1103) is in close proximity to the south west of the study area.

3 Environmental Context

Environmental factors of the local landscape can inform an understanding of past human occupation of an area. Analysing the nature of the local landscape, specifically factors which affect patterns of past human occupation including topography, geology, soils, hydrology and vegetation, contributes to predictive modelling of archaeological sites, contextualises archaeological material and enables the interpretation of past human behavioural patterns.

3.1.1 Soils and Geology

The study area is located within the Lucas Heights, and Hawkesbury soil landscapes. As seen in Figure 3.1, the Lucas Heights soil landscape encompasses the majority of the study area to the north, the Hawkesbury soil landscape is located to the south and east, of the study area.

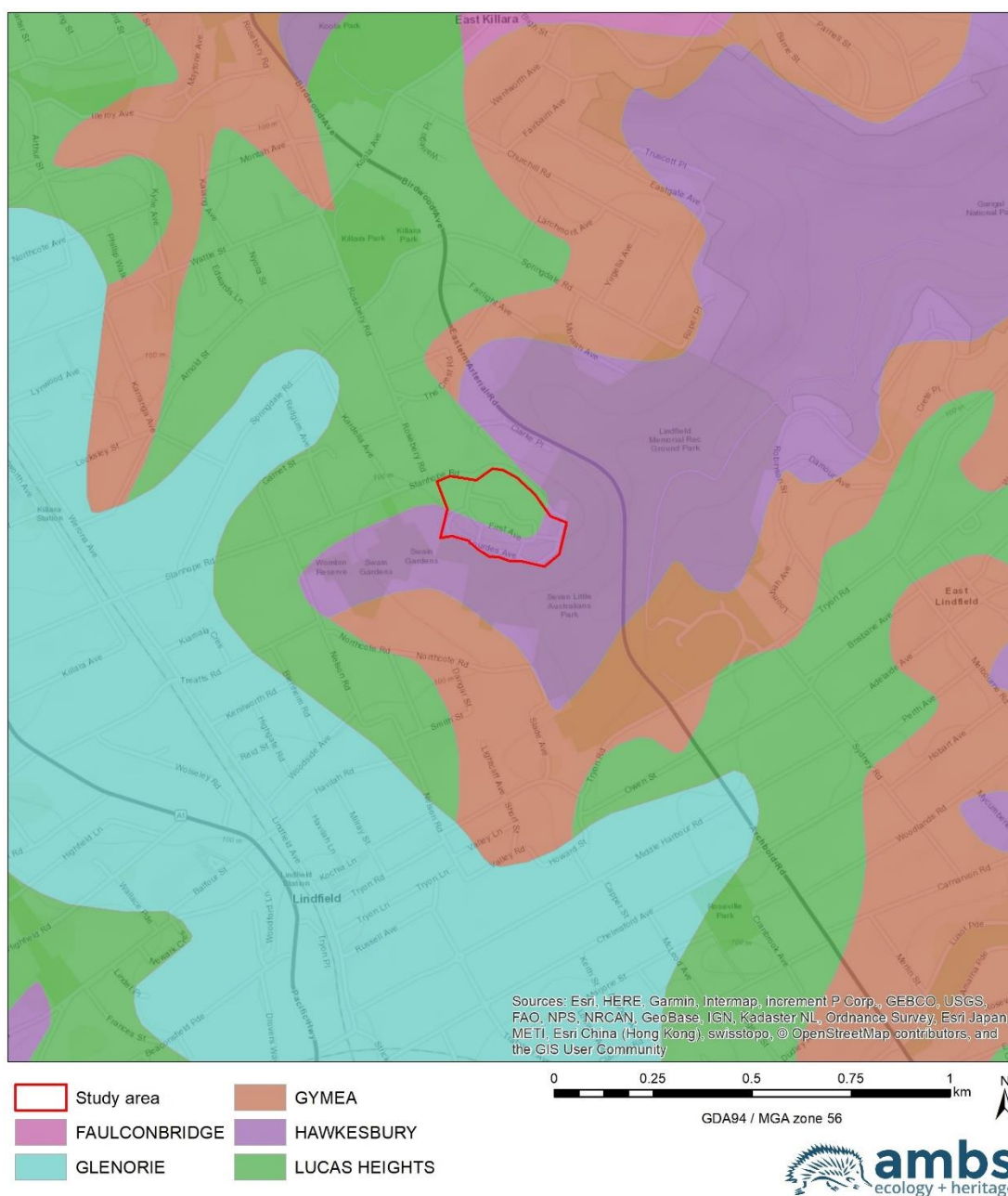


Figure 3.1 Soil landscapes of the study area.

The Lucas Heights soil landscape is characterised by moderately deep, hardsetting yellow podzolic soils and yellow soloths, and yellow earths on outer edges. Limitations of this soil landscape are stony soil, low soil fertility and low available water capacity. The geology of this soil landscape is the Mittagong Formation which includes interbedded shale, laminate and fine to medium grained quartz sandstone. The Mittagong Formation is located stratigraphically between the Ashfield Shale and Hawkesbury Sandstone formations (Chapman and Murphy 1989:26).

The Hawkesbury soil landscape is characterised by shallow (>50 cm), discontinuous lithosols/siliceous sands associated with rock outcrop; earthy sands, yellow earths and some yellow podzolic soils on inside of benches and along joints and fractures; localised yellow and red podzolic soils associated with shale lenses; Siliceous Sands and secondary yellow earths along drainage lines. Limitations include extreme soil erosion hazard, steep slopes, rock outcrop, shallow, stony, highly permeable soil, and low soil fertility. The geology of this soil landscape consists of medium to coarse-grained quartz sandstone with minor shale and laminite lenses. Sandstones are either massive or cross-bedded sheet facies with vertical or subvertical joint sets. The combination of bedding planes and widely spaced joints gives sandstone outcrops a distinctive blocky appearance (Chapman and Murphy 1989:44).

3.1.2 Vegetation

The study area has been extensively cleared of vegetation a regrowth vegetation for the development of the retirement village and prior to that an area for a sports oval and the school that was situated on the study area (see

Land Use and Disturbance). If large mature tree survived there is a potential for modified trees to remain on site. Vegetation of the Lucas Heights soil landscape includes low, eucalypt open-forest and low eucalypt woodland with a sclerophyll shrub understorey. Dominant tree species included turpentine (*Syncarpia glomulifera*), smooth-barked apple (*Angophora costata*), red bloodwood (*Eucalyptus gummifera*), thinleaved stringybark (*E. eugenioides*) and scribbly gum (*E. haemastoma*) (Chapman and Murphy 1989:26-27).

Vegetation of the Hawkesbury soil landscape includes Mostly uncleared open-woodland (dry sclerophyll) with pockets of tall open-forest (wet sclerophyll) and closed-forest (rainforest). On exposed crests and ridges there is usually a low open-woodland containing red bloodwood (*Eucalyptus gummifera*), narrow-leaved stringybark (*E. oblonga*), scribbly gum (*E. haemostoma*), brown stringybark (*E. capitellata*) and old man banksia (*Banksia serrata*). On the more sheltered sideslopes, a dry sclerophyll open-forest containing black ash (*E. sieberi*), sydney peppermint (*E. piperita*), smooth-barked apple (*Angophora costata*) and black sheoak (*Allocasuarina littoralis*) predominate. The understorey is dominated by shrub species of the families *Epacridaceae*, *Myrtaceae*, *Fabaceae* and *Proteaceae*. Within sheltered gullies, wet sclerophyll closed-forests of blackbutt (*Eucalyptus pilularis*), Sydney blue gum (*E. saligna*), water gum (*Tristania laurina*) and occasionally coachwood (*Ceratopetalum apetalum*) occur. Black wattle (*Callicoma serratifolia*), native myrtle (*Backhousia myrtifolia*) and bracken (*Pteridium esculentum*) form a closed scrubby understorey. Many sheltered valley floors are overrun with weeds (garden escapes washed in with sediment). Weed species include small and large-leaved privets (*Ligustrum spp.*), lantana (*Lantana camara*), morning glory (*Ipomoea indica*) and wandering jew (*Tradescantia albiflora*) (Chapman and Murphy 1989:45).

3.1.3 Topography and Hydrology

Topographical features typical of the Lucas Heights soil landscape include gently undulating plateau, 200–1 000m in width, with level to gently inclined slope gradients of <10%. Local relief is <30m. Rock outcrop is absent (Chapman and Murphy 1989:26).

The topography of the Hawkesbury soil landscape comprises rolling to very steep hills. Local relief varies from 40–200m. Slope gradients range from 25–70%. Crests and ridges are convex and narrow, at >300m wide. Slopes are moderately inclined to precipitous. Rock outcrop occurs as horizontal benches and broken scarps up to 10m high. Boulders and cobbles cover up to 50% of the ground surface. Valleys are narrow and incised (Chapman and Murphy 1989:44-45).

The study area is situated on the western edge of a plateau with a ridgeline landform running through the area east-west (Figure 3.2). The ridgeline begins descends to a gully at the southern edge of the study area. The plateau landform is consistent with the topographical features of the Lucas Heights soil landscape on which it is found, and the ridgeline is typical of the Hawkesbury soil landscape on which it is located (Figure 3.1). The landforms have been very heavy modified by past construction, most recently and extensively by establishment of the current Lourdes Retirement Village. The ridgeline has been levelled and the slope cut into, with residential units, roads and infrastructure now present. As a result, the ridgeline landform that may have previously had exposures of rock outcrops suitable for occupation or art have been removed or destroyed.

