**Residential Development with Infill Affordable Housing at 9-21 Beaconsfield Parade, Lindfield (SSD-81623209)**

# Aboriginal Due Diligence Assessment

Final Report

Prepared for Deicorp Projects (Lindfield) Pty Ltd

6 May 2025

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## Document information

| | |
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## Acknowledgements

Biosis acknowledges the contribution of the following people and organisations in undertaking this study:

- Deicorp Pty Ltd: Sharon Barrett and Simon Manoski
- Metropolitan Local Aboriginal Land Council: Josh Marr

Biosis staff involved in this project were:

- Anthea Vella (assistance in the field)
- Azka Abid (mapping)
- Maggie Butcher (quality assurance)

*Biosis acknowledges the Aboriginal and Torres Strait Islander peoples as Traditional Custodians of the land on which we live and work.*

*We pay our respects to the Traditional Custodians and Elders past and present and honour their connection to Country and ongoing contribution to society.*

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# Summary

Biosis Pty Ltd (Biosis) has been commissioned by Deicorp Projects (Lindfield) Pty Ltd (Deicorp) to undertake an Aboriginal Due Diligence Assessment (ADDA) for the proposed development at 9-21 Beaconsfield Parade, Lindfield New South Wales (NSW), 2070 (the study area). The proposed development is anticipated to involve a six to nine-storey apartment building with basement levels (to be confirmed).

An assessment in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010a) (Due Diligence Code) has been undertaken for the study area to inform responsibilities with regards to Aboriginal cultural heritage. In addition to the basic tasks required for a due diligence assessment, an extended background review, as well as an archaeological survey in accordance with *The Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b) (the Code) was conducted, in order to adequately map areas of high, moderate, and low archaeological potential.

This ADDA accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act), in support of a State Significant Development Application (SSDA) for the construction of a residential development, reference SSD-81623209.

This report addresses the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (see Table 1).

Background research included an extensive search of the Aboriginal Heritage Information Management System (AHIMS) database conducted on 27 March 2025 (Client service ID: 989406), along with a review of relevant reports. The AHIMS search identified 93 Aboriginal archaeological sites within a 4.5 x 4.5 kilometre radius of the study area. None of these AHIMS sites are located within the study area.

Previous assessments within the local and regional areas and their findings were also reviewed as part of this assessment. The results of the previous assessments along with a review of the geology, hydrology and soil landscape characteristics of the study area have been examined to provide a series of predictive statements of the study areas archaeological potential. The predictive statements indicated that there was moderate potential for artefact sites to be present within the study area.

A field investigation was undertaken on 9 April 2025 by Anthea Vella (Team Leader – Heritage (NSW), Biosis), Rhiannon Whitton (Graduate Heritage Consultant, Biosis), and Josh Marr (Cultural Sites Officer, Metropolitan Local Aboriginal Land Council (LALC)). The field investigation was hampered by low ground surface visibility (GSV) and exposure, and high levels of disturbance were noted throughout the study area. These disturbances included development associated with the construction of residential dwellings. The field investigation did not identify any Aboriginal sites, and the study area was assessed as having low potential to contain archaeological material.

The following management recommendations have been developed relevant to the study area and influenced by:

- Predicted impacts to Aboriginal cultural heritage.
- The planning approvals framework.
- Current best conservation practise, widely considered to include:
    - Ethos of *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance* (the Burra Charter) (Australia ICOMOS 2013).

- The Code.

Prior to any impacts occurring within the study area, the following is recommended:

### Recommendation 1: No further archaeological assessment is required

No further archaeological work is required due to the entire study area assessed as having low archaeological potential.

### Recommendation 2: Discovery of Unanticipated Aboriginal Objects

All Aboriginal objects and Places are protected under the *National Parks and Wildlife Act 1974* (NPW). It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by Heritage NSW, NSW Department of Climate Change, Energy, the Environment and Water (Heritage NSW). Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object, the archaeologist will provide further recommendations. These may include notifying Heritage NSW and Aboriginal stakeholders.

### Recommendation 3: Discovery of Aboriginal Ancestral Remains

Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity, you must:

1. Immediately cease all work at that location and not further move or disturb the remains.
2. Notify the NSW Police and Heritage NSW' Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
3. Not recommence work at that location unless authorised in writing by Heritage NSW.

# Definitions

| | |
|---|---|
| ACHA | Aboriginal Cultural Heritage Assessment |
| ADDA | Aboriginal Due Diligence Assessment |
| AHIMS | Aboriginal Heritage Information Management System |
| AHCP | Aboriginal History and Connections Program |
| Biosis | Biosis Pty Ltd |
| Burra Charter | Ethos of *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance* (Australia ICOMOS 2013) |
| Cth DCCEEW | Australian Commonwealth Department of Climate Change, Energy, the Environment and Water |
| DCP | Development Control Plan |
| Deicorp | Deicorp Projects (Lindfield) Pty Ltd |
| DSCA | Dominic Steele Consulting Archaeology |
| Due Diligence Code | *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010a) |
| EP&A Act | *Environmental Planning and Assessment Act 1979* |
| GSV | Ground Surface Visibility |
| GFA | Gross Floor Area |
| Heritage NSW | Heritage NSW, NSW Department of Climate Change, Energy, the Environment and Water |
| ICOMOS | International Council on Monuments and Sites |
| LALC | Local Aboriginal Land Council |
| LEP | Local Environment Plan |
| LGA | Local Government Area |
| NPW Act | *National Parks and Wildlife Act 1974* |
| NSW | New South Wales |
| NSW DCCEEW | NSW Department of Climate Change, Energy, the Environment and Water |
| PAD | Potential Archaeological Deposit |
| SEARs | Secretary's Environmental Assessment Requirements |
| SEPP | State Environmental Planning Policy |
| SSD(A) | State Significant Development (Application) |
| Study area | 9-21 Beaconsfield Parade Lindfield NSW 2070 (Lot 3 DP 529677, Lot 2 DP 529677, Lot 1 DP 529677, Lot Y DP 347595, Lot X DP 347595, Lot A DP 335139, Lot 3 DP 304047, Lot B DP 379015, Lot 2 DP 304047, and Lot A DP 37901) |
| The Code | *The Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b) |

# 1 Introduction

## 1.1 Background

Biosis has been commissioned by Deicorp to undertake an ADDA for the proposed residential development at 9-21 Beaconsfield Parade, Lindfield NSW, 2070.

An assessment in accordance with the Due Diligence Code has been undertaken for the study area in order to inform responsibilities with regards to Aboriginal cultural heritage in the area. In addition to the basic tasks required for a due diligence assessment, an extended background review, as well as an archaeological survey in accordance with the Code was conducted, in order to adequately map areas of high, moderate and low archaeological potential.

This ADDA accompanies an EIS pursuant to Part 4 of the EP&A Act, in support of an SSDA for the construction of a residential development (SSD-81623209). This report addresses the SEARs issued for the project, notably:

**Table 1 Response to the project SEARs requirements**

| Relevant SEARs Section | Issue and Assessment requirements | Documentation | Section of report where response is provided |
|---|---|---|---|
| **21 – Aboriginal Cultural Heritage** | Where there is known, or reasonably likely, to be Aboriginal cultural heritage on or near the site demonstrate that impacts have been adequately investigated and assessed by:<br>• Identifying that an appropriate prior planning process has already considered these impacts, e.g. a rezoning or development application, or<br>• Providing an initial assessment of the potential impacts. | • ADDA | This ADDA addresses the Aboriginal Cultural Heritage requirement. This ADDA has been prepared to satisfy the requirement for an initial assessment of potential impacts to the study area. These potential impacts are low therefore an ADDA is sufficient for the SEARs and an ACHA is not required for the site. |

## 1.2 Location of the study area

The study area is located within the Kur-ring-gai Local Government Area (LGA), Parish of Gordon, County of Cumberland (Figure 1). The study area incorporates the following Lots and DPs:

- Lot 3 DP 529677
- Lot 2 DP 529677
- Lot 1 DP 529677
- Lot Y DP 347595
- Lot X DP 347595
- Lot A DP 335139
- Lot 3 DP 304047
- Lot B DP 379015
- Lot 2 DP 304047
- Lot A DP 37901

It is bounded by Lots 7-13 of DP 10189 and SP101414 to the north, Beaconsfield Parade to the south, SP20154 to the east and Lot 1 DP 1290242 to the west (Figure 2).