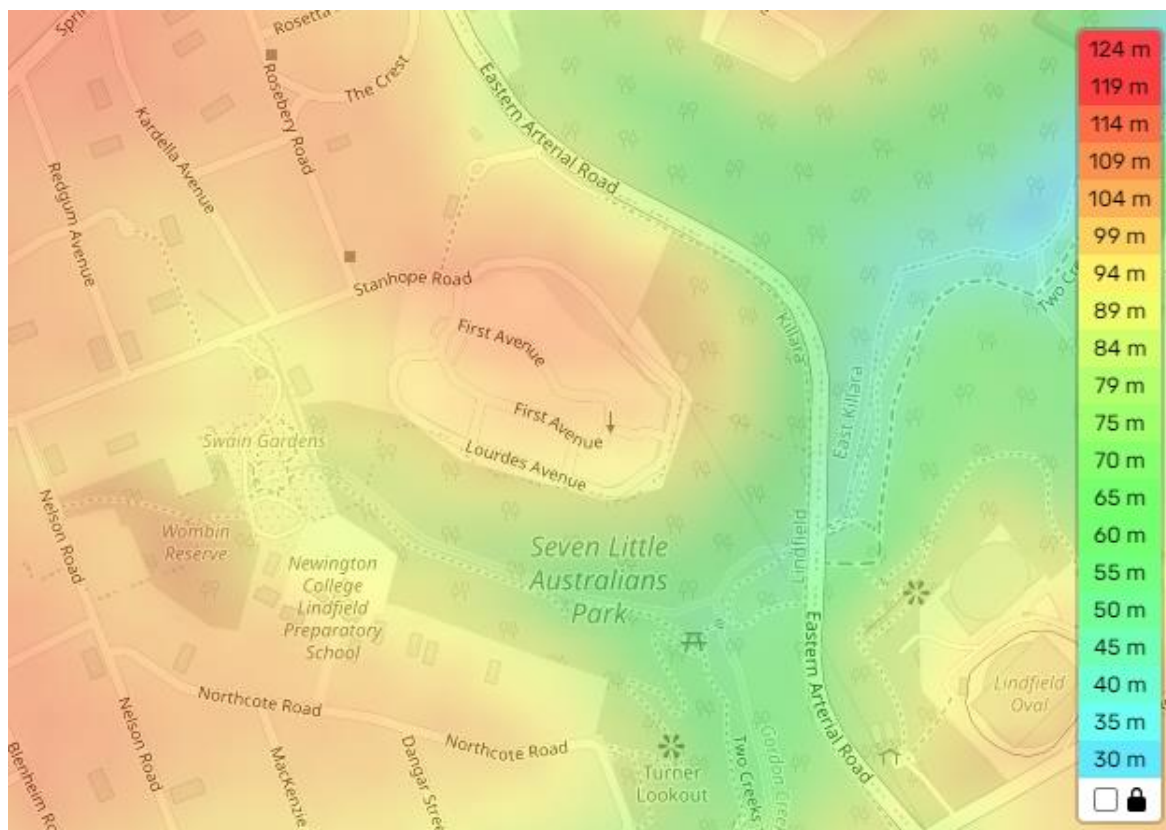


Figure 3.2 Relative elevations showing the topography and landforms of the study area (Source: topographic-map.com).

Tributaries of the Gordon Creek are located approximately 185m to the north of the study and 100m to the south, with an arm of the creek approximately 140m to the south east. These water sources would have been used extensively by Aboriginal people in the past for gathering of food resources such as animals utilising the water source. Often water sources such as these are locations where grinding groove sites may be present, that take advantage of the rocky terrain and flowing water. Middle harbour is located approximately 1.7km to the north east of the study area.

3.1.4 Land Use and Disturbance

It should be noted all ethnographic information about Aboriginal people before European occupation has chiefly been written by European sources, most notably by early European settlers, and should be understood in that context. At the time of European contact, the Aboriginal people

of the NSW were organised into named territorial groups. It is generally accepted that Killara was inhabited by the Darramurragal (Tarra-merragal) people of the Dharug language group. In Sydney, the Aboriginal people were divided into small groups, or territorial clans, Creeks and other water resources, such as the nearby Gordon Creek, provided fresh water, fish, eels, waterbirds and plant foods, in addition to terrestrial animals drawn to the water, becoming a focal point for Aboriginal occupation (Attenbrow 2010:70-71). The area which now comprises Killara was once covered by eucalypt open-forest and low eucalypt woodland, with a sclerophyll shrub understorey (Chapman & Murphy 1989: 26-27). The study area and the trees within would have provided shade, habitat for animals and birds, and bark for shelters (huts), canoes, paddles, shields, baskets and bowls. Additional food resources of this environment would have included edible roots and tubers, fruits and nectar-bearing flowers (Karskens and Rogowsky 2004:14).

Early European Occupation

The first European occupants in the region were convict timber cutters and their overseers. A camp was initially established in c1805 along the banks of Lane Cove River, at the southwestern end of present Fiddens Wharf Road. In 1819, the camp was closed as there were no more suitable trees to cut at the location. Present day Killara is formed from five initial land grants issued by Governor Lachlan Macquarie in 1821: 100 acres to John Griffiths, 80 acres to Edwin Booker, 60 acres to Samuel Midgley, 45 acres to Henry Oliver and 40 acres to Joseph Fidden. Conditions imposed on the grants meant at least 20 acres of land had to be cultivated and could not be sold within five years. After timber in the area was depleted, land was sold and subdivided. In 1839, 160 acres was granted to Mrs Jane McGillivray (Serial 35-161). The grant became known as Springdale and encompassed present day Killara. At the time, the area was used for orchards and small farms with much of the area still undeveloped bushland.

James George Edwards pushed for a railway station to be built at Killara and was responsible for purchasing the land from McGillivray's descendants. Edwards subdivided and resold the land east of the railway line at reduced prices to ensure there were enough people to warrant a station. From 1893-1899, the area was marketed as a desirable suburb for 'gentlemen of means', Edwards vision was to create a retreat from the commercialism of the city with a residential and recreational focus. The Killara railway station opened in 1899.

Headfort School

In 1917, Robert Thomas Wade, a clergyman, established Headfort School in the study area. The school opened in 1918 at 95 Stanhope Road, Killara, as a boarding and day school for boys of all ages. The school is first listed in The Sands Directory in 1919, and prior to this there is no recorded occupation of the study area. The school was advertised as occupying 16-acres of land and it is likely Wade leased the surrounding portions before later purchasing them. Prior to opening, an additional two-storey brick wing was completed to provide three schoolrooms and space for an additional 30 boarders, it was noted that 'as in the main building, special attention had been devoted to lighting and ventilation' (Sydney Morning Herald [SMH] 1918:1). The first year the school was opened 100 boys attended the school, increasing to 120 the following year.

During the 1920s, improvements were made to the school's sporting facilities, including enlarging the tennis court, installing a cricket pitch and practice area, and construction of a swimming pool (SMH 1920:15) (Figure 3.3). A photograph from 1921 shows two connected two-storey buildings, with the left school building since being demolished (Figure 3.4). In 1922 the students successfully raised funds for the construction of a mini-rifle range (The Newcastle Sun 1922). The school was described in 1921 as comprising a headmaster's residence, an administrative block, quarters for the household staff, dormitory accommodation for 70 boarders, quarters for the resident staff, six classrooms, and locker rooms (The Evening News 1921:1). By 1923, the school was described in the Evening News as consisting of two full playing fields and a smaller field, a swimming pool, a

miniature rifle range, six brick and stone classrooms, a science room, and a dormitory (The Evening News 1923:6).

It is unclear the precise location of either the swimming pool or the rifle range as neither are depicted on maps of the time; however, photographs from the time would suggest they were located near the edge of the cleared grounds. Nine years after the school was opened Wade sold the school to the Congregational Union of NSW in 1927 who renamed the school Milton Grammar School.

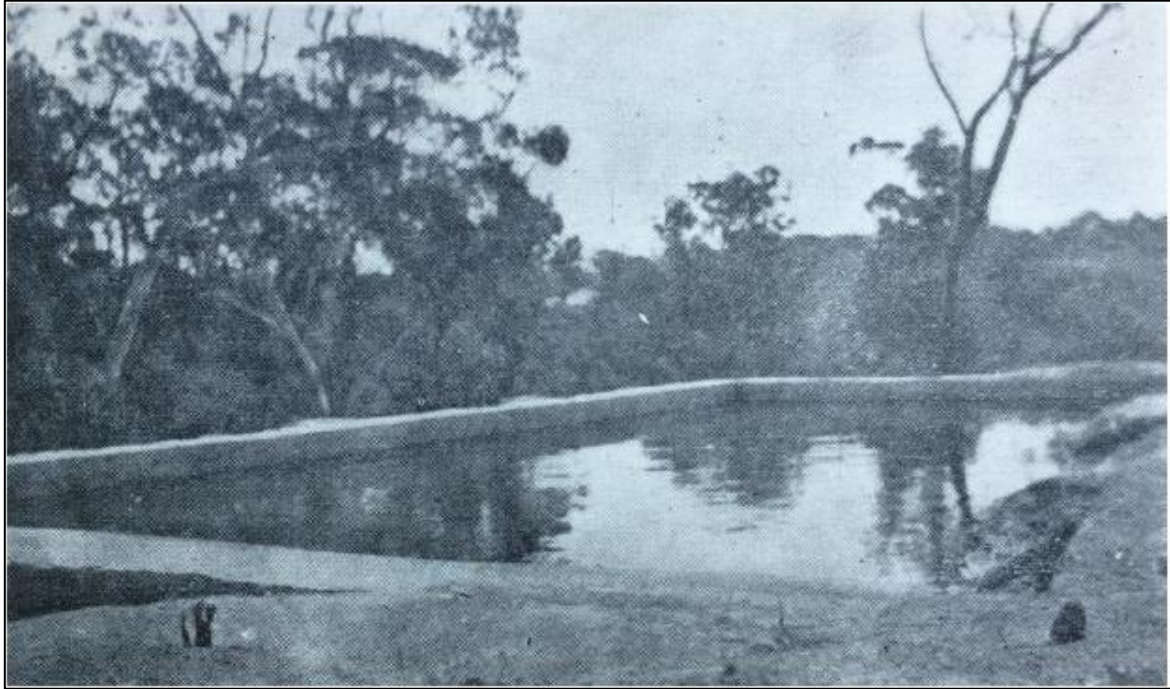


Figure 3.3 Photograph of the swimming pool at Headfort School, taken in c.1921. The precise location of the pool is unknown (Source: GML, 2017, p. 14, Fig. 2.9).

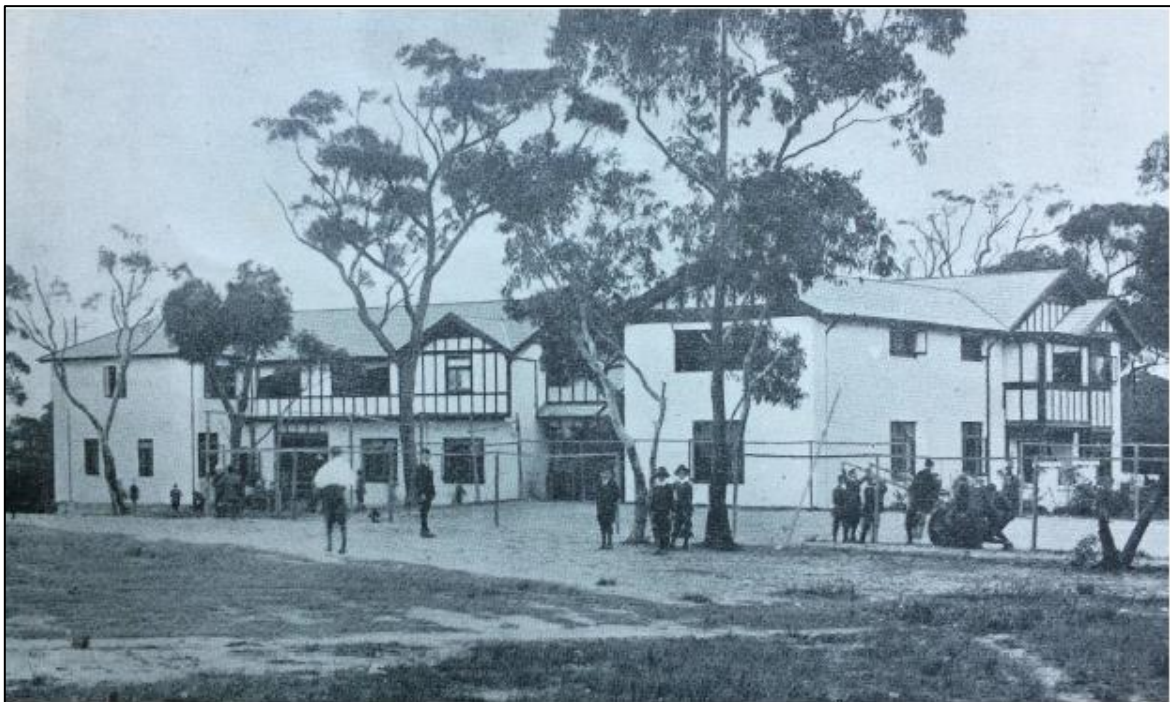


Figure 3.4 Photograph of Headfort School, taken c.1921. Headfort House is on the right and the building on the left has since been demolished (Source: GML, 2017, p.13, Fig. 2.8).

Milton Grammar School

While the Congregational Union of NSW acquired Headfort School in 1927, they did not purchase the land and additional adjoining land until 1934. John Cameron was appointed the headmaster of Milton Grammar School. Plans of the school and tennis courts were prepared by Sydney Water in 1927; however, additional school fields were not included. A fibro building was added to the western side of the school building and a detached WC (Figure 3.5).

In 1931 there were only 39 students attending the school due to the impacts of the Depression, dropping to 28 by 1934. The school was closed in 1935 and the school furniture auctioned off. Cameron opened Lochiel Boys' Junior Grammar School to the northeast of the study area in 1935. In 1940 the school was moved into the former Milton school buildings for a year before relocating to Lynne Ridge in Gordon. After Lochiel Boys' school vacated the site the Congregational Church tried to both lease out the building as a boarding house and sell the land; however, attempts were unsuccessful, and the buildings remained vacant.

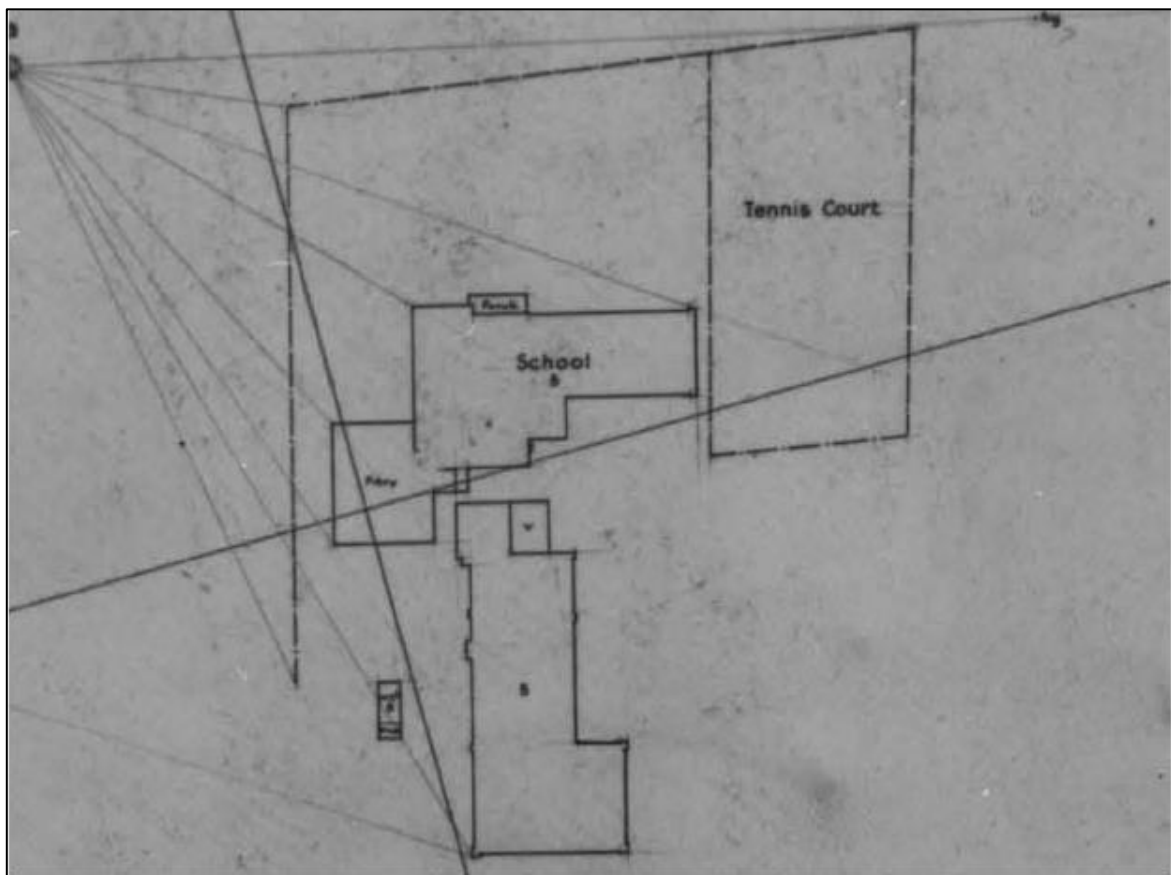


Figure 3.5 Detail of the 1927 Sydney Water survey of the Milton Grammar School (Source: GML, 2017, p. 16, Fig. 2.14).

Australian Women's Army Service

The Australian Army requisitioned the buildings as a base for housing and training women recruited into the Australian Women's Army Service (AWAS) with the first recruits arriving in January 1942.

The 1943 aerial shows both school buildings as well as the tennis courts, there had been three additional buildings since the 1927 Sydney Water plan: one located to the east of the tennis court, another to the west of the school building, and another to the south of the fibro extension (Figure 3.6). There are also tents erected on the former playing fields. The uses of the additional buildings

are unknown, and photographs of one of the buildings indicated the structure was constructed on a raised brick or stone foundation (Figure 3.7-Figure 3.9).