## 1.3 Planning approvals

The proposed development will be assessed against Part 4 of the EP&A Act. Other relevant legislation and planning instruments that will inform the assessment include:

- NPW Act.
- *National Parks and Wildlife Amendment Act 2010 (NSW)*.
- *State Environmental Planning Policy (SEPP) (Planning Systems) 2021*.
- *SEPP (Housing) 2021.*
- *Ku-ring-gai LEP 2015*.

## 1.4 Proposed works

The proposed development seeks consent for a new residential flat development with in-fill affordable housing. The proposal will include the following works (Figure 3):

- Construction of a residential development varying in height up to 10 storeys.
- Approximately 377 residential units of which a minimum 10% of Gross Floor Area (GFA) will be retained as affordable for 15 years and a further 2% of GFA will be retained as affordable in perpetuity.
- Excavation for 2 basement levels with approximately 523 car spaces and associated services.
- Removal of existing trees on site.
- Landscaping and a communal space network including rooftop gardens.

The proposal seeks to utilise the Infill Affordable Housing provisions of SEPP (Housing) by providing affordable housing in compliance with the requirements of the environmental planning instrument.

## 1.5 Scope of the assessment

The following is a summary of the major objectives of the assessment:

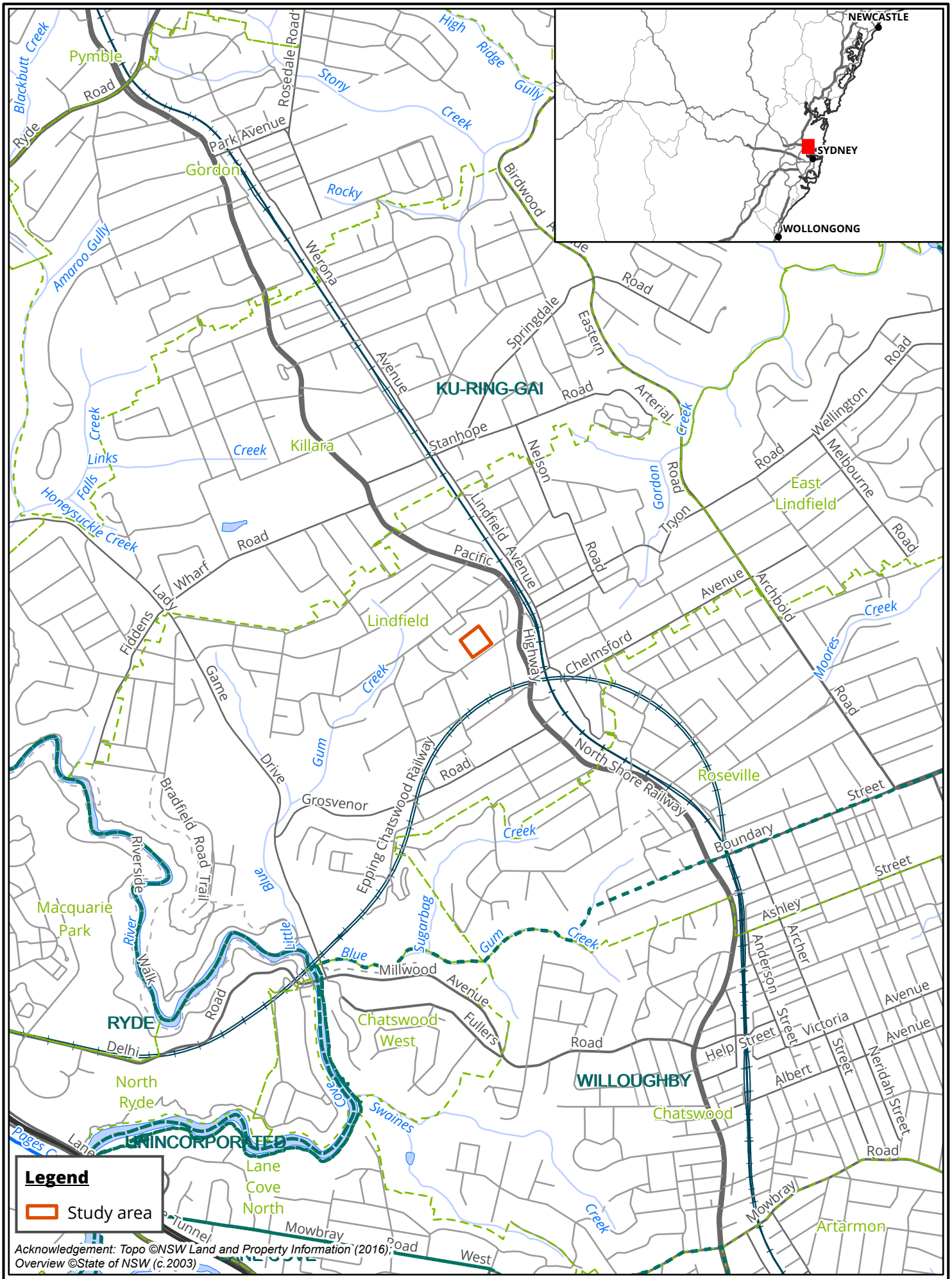
- Conduct background research in order to recognise any identifiable trends in site distribution and location, including a search of AHIMS.
- Undertake archaeological survey as per Requirement 5 of the Code, with particular focus on landforms with high potential for Aboriginal heritage within the study area, as identified through background research.
- Record and assess sites identified during the survey in compliance with the guidelines endorsed by Heritage NSW.
- Determine levels of archaeological significance of the study area.
- Make recommendations to mitigate and manage any cultural heritage values identified within the study area.

## 1.6 Aboriginal consultation

Metropolitan LALC Cultural Site Officers were invited to attend the archaeological survey. Josh Marr from Metropolitan LALC accompanied the Biosis representatives on 9 April 2025. Josh identified the high levels of disturbance throughout the study area which would have removed any potential Aboriginal heritage on a surface level. However, it was recommended by Josh that Deicorp undertaking monitoring during the part of the proposed works which would require bulk excavations.

## 1.7 Statement of compliance

The author of this report confirms this ADDA addresses the requirement of SEAR No. (81623209) and relevant State and local legislation, policies, and guidelines including the NPW Act, Due Diligence Code, and the Code. The author further confirms that none of the information contained in the ADDA is false or misleading.

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# Figure 1 Location of the study area

Matter: 42378, Date: 08 April 2025,
Prepared for: RW, Prepared by: AA., Last edited by: aabid
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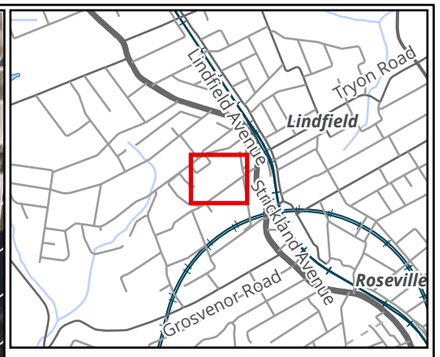
42378_Beaconsfield_HER_Figures
Layout: 42378_ADDA_F1_Locality

0 200 400 600 800 1,000
Metres
Scale 1:25,000@ A4, GDA2020 MGA Zone 56

N


**Legend**

- Study area
- Lot

## Figure 2 Study area detail

0 8 16 24 32 40

Metres

Scale: 1:1,000 @ A3

*Coordinate System: GDA2020 MGA Zone 56*

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Matter: 42378, Date: 01 May 2025,
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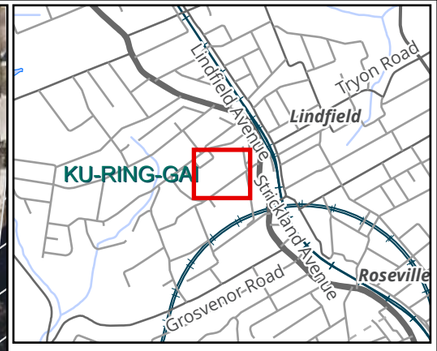


**Legend**

- Study area
- Lot

**Figure 3 Proposed works**

0 8 16 24 32 40

Metres

Scale: 1:1,000 @ A3

*Coordinate System: GDA2020 MGA Zone 56*

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Matter: 42530, Date: 07 May 2025,
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# 2 Desktop assessment

A desktop assessment has been undertaken to review existing archaeological studies for the study area and surrounding region. This information has been synthesised to develop some Aboriginal site predictive statements and identify known Aboriginal sites and/or Places recorded in the study area. This desktop assessment has been prepared in accordance with Requirements 1 to 4 of the Code.

## 2.1 Landscape context

It is important to consider the local environment of the study area any heritage assessment. The local environmental characteristics can influence human occupation and associated land use and consequently the distribution and character of cultural material. Environmental characteristics and geomorphological processes can affect the preservation of cultural heritage materials to varying degrees or even destroy them completely. Lastly, landscape features can contribute to the cultural significance that places can have for people.

The study area is located in an undulating landscape in a suburban context.

## 2.2 Geology, hydrology, landforms and soils

Geology, landforms, hydrology and soils provide useful information for determining the potential for Aboriginal sites and objects. Geology can aid in determining if there were useful raw material resources that could be exploited; soils can be used to determine the likelihood of preservation of archaeological materials; and hydrology is often an indicator of the potential for sites to be present depending on the perennially and size of the water sources.

The study area is located within the broader Sydney Basin on the Ashfield Shale unit within the Wianamatta Group (Figure 4). The Ashfield Shale contains dark grey to black claystone-siltstone and fine sandstone - siltstone laminate, with artefact sites commonly occurring across this formation. Topographically, the study area lies in an undulating landscape (Figure 5). It is located on a simple slope landform, increasing 8 metres in elevation from north-west to south-east. The elevated landform on which the study area sits would have provided protection from flood events. This indicates that not only would the area likely have been used for transitory purposes by Aboriginal groups, but the land elevation would assist in preserving any potential archaeological material in the area.

Stream order is recognised as a factor which helps the development of predictive modelling in Aboriginal archaeology in NSW. Predictive models which have been developed for the region have a tendency to favour permanent water courses as the locations of campsites as they would have been more likely to provide a stable source of water and by extension other resources which would have been used by Aboriginal groups, and are more likely to be found upon well drained topographies associated with permanent watercourses (creek banks, flats, terraces) (Dyall 1979, Dean-Jones 1990, Biosis 2017).

The stream order system used for this assessment was originally developed by Strahler (1952). It functions by adding two streams of equal order at their confluence to form a higher order stream, as shown in Photo 1. As stream order increases, so does the likelihood that the stream would be a perennial source of water.

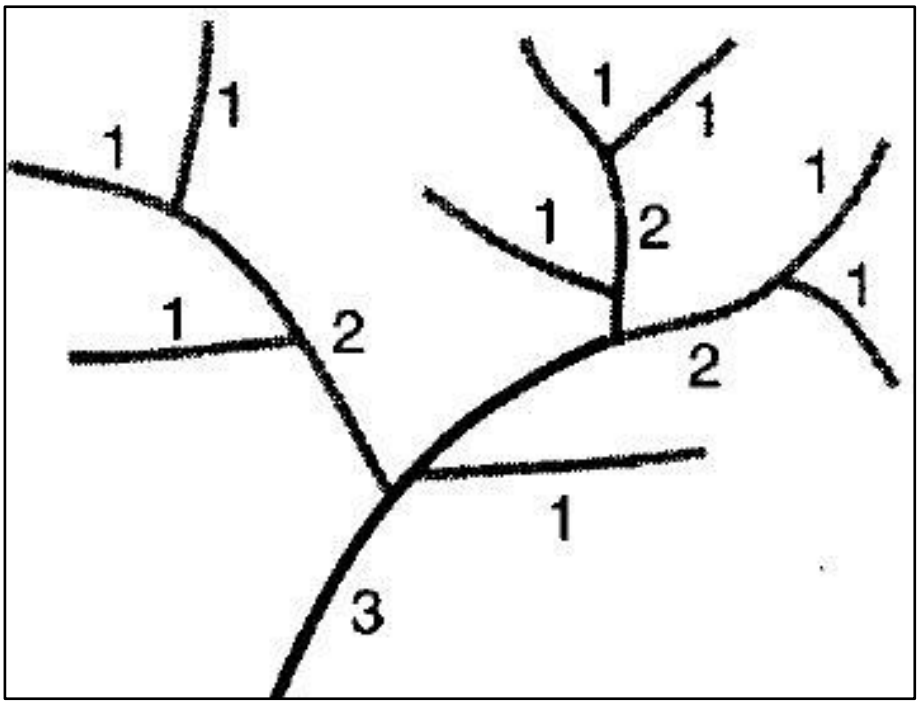


**Photo 1** **Diagram showing Strahler stream order (Ritter et al. 1995, p. 151)**

The closest water source to the study area is Little Blue Gum Creek, a first-order, non-perennial, natural watercourse, located approximately 300 metres west of the study area (Figure 5). Little Blue Gum Creek is a tributary of the Lane Cove River, located approximately 1.7 kilometres south-west of the study area. The Lane Cove River is the closest perennial water source to the study area. The distance from permanent water sources indicates that the study area was more likely to have been used by Aboriginal groups for transitory purposes rather than occupational purposes.

Soil landscapes have distinct morphological and topological characteristics that result in specific archaeological potential. They are defined by a combination of soils, topography, vegetation and weathering conditions. Soil landscapes are essentially terrain units that provide a useful way to summarise archaeological potential and exposure.

The study area is contained within the erosional Glenorie soil landscape (NSW DCCEEW 2013, p. 70) (Figure 6). Soils contained within this landscape are typically shallow to moderately deep (<100 centimetres) red podzolic soils on crests; moderately deep (70–150 centimetres) red and brown podzolic soils on upper slopes; and deep (>200 centimetres) yellow podzolic soils and gleyed podzolic soils along drainage lines. The acidity levels within the study area indicate that bone and shell fragments may not be as well preserved as stone artefacts (Table 2)

Erosional landscapes comprise of soils that are generally subject to movement of shallow soils, which can result in poor preservation of the archaeological record. Additionally, when the land is cleared of vegetation, the soils can be subjected to more extensive levels of erosion. As this soil type is characterised as highly erosional, the soils can be shallow, highly permeable, and have low levels of soil fertility. This would suggest that Aboriginal sites and objects are unlikely be present where erosion has occurred (Chapman et al. 1989, pp. 64–67, McInnes 1997, p.45, cited by Umwelt (Australia) Pty Limited 2016, p. 13).