In August 1942, Ingleburn Camp was opened as a recruit training battalion and the Killara recruit school was closed and became the AWAS barracks for housing instrument mechanics' trainees. In December 1942, the AWAS non-commissioned officers' (NCO) school was established and ran until 1944 when it was moved to Ingleburn.



Figure 3.6 Detail of 1943 aerial of the study area. Note the tents around the south of the former playing fields and additional structures (since demolished) to the east and west of the original schoolhouse (Source: SIX maps).



Figure 3.7 This building was likely located to the west of Headfort House, and was constructed between 1928 and 1943, it has since been demolished and the area is partially under a carpark (Source: GML, 2017, p. 18, Fig. 2.18).



Figure 3.8 c.1943 photograph of the former school buildings, note the additional structures between the two original buildings (Source: GML, 2017, p. 19, Fig. 2.20).

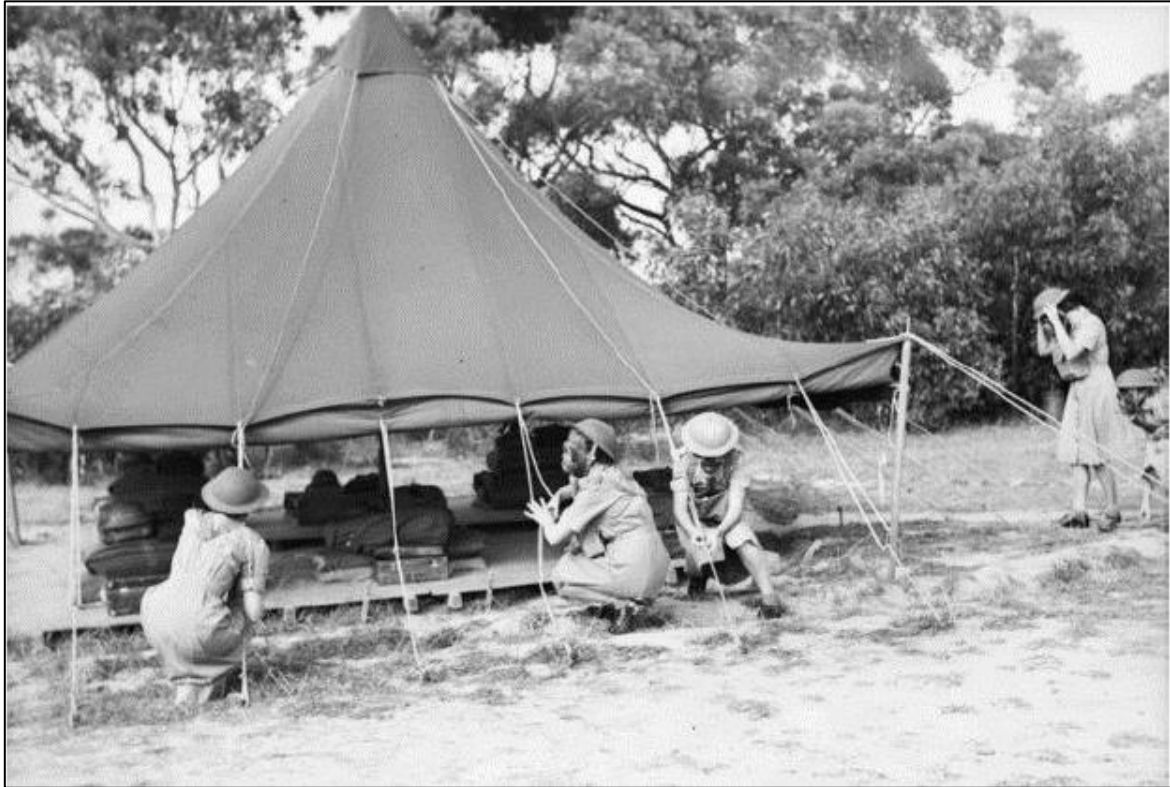


Figure 3.9 Australian Women's Army Service erecting tents around the former school fields (Source: GML, 2017, p. 20, Fig. 2.22).

Lourdes Hospital

In response to the growing number of tuberculosis patients the former AWAS school was jointly purchased in December 1944 by 'The Most Reverend Norman Thomas Gilroy, Catholic Archbishop of Sydney, The Very Reverend John Vincent McCabe, The Very Reverend John Toohey, both Sydney Catholic Priests, and Mary Rose Decker, Mary Benedict Varley and Mary Kevin Holey, all of Hunters Hills Spinsters'. The "Hunters Hills Spinsters" were predominately nurses or teachers from the Missionary Sisters of the Society of Mary who worked for 18 months to convert the school buildings into a hospital with 18 beds. The hospital was opened in June 1946 and in 1957, Lourdes was gazetted as a public hospital.

A 1927-1953 Blackwattle Plan shows the original buildings remained with an additional building in the location of the detached WC (Figure 3.10). The 1961 aerial photograph shows the tennis court had become part of the gardens and a grotto had been constructed to the east of the hospital building (Figure 3.10). There was also an extension between the smaller buildings to the west of the main hospital/former school buildings.

In c.1967, with the declining number of tuberculosis cases, the hospital was closed. However, it reopened soon after as an acute after-care facility for patients from Mater Misericordia Hospital, North Sydney.



Figure 3.10 1927-c.1953 Blackwattle plan (Source: GML, 2017, p. 22, Fig. 2.26).



Figure 3.11 Detail of 1961 aerial of the study area, note large parts of the east portion of the study area is overgrown (Source: Historical Imagery).

Lourdes Retirement Building

In 1980, the Missionary Sisters of the Society of Mary sold Lourdes Hospital to the Hibernian Australasian Catholic Benefit Society, who received approval in December 1984 to construct a 44-

bed nursing home on the site, to be called Lourdes Retirement Village. As part of the works, the majority of the earlier buildings were demolished apart from Headfort House (the earliest school building). The rear of the main house was altered to connect to a new building on the southern side and the chapel was housed in the original chapel wing of Headfort House (Figure 3.12-Figure 3.15). In July 1995, the number of beds was increased to 48 and in 2011, Council approved the construction of 18 self-contained units, it is noted that a lift has been constructed from the underground parking located below the croquet lawn (Figure 3.15). In 2004 the Hibernian Society changed its name to Aevum Limited and in 2010, Aevum was purchased by Stockland.

A Joint Regional Planning Panel described the buildings and facilities on site as, a wide range of building types, services and facilities including: 108 Strata Titled independent living units (self-contained dwellings) consisting of 31x1 bedroom units, 55x 2 bedroom units and 22x 3 bedroom units; 51 serviced apartments; 19 hostel apartments; 63 high care beds; a variety of parking facilities (underground parking included); facilities for medical personnel and administrative services; private bus transport; various social facilities including an indoor pool, café, indoor bowling green and chapel. The building form on the site generally comprises single and two storey buildings. These buildings sit among an established landscape setting consisting of garden beds, tree plantings of varying height, pathways and formal landscape features such as a croquet lawn and a rose garden (GML Heritage 2017:10).



Figure 3.12 Detail of the 1984 aerial of the study area, note the eastern portion of the area has been cleared and the retirement village has begun to develop (Source: Historical Imagery).



Figure 3.13 Detail of the 1985 aerial of the study area, note that the additional former school buildings have been demolished and it appears some earthworks have occurred associated with the new building south of Headfort House (Source: Historical Imagery).



Figure 3.14 Detail of the 1990 aerial, note the additional buildings associated with the site's former use as a school and army training have been demolished and the building south of Headfort House has been constructed (Source: Historical Imagery).



Figure 3.15 Detail of the 2004 aerial, the retirement village has been well established (Source: Historical Imagery).

4 Aboriginal Heritage Context

This section describes the nature of the known Aboriginal archaeology of the study area, based upon a review of relevant archaeological reports and publications, and a search and review of previously recorded sites in the Heritage NSW AHIMS database. This review and discussion allow for the development of a predictive model for potential Aboriginal sites within the study area. Summary descriptions of site features are provided in Table 4.1.

Table 4.1 Description of Aboriginal heritage site features (OEH 2012:8-10).

Site Type	Description
Art	May be found in shelters, overhangs or across rock formations. Techniques may include painting, drawing, scratching, carving/engraving, pitting, conjoining or abrading. A range of binding agents or natural pigments obtained from clays, charcoal and plants may have been used.
Artefact	Object(s) such as stone tools, and associated flaked material, spears, manuports, grindstones, discarded stone flakes, modified glass or shell, which provide evidence of Aboriginal use of the area.
Burial	Pre- or post-contact burial of an Aboriginal person, which may occur outside of designated cemeteries and may or may not be marked by stone cairns/carvings/mounds, e.g., in caves or sand areas, along creek banks etc.
Modified Tree (Scarred or Carved)	Scarred trees show modification marks resulting from cutting of bark from the trunk for foot holds; for use in the production of shields, canoes, boomerangs, burials shrouds etc; or for medicinal purposes. Carved trees have had the heartwood of the tree intentionally carved to form a permanent marker, which may indicate ceremonial use/significance of a nearby area, or which may have functioned as territorial or burial markers.
Potential Archaeological Deposit (PAD)	Area where Aboriginal objects are considered likely to occur below the ground surface.