**Table 2 Glenorie soil landscape characteristics (NSW DCCEEW 2013, pp. 71–72)**

| Soil landscape | Description |
|---|---|
| ***gn1*: Friable dark brown loam** | This is generally a dark brown, friable loam, silt loam or silty clay loam with moderately to strongly pedal structure and porous, rough-faced ped fabric. This material occurs as topsoil (A1 horizon). Peds are commonly sub-angular blocky to polyhedral, 2–10 mm in size and are rough faced and porous. In uncompacted soils these peds break down readily to very small crumbs. Surface condition is distinctly friable but may become hardsetting when compacted and dry. Colour is generally dark brown (10YR 3/3, 7.5YR 3/3) and may range from brownish-black (7.5YR 2/2) to brown (10YR 4/4). This material is occasionally water repellent. The pH ranges from moderately acidic (pH 5.0) to slightly acidic (pH 6.0). Shale fragments occur and charcoal is occasionally present whilst roots are common. |
| ***gn2*: Hardsetting brown clay loam** | This is commonly a clay loam to fine sandy clay loam with an apedal massive or weakly pedal structure and an earthy or porous, rough-faced ped fabric. This material occurs as an A2 horizon and is occasionally hardsetting when exposed at the surface. Peds, when present, are sub-angular blocky, 10–50 mm in size, and are rough faced and porous. Otherwise this material has apedal massive structure with an earthy porous fabric. Colour is commonly brown (7.5YR 4/4) but may range between dull yellowish-brown (10YR 5/4) and reddish-brown (5YR 4/6). The pH ranges between strongly acidic (pH 4.0) and moderately acidic (pH 6.0). Shale rock fragments, charcoal fragments and roots are present. |
| ***gn3*: Whole-coloured, reddish-brown, strongly pedal clay** | This is medium clay with strongly pedal structure and smooth-faced, dense, ped fabric. It generally occurs as subsoil (B horizon). Texture is generally medium clay but may range from silty clay to heavy clay. The peds are usually sub-angular blocky or polyhedral. They range in size from 5–20 mm and are smooth-faced and porous. Cutans are also present. Colour is generally reddish-brown (5YR 4/6-8) and can range from bright reddish-brown (2.5YR 4/8) to dull yellowish-brown (10YR 5/4). The pH ranges from strongly acidic (pH 4.0) to moderately acidic (pH 5.5). Shale rock fragments are common. Roots are rare and charcoal fragments are absent. |
| ***gn4*: Mottled grey plastic clay** | This is a grey, mottled, medium to heavy clay with strongly pedal structure and dense, smooth ped fabric. It commonly occurs as deep subsoil. The peds are usually sub-angular blocky, 10–20 mm in size, and are smooth-faced and dense. These can be broken down easily to smaller (2–5 mm) polyhedral peds. Colour is usually pale grey (5YR 7/1), but ranges from light reddish-grey (2.5YR 7/1) to brownish-grey (7.5YR 6/1). Yellow and red mottles are common. It is usually moist and is very plastic. The pH ranges from strongly acidic (pH 4.0) to moderately acidic (pH 5.0). Shale rock fragments and gravels are common. Roots are rare and charcoal is absent. |
| ***gn5*: Brownish-grey plastic silty clay** | This is commonly brownish-grey, plastic silty clay which is often saturated and exhibits apedal massive structure. It usually occurs as subsoil (B horizon). Colour is dark brown (10YR 3/3) often becoming brownish-grey (10YR 4/1) with dark brown mottles at depth. This material is moderately sticky and very plastic when moist. The pH ranges from moderately acidic (pH 5.0) to slightly acidic (pH 6.5). Rock and charcoal fragments are absent and roots are rare. |


**Legend**

Study area

**Geological units**

- QH_af - Alluvial floodplain deposits
- QH_ecw - Estuarine channel deposits (subaqueous)
- QH_es - Estuarine swamp
- QH_hf - Anthropogenic deposits - fill on Quaternary deposits
- Q_ab - Alluvial backswamp deposits
- Q_acb - Alluvial channel deposits - in-channel bar
- Q_acw - Alluvial channel deposits - subaqueous
- Q_av - Alluvial valley deposits
- Q_h - Anthropogenic deposits
- Tuth - Hawkesbury Sandstone
- Twia - Ashfield Shale

**Figure 4 Geological units in the vicinity of the study area**

0 160 320 480 640 800

Metres

Scale: 1:20,000 @ A3

*Coordinate System: GDA2020 MGA Zone 56*

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Matter: 42378, Date: 08 April 2025,
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Location: P:\42300s\42378\Mapping\
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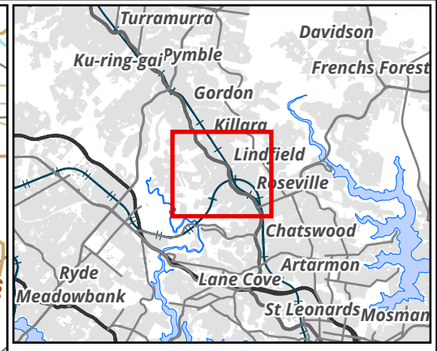


**Legend**

- Study area
- Contour (10m)

**Strahler Order**

- 1
- 2
- 5

**Figure 5 Hydrology and topography in the vicinity of the study area**

0 80 160 240 320 400

Metres

Scale: 1:10,000 @ A3

*Coordinate System: GDA2020 MGA Zone 56*

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**Legend**

Study area

**Soil landscape units**

- bt - BLACKTOWN
- fb - FAULCONBRIDGE
- gn - GLENORIE
- gy - GYMEA
- ha - HAWKESBURY
- la - LAMBERT
- lc - LANE COVE
- lh - LUCAS HEIGHTS
- mc - MANGROVE CREEK
- WATER - WATER
- xx - DISTURBED TERRAIN

**Figure 6 Soil landscapes in the vicinity of the study area**

0 160 320 480 640 800

Metres

Scale: 1:20,000 @ A3

*Coordinate System: GDA2020 MGA Zone 56*

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Matter: 42378, Date: 08 April 2025,
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42378_Beaconsfield_HER_Figures,
Layout: 42378_ADDA_F6_Soils

## 2.3 Flora and fauna

The wider region includes distinct ecological zones, including open forest and open woodland, with riparian vegetation extending along many of the watercourses. Each ecological zone hosts a different array of flora and fauna species, many of which would have been utilised according to seasonal availability. Aboriginal inhabitants of the region would have had access to a wide range of avian, terrestrial and aquatic fauna and repeated firing of the vegetation would have opened up the foliage allowing ease of access through and between different resource zones.

Plant resources were used in a variety of ways. Fibres were twisted into string, which was used for many purposes, including the weaving of nets, baskets and fishing lines. String was also used for personal adornment. Bark was used in the provision of shelter; a large sheet of bark being propped against a stick to form a gunyah (Attenbrow 2002).

While the study area has been partially cleared of vegetation, plant species supported by the Glenorie soil landscape include tall open-forest (wet sclerophyll forest), with dominant tree species including Sydney Blue Gum *Eucalyptus saligna* and Blackbutt *E. pilularis* (NSW DCCEEW 2013, p. 71). Other species include Turpentine *Syncarpia glomulifera*, Grey Ironbark *E. paniculata*, White Stringybark *E. globoidea* and Rough-Barked Apple *Angophora floribunda*. Pittosporum *Pittosporum undulatum* and Coffee Bush *Breynia oblongifolia* are common understorey species (NSW DCCEEW 2013).

As well as being important food sources, animal products were also used for tool making and fashioning a myriad of utilitarian and ceremonial items. For example, tail sinews are known to have been used to make fastening cord, while 'bone points', which would have functioned as awls or piercers, are often part of the archaeological record. Animals such as Brush-tailed Possums were highly prized for their fur, with possum skin cloaks worn fastened over one shoulder and under the other. Kangaroo teeth were incorporated into decorative items, such as head bands (Attenbrow 2002).

Animal species that may have been present within vicinity of the study area include mammal species such as Common Ringtail Possum *Pseudocheirus peregrinus*, Swamp Wallaby *Wallabia bicolor*, Common Brushtail Possum *Trichosurus vulpecula*, Grey-headed Flying-fox *Pteropus poliocephalus*, Short-beaked Echidna *Tachyglossus aculeatus*, Bush Rat *Rattus fuscipes*, and Long-nosed Bandicoot *Perameles nasuta*. The bird species Sulphur-crested Cockatoo *Cacatua (Cacatua) galerita*, Laughing Kookaburra *Dacelo (Dacelo) novaeguineae*, Australian Magpie *Gymnorhina tibicen*, Rainbow Lorikeet *Trichoglossus haematodus*, Pied Currawong *Strepera (Strepera) graculina*, and Australian Brush-turkey *Alectura lathami* have also been recorded (Atlas of Living Australia 2024).

Due to the distance from permanent water sources, there would not have been convenient access to marine resources such as fish. This would have made the study area a less favourable compared to areas further west, closer to Lane Cove River.

## 2.4 Land use history

Aerial imagery of the study area in 1943 displays the land as already heavily developed (Photo 2). Vegetation has been cleared and replanted along gazetted roads, and residential dwellings have been constructed. The disturbances associated with these developments (both subterranean and surface-level) would have greatly impacted any potential archaeological evidence in the area. Preparations for the construction of additional residences are underway, as can be seen in the centre of the study area where the land has been entirely levelled. The northern corners of the study area appear to have been left fairly undisturbed.

**Photo 2 Historical aerial imagery dated to 1943 with the study area outlined in orange (Source: NSW Spatial Services 2021)**

By 1986 the study area has been entirely utilised for residential purposes (Photo 3). Further vegetation clearance has taken place and houses have been constructed behind the existing buildings closest to Beaconsfield Parade. The northern corners which were previously undisturbed now contain buildings, and several swimming pools have been constructed within these lots. The works associated with the construction of the pools in particular would have removed or destroyed archaeological material in the area.

**Photo 3 Historical aerial imagery dated to 1986 with the study area outlined in orange (Source: NSW Spatial Services 2021)**

Imagery dated to 2005 closely resembles how the study area appears in current imagery (Photo 4 and Figure 2). Extensions and renovations on a number of the dwellings have taken place and a large section of land in the north-central part of the study area has been cleared to create space for a sports court. The possibility of archaeological material remaining within the study area is low, and if present it is likely not *in situ*.

**Photo 4 Historical aerial imagery dated to 2005 with the study area outlined in orange (Source: NSW Spatial Services 2021)**

# 3 Aboriginal context

## 3.1 Ethnohistory and contact history

Dates of the earliest occupation of the continent by Aboriginal people are subject to continued revision as more research is undertaken. Archaeological evidence of Aboriginal occupation of the region indicates that the area was intensively occupied from approximately 4000 years Before Present (BP) (Dallas 1982). Such 'young' dates are probably more a reflection of the conditions associated with the preservation of this evidence and the areas that have been subject to surface and subsurface archaeological investigations, rather than actual evidence of the Aboriginal people prior to this time.

Archaeological evidence clearly indicates that Aboriginal people have occupied the coastal south-eastern part of Australia for up to 20,000 years, and it is likely that people were living in the Sydney greater region prior to 4000 years BP (Attenbrow 2010). Our knowledge of the social organisation and languages of Aboriginal people prior to European contact is, to a large extent, reliant on documents written by European people. Such documents contain the inherent bias of the class and cultures of these authors; however, they can be used in conjunction with archaeological information in order to gain a picture of Aboriginal life in the region. The majority of this information was gathered during the late nineteenth century, within already decimated communities where significant disruptions to the pre-existing societies had already occurred.

Traditional Aboriginal social organisation consisted of clans and bands. It was through clans that associations with lands and sites were dictated. Marriage was between clans, and groups that included individuals who had married into the group are referred to as bands. In day-to-day life bands ranged over economic areas that included lands of more than a single clan. Attenbrow (2010) sums up the situation succinctly by saying 'whilst the relationship of clan to country was principally religious in character that of band to range was economic.'

Interactions between different types of social groupings would have varied with seasons and resource availability. It has been noted that interactions between the groups inhabiting the many resource zones of the Sydney Basin (coastal and inland) would have varied but were continuous. This is reflected in the relatively homogenous observable cultural features such as art motifs, technology and resource use (Mcdonald 2008).

Land within the study area was originally occupied by the Wallumedegal clan. This clan formed a part of the larger Darug language group. This group occupied the area west of the Lane Cove River through Ryde and Parramatta. The Cameraygal clan inhabited the lower north shore of Sydney to the west of the Lane Cove River. The areas to the north were occupied by the Kuring-gai people (Kuskie 1998).

The first reference to the people of the Ryde area was by Governor Philip on 13 February 1790. He wrote:

> *"The South side of the Harbour from the above-mentioned Cove [now Darling Harbour] to Rose-Hill, which the natives call Par-ra-matta, the district is called Wann, and the tribe, Wanngal. The opposite shore is called Wallumetta, and the tribe, Wallumedegal" (reproduced in Smith 2005, p. 1).*

Ethnographic sources in the vicinity of the study area have mostly focused on the activities of the Kuring-gai clan. The Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) Map of Indigenous Australia indicates that the current study area lies within the boundary of the Kuring-gai country (Photo 5). It is worth recognising that the boundaries of Aboriginal groups were highly mobile and subject to change, and data available today may not totally reflect these fluctuations. Most observations from the ethnographic sources focus on the fishing practices of the Kuring-gai people, noting that the majority of their diet consisted of fish (National Parks and Wildlife Service 1990, p. 13). Although the archaeological record would suggest that

Aboriginal groups relied on rock shelters as sites for habitation, early observations by Tench and Bellinghausen show that bark huts and wind breaks were utilised for camp sites, with rock shelters being more heavily relied on in poor weather (National Parks and Wildlife Service 1990, pp. 16–17).


**Photo 5 AIATSIS Map of Indigenous Australia with the approximate location of the study area indicated by the orange arrow (Source: Horton 1996)**

The massive disruption to traditional lifestyles caused by European settlement in the region had a number of results by the later nineteenth century. After the arrival of European colonists the movement of Aboriginal people became increasingly restricted. At the same time diseases such as smallpox were having a devastating effect on the Aboriginal population. Death, starvation and disease were some of the disrupting factors that led to a reorganisation of the social practices of Aboriginal communities after European contact. The formation of new social groups and alliances were made as Aboriginal people sought to retain some semblance of their previous lifestyle.

## 3.2 Regional context

A number of Aboriginal cultural heritage investigations have been conducted for the wider region. Models for predicting the location and type of Aboriginal sites with a general applicability to the region and thus relevant to the study area have also been formulated, some as a part of these investigations and others from cultural heritage investigations for relatively large developments.

Attenbrow (1990) undertook an investigation titled "The Port Jackson Archaeological Project" for the Australian Museum. The investigation area stretched from North Head in the northern beaches, out towards Blacktown, and south towards Yagoona. It included the current study area. The purpose of this report was to improve upon the existing literature about Aboriginal life as previous work had focused on historical accounts and not utilised the archaeological record. Fieldwork focused largely on existing recorded Aboriginal sites, and included supplementary surveys in areas which had the potential to hold further Aboriginal sites. The project investigated the roles played by marine and land animals in the diet of Aboriginal people within the Port Jackson area, as well as their use of stone, bone and shell in implements and weapons. The survey relocated and recorded 112 sites with middens and deposits. Attenbrow (1990) concluded that the distance from the harbour mouth influenced the range and predominance of particular shellfish species in middens. It appears that Aboriginal people were occupying areas of the foreshore and exploiting shellfish for at least 4,500 years, and that over time there was a change in the predominance of particular shellfish species. The report also recognised that there were more unregistered sites which had not been reported.

Attenbrow (1990) reported on excavations at two rock shelters with shell middens (AHIMS 45-6-0560/Mt. Trefle Nelson Park Point 1 and AHIMS 45-6-1045/Hydrofoil Cave) in Neilson Park, Vaucluse, located approximately 12.5 kilometres south-east of the current study area, as part of Stage II of the Port Jackson Archaeological Project. The middens were excavated in spits of 5–7 centimetres (where stratigraphic units exceeded this thickness), and the excavated materials sieved through nested 7 millimetre and 2.5 millimetre sieves. Shell, bone, stone artefacts, charcoal, and other cultural materials were extracted and analysed in an off-site laboratory.