Shell	An accumulation or deposit of shellfish from beach, estuarine, lacustrine or riverine species resulting from Aboriginal gathering and consumption. Usually found in deposits previously referred to as shell middens. Must be found in association with other objects like stone tools, fish bones, charcoal, fireplaces/hearths, and burials. Will vary greatly in size and components.
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4.1 Regional Heritage Context

Aboriginal occupation of the greater Sydney region is likely to have spanned at least 20,000 years, although dates of more than 40,000 years have been proposed for artefacts found in gravels of the Cranebrook Terrace on the Nepean River (Nanson et al. 1987; Stockton 2009; Stockton and Holland 1974). Late Pleistocene occupation sites have been identified on the fringes of the Sydney basin and from rock shelter sites in adjoining areas. Dates obtained from these sites were 14,700 Before Present (BP) at Shaws Creek in the Blue Mountain foothills (Kohen et al. 1984), c.15,000-c.11,000 BP on a levee near Pitt Town adjacent to the Hawkesbury River (Williams et al. 2012), c.11,000 BP at Loggers Shelter in Mangrove Creek (Attenbrow 1981, 2004), and c.20,000 BP at Burrill Lake on the South Coast (Lampert 1971). The majority of sites in the Sydney region, however, date to within the last 5,000 years, with some researchers proposing that occupation intensity increased from this period (Kohen 1986; McDonald 1994; McDonald and Rich 1993); although it has recently been argued that this is part of a longer trend in stepwise population growth and diversification of economic activity evident in south east Australia from the Early to Mid-Holocene (Williams 2013). This increase in sites may reflect an intensity of occupation that was influenced by rising sea levels, which stabilised approximately 6,500 years ago. Older occupation sites along the now submerged coastline would have been flooded, with subsequent occupation concentrating on and utilising resources along the current coastlines and in the changing ecological systems of the hinterland (Attenbrow 2010:55-56).

A study of the Sydney region reveals that Aboriginal sites are distributed across the whole range of physiographic units and environmental zones, although certain types of sites may be more frequently associated with certain parts of the landscape (for example, shelter sites are particularly common in areas of Hawkesbury Sandstone), and different parts of the landscape contain different resources, which may be seasonally available or highly localised (Koettig 1996). Creeks and other water resources were foci for Aboriginal occupation, providing fresh water, fish, eels, waterbirds and plant foods, in addition to terrestrial animals drawn to the water (Attenbrow 2010:70-71). In 1788, British colonists described Port Jackson as having many varieties of fish, including “Jewfish, Snapper, Mullet, Mackrel, Whiting, Dory, Rock Cod, leather jackets and various others” (Bradley cited in Attenbrow and Colley 2012:68). According to Tench, the fish ranged in size from a “whale to a gudgeon” and that there were ‘sharks of monstrous size, skait, rock-cod, grey-mullet, bream, horse-mackare, as well as bass, leatherjacket and snapper (Tench cited in Attenbrow and Colley 2012:68). Trees provided shade, habitat for animals and birds, and bark for shelters (huts), canoes, paddles, shields, baskets and bowls. The area which now comprises Killara was once covered by eucalypt open-forest and low eucalypt woodland, with a sclerophyll shrub understorey (Chapman & Murphy 1989: 26-27). Food resources of this environment would have included edible roots and tubers, fruits and nectar-bearing flowers, and the freshwater resources would have provided fish, platypus and waterbirds (Karskens and Rogowsky 2004:14). Hawkesbury sandstone outcrops provided material with which to make tools. When overhanging they provided shelter from the elements, and flat stone surfaces and shelters were sometimes engraved or painted by Aboriginal people (Attenbrow 2010:105, 113-116, 120-122).

4.2 Local Archaeological Context

There have been a limited number of archaeological investigations previously undertaken in the vicinity of the study area. The information in the following sections is based on reports that have

been registered with the Heritage NSW AHIMS, and which are most relevant and informative to archaeological background of the current project.

In 1977, Ann Ross conducted an archaeological survey for National Parks Wildlife Services from East Lindfield to Frenchs Creek for a proposed transmission line 1.7km north east from the current study area. Two sites were located during the two day survey. AHIMS site #45-6-0883 was situated 70m above Middle Harbour, and comprised a large sandstone overhang with an archaeological deposit. A wide range of shells were observed within the deposit; *Anadara trapezia* (Sydney Cockle), *Cymatillesta spengleri* (Periwinkle), mussel, and two types of oysters. Ross noted the proximity of the shelter to the water and the abundance of oysters, mullet, and water birds at that section of the harbour. One small piece of flaked green to grey chert was observed within the shelter, it was described as having heavy use-wear occasionally present on the edges (Ross 1977:1, Appendix A). On the foreshore of Middle Harbour, a large shell midden site was recorded. Visible for half a kilometre, the depth of the midden was recorded to be 50 to 100cm in most places, with its deepest points occasionally reaching 150cm. It was noted as being particularly wide continuing inland for 30-50m. A variety of species were represented in the midden; *Anadara trapezia* (Sydney Cockle), *Cymatillesta spengleri* (Periwinkle), *Notovola fumatus* (scallop), *Tapes turgida* (Tapestry Shell), *Neotrigonia margaritacea* (Pearly brooch-shell), mussel, two types of oysters, and various *Conuber* sp. (Sea snails). Charcoal was visible throughout the deposit, although the nature of the scatter lead Ross to believe the source to be bush fires rather than cultural remains (Ross 1977:2-3).

In 2007 Jo McDonald Cultural Heritage Management (JMCD CHM) undertook an Indigenous Heritage Assessment for SMEC Australia on behalf of TransGrid, who were performing maintenance on five transmission lines in and around Ku-ring-gai National Park, approximately 6km north east of the current study area on a similar landform. Several small areas both sides of Mona Vale Road were to be impacted by widening of tracks and clearing beneath the towers to improve access. North of Mona vale road the access track was located at the entrance to the Neverfail track within the Ku-ring-gai National Park. To the south of Mona Vale Road the access track was located west of the business park on the corner of Forest Way and Mona Vale Road. No new sites were located during the assessment, and the areas to be impacted by the proposed works were found to be mostly disturbed. As a result, no Aboriginal constraints were identified by the assessment (JMCD CHM 2007:1-6).

4.2.1 Registered Aboriginal Sites

An extensive search of the AHIMS database was undertaken on 09 November 2022 (AHIMS client service ID #730805), which identified 79 registered Aboriginal sites within the following coordinates: Datum: GDA94/MGAZone 56, Eastings: 328000- 334000, Northings: 6259000-6265000. No Aboriginal heritage sites have previously been recorded within the study area. The search results are summarised in Table 4.2 presented in Figure 4.1 and Figure 4.2, and discussed below.

Table 4.2 AHIMS registered Aboriginal sites in the vicinity of the study area.

Site Type	Number of Sites	Percentage
Art	9	11.39%
Grinding Groove	1	1.27%
Grinding Groove, Art	2	2.53%
Isolated Artefact	1	1.27%
Midden with Artefact	13	16.46%
Midden with Artefact Scatter	2	2.53%
PAD	6	7.59%
Shelter with Art	4	5.06%
Shelter with Art, Midden, Artefact	6	7.59%
Shelter with Deposit, Artefact	8	10.13%
Shelter with Deposit, Midden, Artefact	1	1.27%
Shelter with Midden, Artefact	26	32.91%
Total	79	100%

The most frequent site type previously recorded in the local area is shelter with midden and artefact sites followed by midden artefact sites. Fifteen sites have previously been recorded within 2km of the study area, and the nearest site to the study area is AHIMS site #45-6-3588, a shelter with art site located approximately 160m north.

AHIMS site #45-6-3588 is a shelter with art site located approximately 160m north of the study area. The site was recorded in 2018 by Phil Hunt of the Aboriginal Heritage Office who was informed about the site by Ku-ring-gai Council officer Martin Fitzgerald, who observed the site during a fauna survey. The shelter is north facing measuring 4.6m in length, 3m wide and 2m high. The art consists of a red ochre hand stencil and an indeterminate figure. The hand stencil measures approximately 20cm by 10cm wide, and is situated approximately 1.5m above ground level in a niche on the rear panel. The figure is approximately 80cm to the right of hand stencil. During recording it was noted no shell or stone tools were present.

AHIMS site #45-6-1848 is a grinding groove site located approximately 900m north east of the study area. The site was recorded by Warren Bluff in May 1989, 100m upstream from the end of a walking track off Truscott Place, East Killara. The site was described as 3 grinding grooves approximately 25cm long, 5cm wide, and 1cm deep, on the edge of a small depression in the creek bed. The condition of the site was described by Bluff as weathered.

AHIMS site #45-6-0627 is a grinding groove with art site located approximately 1.5km north east of the study area. The was first record by P. Slack in 1944 at the head of a small creek (a tributary of Gordon Creek), beside a track branching off Cunliffe at the foot of the first descent from Koola Rd. The site is described as consisting engravings of a bird track, shark, boomerang, bird, kangaroo, track, basket, a series of grinding grooves, and six pits. The bird track, the grinding grooves, and the shark are located at the south end of site. The shark is approximately 1.3m long. The six pits are located within the outline of the shark. It was noted that creek flowed over these engravings. The north end of site consisted of a returning boomerang, a bird and a kangaroo or wallaby track, and a depiction of a small basket. More grinding grooves were observed scattered throughout. The site was rerecorded in May 1994 by Margrit Koettig, after the site was reported by the owner of the property. Koettig noted that the site consists of two relatively deep potholes at the edge of a sloping area of sandstone. A grinding groove was observed next to one of the potholes. It was stated that most of the sandstone area is now covered by houses and gardens, and suggested that the potholes are part of the site recorded by McCarty.