At AHIMS 45-6-0560/Mt. Trefle Nelson Park Point 1, an excavation area was established within and outside of the rock shelter. Two instances of human bone were identified within the shelter. Following consultation with the La Perouse LALC, the bones were left *in-situ* and no further work undertaken in this location. In excavations outside of the shelter, the deposit was excavated to a maximum depth of 70 centimetres, but this varied due to the presence of sloping bedrock and rock slab. Soils outside of the shelter consisted of dark humic-rich soils and were less stratified than the deposit within the shelter; a hearth was recovered and excavated at a depth of 2–5 centimetres. In addition to Aboriginal objects and cultural material, European artefacts were also recovered, with the shelter having been used during the Great Depression in the 1930s.

At AHIMS 45-6-1045/Hydrofoil Cave, one area was excavated to test the integrity of the deposit. This pit halted a depth of 80 centimetres, where it reached rock. A hearth was identified and excavated at a depth of 5–15 centimetres, and the soils consisted of a black to very dark brown sandy sediment. The presence of rusted metal pieces throughout the soil profile suggests that the deposit was significantly disturbed and no further excavations took place at AHIMS 45-6-1045/Hydrofoil Cave.

Irish (2004) undertook an assessment of Aboriginal scarred trees at Sydney Olympic Park as part of the AHCP, approximately 11.5 kilometres south-west of the current study area. The purpose of the AHCP was to explore Aboriginal connections to the Homebush Bay area of Sydney from the earliest occupation until the present day. The ACHP found that the Sydney Olympic Park landscape had been heavily disturbed by historical land use practices such as land reclamation and industrial activities. The ACHP found that the only area within Sydney Olympic Park that had any potential to contain evidence of Aboriginal occupation and cultural activity was the relict Cumberland Woodland known as the Wanngal (Newington) Woodland, within the Newington Nature Reserve (Irish, P. 2004, p. 59). A survey of the Woodland was conducted to relocate a number of scarred trees recorded in the area. The assessment determined that none of the previously recorded scarred trees were Aboriginal in origin, as the characteristics associated with cultural scarring were not present and the trees were much too young to have been scarred by Aboriginal people. A number of previously unrecorded artefact scatters were identified during the survey.

White and McDonald (2010) undertook a review of previous work in the Rouse Hill development area, approximately 24 kilometres north-west of the current study area, discussing lithic artefact distribution in previous excavations carried out by JMCHM. The study considered a number of factors including stream order, distance from water, landform, aspect, and distance to silcrete sources which have identified general trends in Aboriginal site patterns within the wider area. As a result of the assessment, the following statements were made:

- Stream Order: water supply was a significant factor influencing Aboriginal land use and habitation in the area. There was a correlation between increasing stream order and larger numbers and higher densities of artefacts (from a comparison of first, second, and fourth order streams).
- Distance from water: the results showed that an assumption that sites would be clustered within 50 metres of water sources was not entirely correct from the data available. In first order stream landscapes, there was no significant correlation between artefact distribution and distance to water. In second order stream landscapes, artefact density was highest within 50 metres of water and then

declined with increasing distance. In fourth order landscapes, density was highest between 51 to 100 metres from water.

- Landform: Artefact density was lowest on upper slopes and ridgetops, with density increasing on mid and lower slopes. Density was highest in terrace landforms, and lower on creek flats, likely due to repeated flooding events and the erosion they caused.
- Distance to silcrete sources: the results of the study showed no significant difference between sites located closer to or further away from silcrete sources. However, 6 kilometres was the maximum tested distance from silcrete sources, so the sample is only representative of a limited area.
- Aspect: This only appeared to have an influence on sites in the lower parts of valleys. This may have been sited to take advantage of steady factors such as the rising/setting sun and wind direction, with sites in higher parts of valleys having a stronger influence by weather and other factors.

The study concluded that landform and distance from water had an impact on site distribution, with the preference being for slightly elevated, well-drained areas in the lower parts of valleys.

Dominic Steele Consulting Archaeology (DSCA) (2012) completed an Aboriginal archaeological and cultural heritage impact assessment for a proposed subdivision at 100 South Creek Road, Cromer, located approximately 11.8 kilometres north-east of the current study area. The assessment included background research and a field inspection. DSCA noted sandstone outcropping outside of the project area. AHIMS 45-6-1760/South Creek 1 and AHIMS 45-6-1851/South Creek.; were unable to be located in DSCA's assessment due to weathering of the sandstone. The following was noted in the predictive modelling:

- A considerable number of engraving sites are known to occur in the local Warringah landscape. Engravings can occur in groups with numerous depictions of animals, human figures, possible spiritual motifs, and other images of equipment such as shields, or single depictions that generally are found to occur on extensive level sandstone platforms along with smaller ledges and rock exposures.
- Axe grinding grooves may be found where suitable sandstone is exposed in, or adjacent to, creeks or on elevated platforms where wet-grinding techniques are possible adjacent to natural rock holes and shallow 'basins'. Axe/hatchet grinding grooves may occur in large 'clusters' that serves to facilitate their ready recognition or may conversely comprise isolated items that are often difficult to detect within certain light conditions.
- Open camp sites are likely to occur on dry and relatively flat landforms along or adjacent to both major and minor watercourses, along with foreshore zones. However, repeatedly or continuously occupied sites are more likely to be located on elevated ground situated at principal creek confluences in the local landscape.
- Surface scatters of flaked stone artefacts (or potentially durable food remains such as animal and fish bone or shell) are often buried in alluvial or colluvial deposits and only become visible when subsurface sediments are exposed by erosion or disturbance.
- Isolated artefacts occur without any associated evidence for prehistoric activity or occupation anywhere in the landscape and may represent the random loss, deliberate discard or abandonment of artefacts, or the remains of dispersed artefact scatters.
- Manuports are items consisting of raw materials of stone that do not naturally occur within the soil profiles of a given region.

No additional sites were identified by the visual inspection and DSCA postulated that there were potential engravings that were covered by vegetation or may be buried. DSCA recommended that Metropolitan LALC

and Council be involved in developing management measures for AHIMS 45-6-1760/South Creek 1 (Site A), and that an AHIP be submitted for AHIMS 45-6-1851/South Creek.; (Site B). DSCA also recommended that an additional site (Area C) be investigated to determine if there were any Aboriginal heritage values related to Site A. Area C was noted to have sandstone outcrops outside of the project area.

Biosis (2020a) completed an Aboriginal archaeological assessment for the same South Creek Road, Cromer project area as the DSCA (2012) report. The assessment was required in order to determine if further investigation in the form of testing would be required for the project. The assessment included background research and a field investigation, which identified two areas of moderate archaeological potential. This was due to the presence of existing AHIMS sites within and in close proximity to the project area, the undisturbed nature of these locations, the topography, geology and soil landscapes present, and previous assessment by DSCA (2012). Biosis recommended that the proposed works avoid the AHIMS sites and areas of moderate potential. If those areas were unable to be avoided as part of future development of the project area, further assessment would be required.

Biosis (2021) undertook an ADDA for the proposed residential development at 94 Hopetoun Avenue, Vaucluse, approximately 13 kilometres south-east of the study area. Background research illustrated that an abundance of engravings had been previously recorded throughout the Vaucluse area and the wider Sydney region, attributed to proximity to fresh water and coastal resources. It is likely Aboriginal people utilised the project area for both occupation and resource gathering. However, the erosional patterns present in the Hawkesbury soil landscape and the extensive residential development visible throughout the majority of the assessment area suggests that there is a low potential for intact Aboriginal deposits to exist as the disturbances will have removed any Aboriginal sites.

## 3.3 Local context

A number of Aboriginal cultural heritage investigations have been conducted within the region (within approximately 10 kilometres of the study area). Most of these investigations were undertaken as part of development applications and included surface and sub-surface investigations. These investigations are summarised below. A large number of local studies are associated with Lane Cove River to the west of the study area, as it was a significant resource.

Evans (1981) undertook a survey within the Lane Cove State Recreation Area, located approximately 1.5 kilometres west of the study area, to inform proposed works at Jenkins Hill. No sites were identified during the survey, and the results of the study indicated that 90% of the area had been disturbed by the construction of Lane Cove Zoo. It was assessed that the likelihood of sites being exposed was extremely low.

Conyers (1990) carried out an Aboriginal Sites Planning Study of the Lane Cove River State Recreation Area, approximately 1.5 kilometres west of the study area. Given the scale of the subject area, the study targeted impact areas with the aim of identifying Aboriginal sites and areas of potential. Twelve new sites were identified, including five Potential Archaeological Deposits (PADs). The riverbank associated with the Riverside Walking Track was assessed to hold low archaeological potential due to landscape modification associated with flooding events and levelling for the picnic areas. Flooding events following the construction of the weir were also assessed to have likely impacted shell middens upstream of Fullers Bridge. Ridgetops and upper slopes were assessed to have the highest potential for Aboriginal sites to be present.

Corkill (1991) undertook a heritage assessment for proposed upgrades at the CSIRO facility in Lindfield, located approximately 4 kilometres south-west of the study area. The survey targeted areas of remnant vegetation adjacent to Lane Cove River on a sandstone slope. Two sites were identified, including a shelter with midden and possible art, previously recorded by Haglund (AHIMS 45-6-1854/L C/2 Lanecove 2 Epping

Road Bridge RYDE 012) and a rock shelter with PAD (AHIMS 45-6-2599/CSIRO 2 (CSIRO North Ryde) RYDE 011). Lane Cove River was highlighted for its significance in relation to Aboriginal occupation. Test excavations were subsequently undertaken at AHIMS 45-6-2599/CSIRO 2 (CSIRO North Ryde) RYDE 01 which consisted of ten test pits (Corkill 1997). A total of 14 artefacts were identified which were produced from silcrete, chert and indurated mudstone. It was assessed that surface stripping may have occurred and impacted the preservation of archaeological materials.

Oakely (2000) completed a survey for a proposed sewerage upgrade within Lane Cove National Park located approximately 1.3 kilometres south-west of the current study area. Two new Aboriginal sites were located in the southern portion of the National Park. Both new sites were shell midden scatters and associated areas of PAD. It was recommended that the sewer line should be redirected to avoid these sites, or if this was not possible that further archaeological work, such as a test excavation, should be conducted.

HLA-Envirosciences (2003) undertook test excavations at Eden Gardens, approximately 3 kilometres west of the study area. The excavation program targeted AHIMS 45-6-2653/Eden Gardens PAD RYDE 007. The purpose of the excavation was twofold: to establish the nature of soil profiles across the area, and to clear sandstone outcropping in a controlled manner to identify potential engravings. Test excavations encountered disturbance across all test pits. In one pit, European material was present at a greater depth than a quartz artefact, suggesting that the artefact was in a disturbed context. No other artefacts were identified, and no engravings were identified on the sandstone outcrop. It was recommended that a Consent to Destroy for the area be sought, with no requirement for further investigation.

The Aboriginal Heritage Office (2011) completed the City of Ryde: Aboriginal Site Management Report, a broad planning study to identify, access, and re-record all Aboriginal sites located in the City of Ryde, provide a planning document for conserving cultural values, and provide a schedule for conservation works. The closest research area boundary is approximately 1.9 kilometres west of the current study area. An initial search undertaken of the AHIMS register identified a total of 118 sites in the LGA. The Aboriginal Heritage Office discounted any sites which had been recorded twice, or site cards which did not provide enough information to be relocated. After this revision, they listed 56 sites in the City of Ryde, most of which were rock shelters and middens. The LGA was divided into three Sections: Lane Cove River (Area 1), Central Plateau (Area 2), and Parramatta River (Area 3). Area 1 was dominated by sites relating to sandstone formations (rock shelters, engravings, and grinding grooves), Area 2 contained only a single artefact scatter, and Area 3 was also a sandstone-dominated landscape with shell middens along the foreshore being the most represented site type. The report recommended a program of staff education take place to enable workers to identify and avoid Aboriginal sites, and regular monitoring of sites in the LGA to ensure that they are appropriately managed.

Artefact Heritage (2011) conducted a survey of an area along the northern edge of Stringybark Creek in Lane Cove West, located approximately 7.9 kilometres south-east of the current study area. A previously recorded rock shelter with a charcoal drawing of two fish was relocated. Although the shelter had been disturbed by construction of a sewer pipe, the art remained in good condition. No new Aboriginal sites were located during the study.

Artefact Heritage (2014) undertook an ADDA for the proposed Lindfield Substation, approximately 300 metres south-east of the current study area, and ancillary electrical works between Killara Station and Clanville Road. The following predictive statement was generated

> *"The study area is located across a series of crest and gentle slopes extending from Killara Station to its southern extent. The study area is not in close proximity to major watercourses and is around two kilometres away from the Lane Cove River. No recorded Aboriginal sites have been identified within the study area. The most likely site type to occur within the study areas would be isolated artefacts or concentrations of artefacts in those areas,*

> *such as public reserves, where there is the possibility of surface exposure and a lesser degree of surface disturbance" (Artefact Heritage 2014, pp. 17–18).*

A site survey found the subject area to be heavily disturbed, and no sites were identified. The area was assessed to hold low potential for Aboriginal sites, with Artefact Heritage citing the distance from permanent water and lack of sensitive landform units as significantly informing this assessment (Artefact Heritage 2014, p. 19).

Artefact Heritage (2017) was commissioned by Ausgrid to conduct an ADDA for a cable replacement between Pittwater Road and Rene Street, East Ryde, located approximately 4.6 kilometres south-west of the current study area. A pedestrian survey of the area was undertaken, and no previously unrecorded Aboriginal sites or areas of archaeological sensitivity were identified. This was most likely due to the lack of archaeologically sensitive landforms, disturbance from road construction impacts and removal of vegetation.

Biosis (2019) was commissioned by Greenbox Architecture to undertake an Aboriginal archaeological survey report for the construction of a data centre at 1 Sirius Avenue, Lane Cove, approximately 3.7 kilometres south-west of the current study area. Archaeological investigations at the site identified a low potential for Aboriginal sites due to heavy disturbance of the landscape.

Biosis (2020b) carried out an ACHA for the Macquarie University Station Bus Interchange, commissioned by GHD. The site is located approximately 4.1 kilometres west of the current study area. Desktop research indicated that no previously identified Aboriginal sites are present within the area. A review of previous assessments in the local area predicted a moderate potential for artefact scatters and PAD to be located within the area. Following the field investigation, impacted by poor visibility due to vegetation and grass coverage, heavy disturbance due to residential and commercial development, and access issues, the site was assessed to contain low potential for intact Aboriginal sites or objects.

Biosis (2023a) undertook an ADDA for the proposed tree management and arboriculture works within Precinct One of Callan Park, Glover Street, Lilyfield, located approximately 9.3 kilometres south of the current study area. Background research indicated that the research area was located within the Hawkesbury and Gymea soil landscapes underlain by Hawkesbury Sandstone geological unit. The soil landscapes within the research area both typically feature higher levels soil erosion and shallow soils deposits. An archaeological survey was undertaken which noted high levels of disturbance throughout the research area. The ADDA assessed the site as having low potential for Aboriginal archaeology but noted that due to the presence of other Aboriginal sites in the area, there was some potential to locate archaeological material, however perhaps not *in situ*. It was recommended the known AHIMS sites be avoided during development and no further assessment was required for areas designated as having low archaeological potential.