AHIMS site #45-6-0626 is an art site located approximately 1.7km north east of the study area. The site was record in 1943 by F.D. McCarty and P. Slack, on a spur beside Koola Road to the east of Rocky Creek. The site is described as comprising of an upper and lower series. The upper series consists of one boomerang, an indeterminate figure, and one basket. The lower series consists of

one U shaped figure, one gnarl container, one boomerang or a container, a curved line, one canoe with cross ties, and one shield. A bird track engraving was noted on a separate boulder 4.5m away. It was suggested that the range of subjects indicates the portrayal of a family's possessions, and the circles may represent camps. Also attached to this site card was a form for a midden site at Rodd Park near Five dock. This is clearly a mistake.

AHIMS site #45-6-2373 is a shelter with deposit site located approximately 1.8km north east of the study area. The site was first recorded by Val Attenbrow in 1989 and rerecorded by J. McDonald in 1995. The shelter is located 40m from Rocky Creek, measuring 90m by 8m by 8m. The surfaces of the wall were noted as being very irregular and unsuitable for art, and the shelter was quite damp. Attenbrow had initially recorded two quartz artefacts and one of indurated mudstone in several drip pools on the floor. Modern bullets, shells, broken glass and ring pulls were observed. McDonald during the second site visit observed 10 artefacts, 6 quartz, 3 indurated mudstone, and one silcrete. Three fragments of Sydney cockle (*Anadara trapezia*) and fragments of hairy mussel (*Trichomya hirsuta*) were also observed. Candles, matches, empty bottles and foot prints were noted within the shelter.

AHIMS site #45-6-1078 is a shelter with art site located approximately 1.8km north of the study area. The site was first recorded by Rosemary Taplin in 1979 and recorded by Jo McDonald in 1995. The site was original described as a shelter with a rocky floor and patches of sandy deposit, and charcoal traces on a panel at the western end. McDonald describes the site location as on the south bank of Rocky Creek, approximately 20m from the creek line. The shelter is described as having a northerly aspect and measuring 20m by 4m by 3m. Three unidentifiable charcoal motifs were observed on an overhanging panel at the west end of the shelter. Lots of graffiti was noted, mostly at the east end. The overall condition of the art and the surface was poor due to exfoliation, oxalate and salt crusting, and graffiti.

AHIMS site #45-6-3165 is a shelter with PAD site located approximately 1.65km south east of the study area. The site was recorded by Phil Hunt in 2015 70m beyond the first scrap with a set of stairs, on the Little Diggers Track off Carnavon Road. The site is described as a 2.8m long by 2m PAD at the north end of a shelter. The shelter is 10m in length by 2.5m wide and 2m in height, facing east. No art, shell or artefacts were observed.

AHIMS site #45-6-3044 is a shelter with deposit and art site located approximately 1.64km south east of the study area. The site was first recorded by Phil Hunt in May 2007, several hundred metres along the Little Diggers foot track in the second of two large shelters that the track passes through. The site was initially described as an archaeological deposit, with artefacts in the dripline, with potential for art. In 2008 the presence of art was confirmed when five red hand stencils were observed via reflecting light into the shelter. Modern graffiti was noted across most of the surfaces, and small pits dug into the deposits. In a visit to the site in 2010 new graffiti was noted. The hand stencils are described as starting from the south or the lefthand side of the shelter, with two hands close together approximately 1.5m above the ground and 4m from the southern end of the shelter. The first hand is obstructed by graffiti and difficult to discern features. The second is a right hand. Two more right hands were observed approximately 1 metre north. The fifth hand is approximately 1.5m further north at a height of 1.8m depicting a left hand.

AHIMS site #45-6-3045 is a shelter with PAD site located approximately 1.63km south east of the study area. The site was first recorded by Phil Hunt in May 2007. This is the first of the shelters through which a track passes as described in AHIMS site #45-6-3044, which is directly to its south. The site is described as a PAD in a large overhang, and the deposit was noted as disturbed, and it's extent unclear.

AHIMS site #45-6-2132 is a shelter with midden site located approximately 1.8km east of the study area. The site was recorded by Michael Guider in May 1990 at the eastern side of Moores creek approximately 60m north of a wooden bridge on the Middle Harbor Track. The shelter is west facing measuring 3.5m in length, 1.5m deep and 1.5 high. The floor is described as consisting of a sandy soil on sloping rock. Shell was observed within the shelter and outside on the track. The midden was observed to comprise *Anadara trapezi* (Sydney Cockle), *Pyrazus ebeninus* (Hercules Club Whelk) and, *Saccostrea commercialis* (Rock Oyster).

AHIMS site #45-6-2113 is a shelter with midden site located approximately 1.8km east of the study area. The site was recorded by Michael Guider in May 1990 at the west bank of Moores Creek on the Middle Harbour Track which passes through the shelter. The shelter is described as east facing with measurements of 140ft length, 12ft height, and 10ft depth, as 140ft is approximately 42m it is assumed these means 14ft, approximately 4m in length, 3m deep and 3.5m high. The floor is described as consisting of soil and sandy muddy on sloping rock. The midden was observed to comprise *Anadara trapezi* (Sydney Cockle) and, *Saccostrea commercialis* (Rock Oyster) and the south end of the shelter.

AHIMS site #45-6-0883 is a shelter with midden and artefact site located approximately 1.7km north east of the study area. The site was recorded by Anne Ross and David Bell in August 1977 and rerecorded by Val Attenbrow and Ken Cutmore in April 1989. The site is located directly below the Lindfield Ausgrid power facility, 150m from Middle Harbor. The shelter has a north east aspect, and is approximately 75m long by 12m wide by 2-6m high. A midden deposit was observed, and one stone artefact, described as green flint, was exposed. Graffiti and two modern camp fires were present. In 1989 Attenbrow and Cutmore describe the shelter as 55m in length, 7.5 deep, and 2m high, with a large, long overhang. As the western end was observed to be drier and flatter, it was suggested that this end was more habitable. The midden as noted to consist of mostly fragmented shell within a damp wet clayey silty sandy deposit, although a small area of whole shell was observed in a small cleft of the shelter, 50cm wide by approximately 1m wide by approximately 70cm deep. The dimensions of the total area of visible shell were given as 30m by 7m, with 30m by 6m of shell being contained within the shelter. Attenbrow suggested that artefacts may be present in the eastern end of the shelter in the deposit where the shell deposit may have once been. Shell, stone artefacts, charcoal and broken glass were observed within the shelter. The shells noted were *Anadara trapezi* (Sydney Cockle), *Saccostrea commercialis* (Rock Oyster), Hairy Mussel, *chama fibula*, and *Pyrazus ebeninus* (Hercules Club Whelk). The frequency of the Rock Oyster and Sydney Cockle made up 98% of the overall total with 50% and 48% respectively. 1 flaked piece of dark red silcrete possibly a core was recorded, measuring 2.5cm by 1.2cm by 1cm.

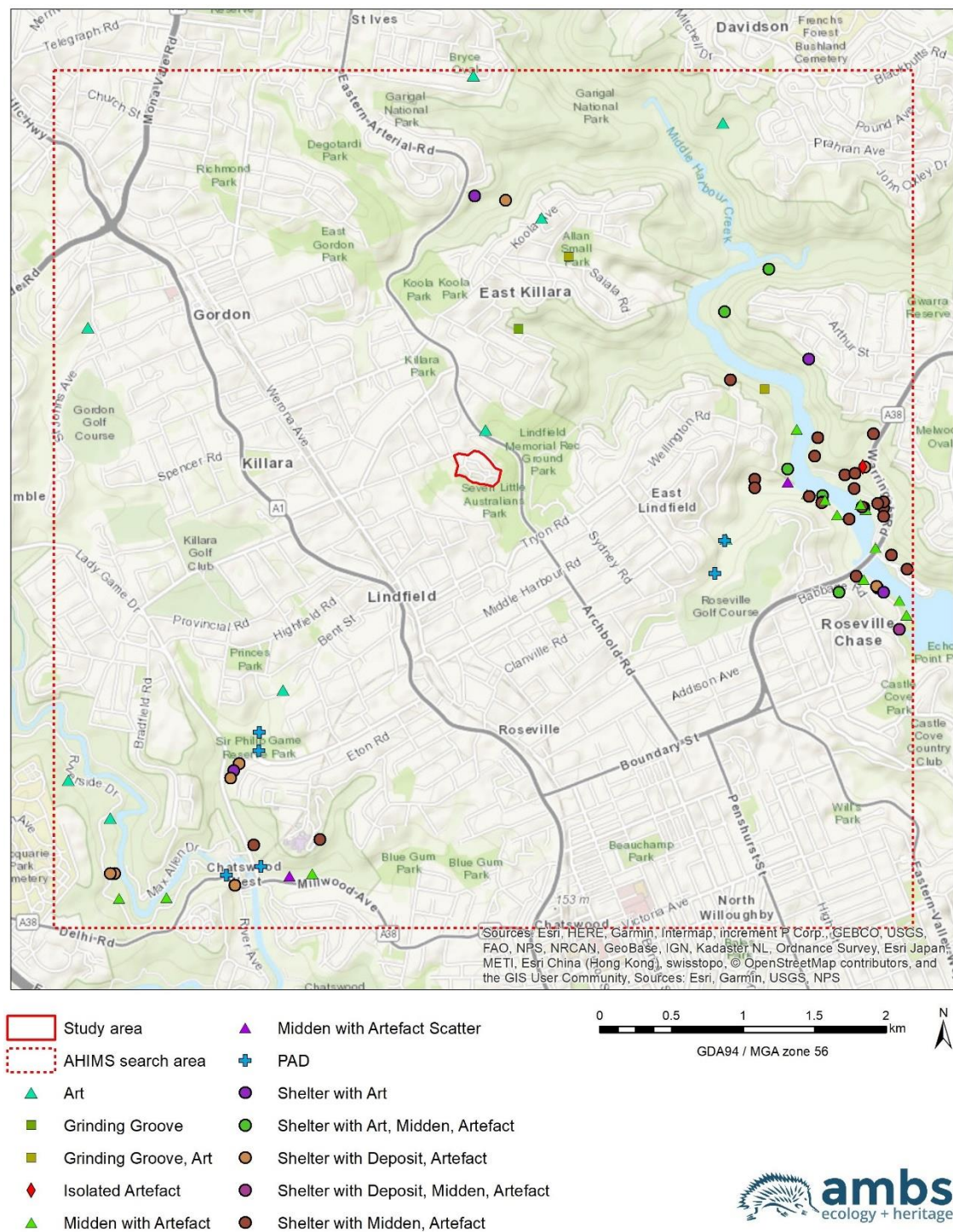


Figure 4.1 Registered AHIMS sites in the local area.

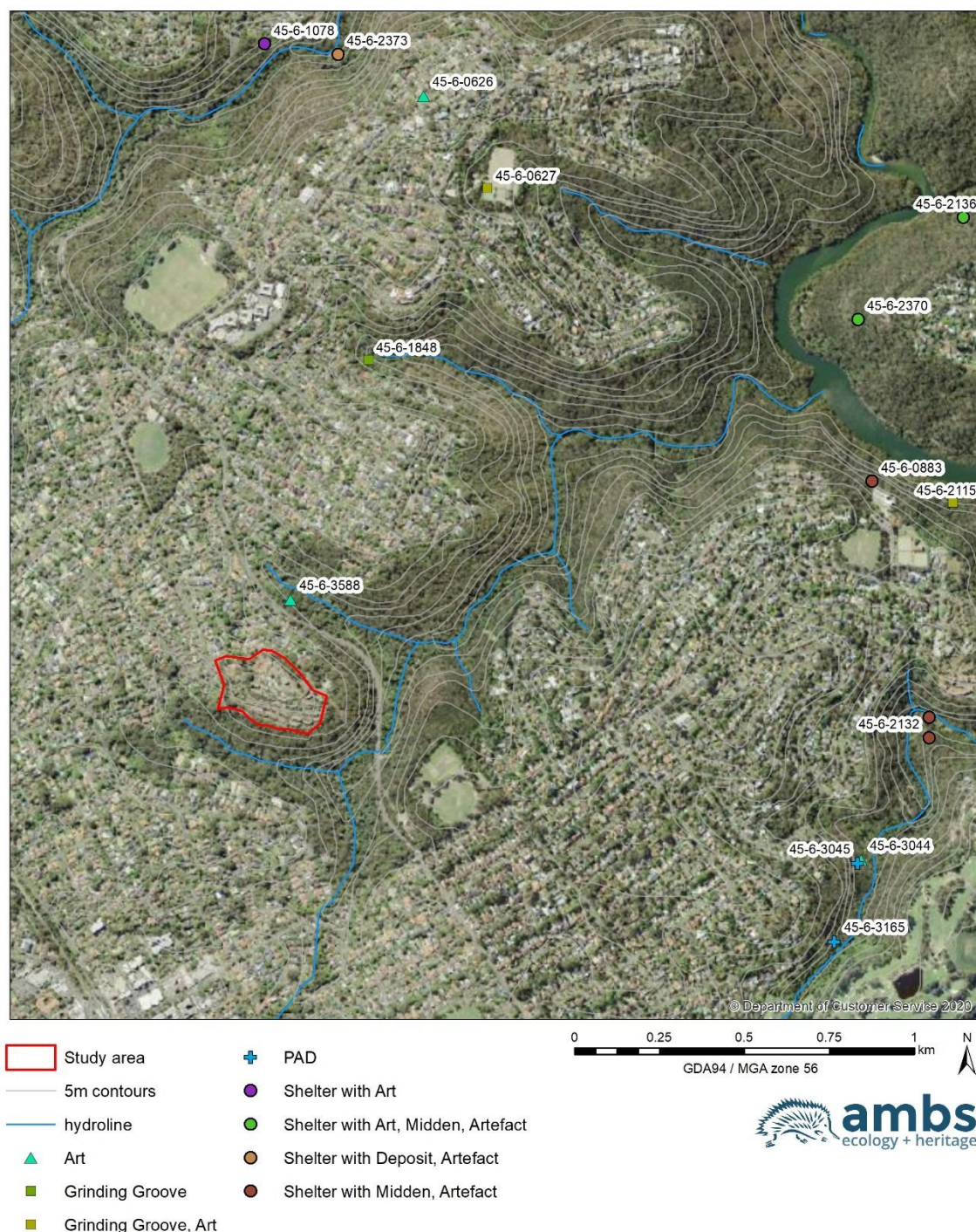


Figure 4.2 Registered AHIMS sites in the vicinity of the study area.

4.3 Discussion and Aboriginal Heritage Site Prediction Modelling

No Aboriginal heritage sites, objects or places have previously been recorded in the study area, and the nearest site to the study area is AHIMS site #45-6-3588, a shelter with art site located approximately 160m north. The most frequent site type previously recorded in the local area is shelter with midden and artefact sites followed by midden with artefact sites. These midden sites are significantly closer to the major local waterways of Middle Harbour and Lane Cove River than the study area. Lower order tributaries of Gordon Creek run in close proximity to the study area at the base of gully landforms, both to the north and south, with a portion of Gordon Creek itself nearby to the east. Middle harbour is approximately 1.7km the north east of the study area (Figure

4.2). Water sources in the vicinity of the study area would have provided freshwater and sustenance for Aboriginal people.

The total number of recorded rockshelter sites with signs of occupation including art, middens, artefacts, and deposits, demonstrates the significant quantity of occupied shelter sites within the vicinity of the study area. A total of 45 of the 79 sites in the search area were occupied rock shelter, 56% of total sites. Similarly, the total number of sites where artefacts have been observed is 57, or 72.15% of the total sites in the area.

The study area is situated on plateau and ridgeline landforms, with a commanding outlook over the gullies below, and sloping sides that may originally have contained sandstone outcrops. Elevated ridgelines in the study area may have once retained sandstone exposures with potential to retain art and open campsite sites. Steep slopes on the edge of ridgelines in the study area may also have once retained stone outcrops which could have been suitable for use as rockshelters, and may once have retained Aboriginal art and archaeological sites. However, all landforms in the study area have been significantly impacted by past development, and there is a low likelihood that sites associated with stone outcrops or exposures, or open campsites, remain intact within the study area.

The study area has been significantly impacted by many phases of past construction. Initially by the historic development on the property of Headfort School and the associated facilities, including construction of a headmaster's residence, administrative block, household staff quarters, dormitory accommodation, resident staff quarters, six classrooms, locker rooms, gardens, a tennis court, a cricket pitch and practice area, two full playing fields and a smaller field, a swimming pool, a miniature rifle range, and a science room (The Evening News 1921:1). Later by the minor upgrades for Lourdes Hospital including the reconditioning of the tennis court into the gardens and the introduction of a grotto. Following this by the Lourdes Retirement Village comprising of 108 independent living, 51 serviced apartments, 19 hostel apartments, 63 high care beds, parking facilities (underground parking included) and associated roads and driveways, facilities for medical personnel and administrative services, an indoor pool, a café, indoor bowling green and chapel, and formal and informal landscape features such as garden beds, tree plantings, pathways, a croquet lawn and a rose garden (GML Heritage 2017:10).

Given the level of disturbance it is considered unlikely that evidence of previous occupation of Aboriginal people remains within the study area. The extent of construction and associated levelling and modification of the study area's landforms are likely to have removed archaeological deposits and stone outcroppings which could have retained rock art. The land disturbance of the study area is therefore considered high due to the removal of topsoil for urban development, road works, infrastructure construction, and landscaping associated with the building of Headfort School, and the Lourdes Retirement Village (Table 4.3).

Table 4.3 Categories of disturbance.

Level of Disturbance	Type of Disturbance	Impact on Archaeological Resource
None	No effective disturbance of natural ground surface	<i>In situ</i> archaeological deposits may be present
Low	Limited vegetation clearance; stock grazing	Archaeological material should retain some spatial integrity although localised displacement may be expected
Moderate	Complete vegetation clearance; pasture/cultivation (ploughing); minor to moderate erosion	Archaeological materials may be present, although localised spatial displacement and artefact damage are likely; <i>in situ</i> deposits may remain below plough zone
High	Removal of topsoil for urban and industrial development; irrigation; Road works;	While archaeological sites may be destroyed, remnant dispersed archaeological material

	infrastructure construction; landscaping; landfill; and severe erosion	may survive; the context of such material may be unknown.
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On the basis of the registered Aboriginal heritage sites in the region and review of previous archaeological studies, the following conclusions can be drawn regarding the potential presence and location of Aboriginal heritage sites within the landscape of the study area.

- Shelter with midden and artefact sites are the most common site type, and many shelters with evidence of occupation have previously been recorded in the local area. AHIMS site #45-6-3588, a shelter with art site is located approximately 160m north of the study area.
- Topographical features including sandstone outcropping are unlikely to occur in the study area due to past disturbance associated with construction and land modification. As such, it is unlikely that stone quarry sites, axe grinding grooves, stone engravings/art, and shelter sites with evidence of occupation have survived within the study area.
- The number of surviving midden sites in the local area has most likely decreased since European contact, due to impacts from lime-burning to provide building mortar, and later residential development. Midden with artefact sites, however, remain the second most common site type recorded in the local area, which is likely indicative of their original distribution and extent. Archaeological investigations undertaken in the local area have identified midden sites to be predominantly distributed around major waterways of the area, Middle Harbour and Lane Cove River. It is therefore unlikely for midden sites to occur in the study area as midden sites have not been commonly identified on elevated landforms, likely partially because such level, easily accessible landforms have been subject to development in the area causing their destruction. It is also unlikely that midden sites will occur in rock outcrops within the study area, due to the modification of suitable rocky landforms for the construction of the Lourdes Retirement Village
- Stone artefact sites are found in all environmental contexts but are most readily identified through surface survey in areas where vegetation is limited, and ground surface visibility is high. They have potential to be present in all landform contexts throughout the region, although water is often the defining characteristic in distribution patterns. From the body of research throughout the region and within the broader state context, it is generally accepted that people tended to camp in proximity to water, resources or vantage points, with camping occurring more frequently the more permanent the water source.
- The nearest water source to the study area is Gordon Creek, a tributary of which runs approximately 185m to the north, and another 100m to the south, and the creek itself flows approximately 200m to the east. In addition, the natural topography of the study area would have been a vantage point, providing commanding views of the valley below.
- All the artefact sites in the local area, excluding a single isolated artefact site, have been recorded in association with shelters (41 sites) or middens (48 sites).
- The level of land disturbance of the study area is considered high due to the removal of topsoil for urban development, road works, infrastructure construction, and landscaping associated with the building of Headfort House and School, and the Lourdes Retirement Village. As such, it is unlikely that artefact sites remain present in the study area.
- Potential Archaeological Deposit (PAD) sites are defined in the Code of Practice as “those areas where it can be inferred that, although not visible, material traces or evidence of Aboriginal land use (sub-surface stone artefacts) have a likelihood of being present under the ground surface” (DECCW 2010b:12). It is unlikely for intact natural soils with the potential to retain sub-surface artefacts to be present within the study area due to the level of land disturbance associated with the construction of Headfort School and Lourdes Retirement village.
- Scarred trees are only expected within areas of native, mature vegetation, and may occur in any landform context. The study area has undergone past vegetation clearing, however

if any remnant vegetation with trees of appropriate age remains, there is potential that they may retain cultural modification.

- No burial sites have been previously recorded in the local area. Burials and ceremonial sites (including stone arrangements) are unlikely to be present in the area due to the history of disturbance in the study area.

5 Conclusions and Recommendations

The due diligence assessment process is intended to allow initial determination of the likely presence of Aboriginal heritage objects which may be impacted by an activity. Where a due diligence assessment determines that there are, or are likely to be, Aboriginal heritage objects present in an area of activity, more detailed investigation and impact assessment is required in the form of an Aboriginal Cultural Heritage Assessment (ACHA), regardless of their significance or context. If the subsequent ACHA determines that harm will occur to Aboriginal objects, then an application for an AHIP will be required to allow the activity.

No Aboriginal heritage sites, objects or places have previously been recorded in the study area, and the nearest site to the study area is AHIMS site #45-6-3588, a shelter with art site located approximately 160m north. The study area is in close proximity to Gordon Creek, tributaries of which flow approximately 185m to the north and another 100m south., while the creek itself flows approximately 200m to the east.

As per Table 4.3, a high level of disturbance has occurred across the study area. The study area has been significantly impacted by past construction, initially by the historic development on the property of Headfort House and the associated facilities, and more recently by the construction of the Lourdes Retirement Village, and associated roads and driveways, underground carpark, paths and terraced gardens. These types of disturbance are likely to have removed archaeological deposits, and given the level of disturbance it is considered unlikely that evidence of previous occupation of Aboriginal people remains within the study area.

The study area is within 200m of waters and located on a ridge top. The Heritage NSW Code of Practice notes that landscape features which are within 200m of waters and located on a ridge top or ridge line, and which are not disturbed lands, are likely to retain Aboriginal Objects, an assertion confirmed by an analysis of Aboriginal sites previously recorded throughout the region and within the broader state context (DECCW 2010:12). Topographical features, such as elevated ridgelines and sandstone outcrops in the study area may have had potential to retain archaeological deposits, and cultural remains such as art and grinding grooves. However, these features have been significantly disturbed and altered through construction of the Lourdes Retirement Village. As a result, there is no potential for Aboriginal objects to remain which may be impacted by the proposed development.

The following recommendations are based on the statutory requirements, a review of the environmental and Aboriginal heritage context of the study area, the Aboriginal heritage site prediction modelling, and current heritage best practice, in accordance with the Heritage NSW *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW*. A summary of this assessment's compliance with the Code of Practice is presented in Table 5.1,

No Aboriginal heritage sites, objects, places or landscape features likely to indicate the presence of Aboriginal objects, were identified within the study area. The study area has been significantly impacted by past construction of the Lourdes Retirement Village, and associated roads and driveways, paths and terraced gardens, and given the level of disturbance associated with historic development on the property, it is considered unlikely that evidence of previous occupation of Aboriginal people remains within the study area. There are no previously identified Aboriginal heritage sites recorded on AHIMS within the study area, and no previously registered Aboriginal heritage sites will be impacted by the proposed development.

Recommendation 1

The study area is unlikely to retain Aboriginal objects; however, should any Aboriginal objects be exposed during construction works, disturbance of the area should cease, and

Heritage NSW should be informed in accordance with Section 89A of the NPW Act. Works should not continue without the written consent of Heritage NSW.

As per Heritage NSW's *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW*, it is unlikely that further archaeological assessment of the study area will increase the current scientific understanding of the region. There are no additional constraints to the proposed development arising from considerations of Aboriginal cultural heritage and archaeology, and the currently proposed works may proceed with due caution.

Recommendation 2

There are no Aboriginal cultural heritage constraints on the proposed development. No further Aboriginal cultural heritage assessment is required prior to proposed development works.

Table 5.1 Due Diligence process and results summary (after DECCW 2010a:10-13).

Due Diligence Assessment Process	Response
Step 1. Will the activity disturb the ground surface or any culturally modified trees?	The proposed development will disturb the ground surface in the study area (see Section 1). Native vegetation communities in the study area are regrowth or intentional garden plantings, as the area has been extensively cleared since European settlement. As a result, no culturally modified trees are likely to be present in the study area. Proceed to Step 2a.
Step 2a. Are there any relevant confirmed site records or other associated landscape feature information on the AHIMS database?	No Aboriginal heritage sites or associated landscape feature information are recorded on the AHIMS database within the study area (see Section 4.2.1). The nearest site to the study area is AHIMS site #45-6-3588, a shelter with art site located approximately 160m north of the study area. Proceed to Step 2b.
Step 2b. Are there any other sources of information of which a person is already aware? Other sources of information can include previous studies, reports or surveys which you have commissioned or are otherwise aware of.	A limited number of archaeological assessments have been undertaken in the local area, and none within the study area (see Section 4.2). Proceed to Step 2c.
Step 2c. Are there landscape features present likely to indicate presence of Aboriginal objects?	The study area is within 200m of waters and located on a ridge top. The Heritage NSW Code of Practice notes that landscape features which are within 200m of waters and located on a ridge top or ridge line, and which are not disturbed lands, are likely to retain Aboriginal Objects, an assertion confirmed by an analysis of Aboriginal sites previously recorded throughout the region and within the broader state context (DECCW 2010:12). Topographical features, such as elevated ridgelines in the study area may have had potential to retain archaeological deposits, however they have been significantly disturbed and altered through construction of the Lourdes Retirement Village, and there is no potential for Aboriginal objects to remain which may be impacted by the proposed development. Proceed to Step 3.
Step 3. Can harm to Aboriginal objects listed on AHIMS or identified by other sources of information be avoided, and/or can the carrying out of the activity at the relevant landscape features be avoided?	No Aboriginal objects listed on AHIMS are present in the study area, and no Aboriginal objects or areas with potential to retain archaeological deposits were identified within the study area by other sources of information. The nearest site to the study area is AHIMS site #45-6-3588, a shelter with art site located approximately 160m north of the study area. Proceed to Step 4.
Step 4: Does a desktop assessment confirm that there are Aboriginal objects or that they are likely?	The desktop assessment has confirmed that it is unlikely for Aboriginal objects to exist within the study area, due to the observed levels of disturbance to the landforms present.

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