### 3.3.1 Identified Aboriginal archaeological sites

An extensive search of the AHIMS database was conducted on 27 March 2025 (Client service ID: 989406). The search identified 93 Aboriginal sites within a 4.5 x 4.5 kilometre search area, centred on the study area. None of these registered sites are located within the study area (Figure 7). A breakdown of site types identified within the search is detailed in Table 3. The AHIMS search results have not been included for public exhibition. The mapping coordinates recorded for these sites were checked for consistency with their descriptions and location on maps from Aboriginal heritage reports where available. These descriptions and maps were relied upon where notable discrepancies occurred.

It should be noted that the AHIMS database reflects Aboriginal sites that have been officially recorded and included on the list. Large areas of NSW have not been subject to systematic, archaeological survey; hence AHIMS listings may reflect previous survey patterns and should not be considered a complete list of

Aboriginal sites within a given area. Some recorded sites consist of more than one element, for example artefacts and a shell midden, however for the purposes of this breakdown and the predictive modelling, all individual site types will be studied and compared. This explains why there are 182 results presented here, compared to the 93 sites identified in AHIMS.

**Table 3 AHIMS sites within the study area**

| Site type | Occurrences | Frequency (%) |
|---|---|---|
| **Artefact** | 51 | 28% |
| **Shelter** | 40 | 22% |
| **Shell** | 40 | 22% |
| **Art (Pigment or Engraved)** | 28 | 15% |
| **PAD** | 13 | 7% |
| **Grinding Groove** | 7 | 4% |
| **Habitation Structure** | 2 | 1% |
| **Not a site** | 1 | 1% |
| **Total:** | **182** | **100%** |

## Figure 7 AHIMS within the vicinity of the study area

**THIS FIGURE HAS BEEN REMOVED FOR PUBLIC EXHIBITION**

### 3.3.2 Predictive statements

A series of predictive statements have been formulated to broadly predict the type and character of Aboriginal cultural heritage sites likely to exist throughout the study area. These statements are based on:

- Local and regional site distribution in relation to landform features identified within the study area.
- Consideration of site type, raw material types and site densities likely to be present within the study area.
- Findings of the ethnohistorical research on the potential for material traces to present within the study area.
- Potential Aboriginal use of natural resources present or once present within the study area.
- Consideration of the temporal and spatial relationships of sites within the study area and surrounding region.

Based on this information, a series of predictive statements has been developed, indicating the site types most likely to be encountered during the survey across the present study area (Table 4). The definition of each site type is described firstly, followed by the predicted likelihood of this site type occurring within the study area.

**Table 4 Aboriginal site prediction statements**

| Site type | Site description | Potential |
|---|---|---|
| **Flaked stone artefact scatters and isolated artefacts** | Artefact scatter sites can range from high-density concentrations of flaked stone and ground stone artefacts to sparse, low-density 'background' scatters and isolated finds. | Low: Stone artefact sites have been previously recorded in the region on level, well-drained topographies in close proximity to reliable sources of fresh water. Artefact sites are the most represented site recorded in the AHIMS search (28%, n=51), However, due to the distance from permanent freshwater resources, and the level of disturbance within the study area, the potential for artefacts to be present is assessed as low. |
| **Shell middens** | Deposits of shells accumulated over either singular large resource gathering events or over longer periods of time. | Low: Shell midden sites have been recorded within the vicinity of the study area, accounting for 22% of the total site representation in the AHIMS search. Due to the distance to Little Blue Gum Creek (which is also not a permanent water source), the high levels of disturbances (both surface level and subsurface), and the acid levels within the Glenorie soil landscape, the potential to locate a shell midden within the study area is assessed as low. |
| **PADs** | Potential sub surface deposits of cultural material. | Low: PADs have been previously recorded in the region across a wide range of landforms. PADs are likely to be present within areas adjacent to water courses or on high points in undisturbed landforms. Due to extensive disturbances within the study area, which involve subsurface developments, the |

| Site type | Site description | Potential |
|---|---|---|
| | | potential to identify a PAD on site has been assessed as low. |
| **Rock shelters with art and / or deposit** | Rock shelter sites include rock overhangs, shelters or caves, and generally occur on, or next to, moderate to steeply sloping ground characterised by cliff lines and escarpments. These naturally formed features may contain rock art, stone artefacts or midden deposits and may also be associated with grinding grooves. | Low: The sites will only occur where suitable sandstone exposures or overhangs possessing sufficient sheltered space exist. Rock shelters make up 22% of the total site type representation in the AHIMS search. However, this is likely due to the fact that the study area is in close proximity to the Hawkesbury Sandstone geological unit which supports these site types. Geologically, the study area is located on Ashfield Shale, which is not known to support these site types. It is due to this, as well as the disturbance within the study area, that the potential to identify a shelter on site has been assessed as low. |
| **Art (Pigment or Engraved)** | Art is found in shelters, overhangs and across rock formations. | Low: Art sites are fairly well represented locally (15%). As with rock shelters, this is likely due to the presence of the Hawkesbury Sandstone geological unit nearby. The study area itself is not located on a geological formation which supports these site types. |
| **Grinding grooves** | Grooves created in stone platforms through ground stone tool manufacture. | Low: As with art sites and rock shelters, the study area is not located on a geological unit which supports these site types. Therefore, the likelihood of identifying a grinding groove within the study area has been assessed as low. |
| **Habitation Structures** | Structures constructed by Aboriginal people for short- or long-term shelter. More temporary structures are commonly preserved away from the NSW coastline, may include historic camps or contemporary significance. | Low: Habitation structures only account for 1% of the total AHIMS sites in the area. There is low potential that one will be identified within the study area due to the high levels of disturbance. |
| **Aboriginal Ceremony and Dreaming sites** | Such sites are often intangible places and features and are identified through oral histories, ethnohistoric data, or Aboriginal informants. | Low: There are currently no recorded mythological stories for the study area. |
| **Post-contact sites** | These are sites relating to the shared history of Aboriginal and non-Aboriginal people of an area and may include places such as missions, massacre sites, post-contact camp sites and buildings associated with post-contact Aboriginal use. | Low: There are no post-contact sites previously recorded in the study area and historical sources do not identify one. |
| **Aboriginal Places** | Aboriginal Places may not contain any 'archaeological' indicators of a site, but are nonetheless important to Aboriginal people. They may be places of cultural, spiritual or historic significance. Often they are places tied to community history and may include natural features (such as swimming and | Low: There are currently no recorded Aboriginal historical associations for the study area. |

| Site type | Site description | Potential |
|---|---|---|
| | fishing holes), places where Aboriginal political events commenced or particular buildings. | |
| **Quarries** | Raw stone material procurement sites. | Low: There is no record of any quarries being within or surrounding the study area. |
| **Modified trees** | Trees with cultural modifications | Low: Due to extensive vegetation clearance there is low possibility that one will be identified within the study area. |
| **Burials** | Aboriginal burial sites. | Low: Aboriginal burial sites are generally situated within deep, soft sediments, caves or hollow trees. Areas of deep sandy deposits will have the potential for Aboriginal burials. The soil profiles associated with the study area are not commonly associated with burials. |

# 4 Archaeological investigation

An archaeological investigation of the study area was undertaken on 9 April 2025 by Anthea Vella (Team Leader – Heritage (NSW), Biosis), Rhiannon Whitton (Graduate Heritage Consultant, Biosis), and Josh Marr (Cultural Sites Officer, Metropolitan LALC). The survey sampling strategy, methodology and a discussion of results are provided below.

## 4.1 Archaeological survey aims

The principle aims of the survey were to:

- Undertake a systematic survey of the study area targeting areas with the potential for Aboriginal heritage.
- Identify and record Aboriginal archaeological sites visible on the ground surface.
- Identify and record areas of Aboriginal archaeological sensitivity.

## 4.2 Survey methods

The survey was conducted on foot. Recording during the survey followed the archaeological survey requirements of the Code and industry best practice methodology. Information that recorded during the survey included:

- Aboriginal objects or sites present in the study area during the survey.
- Survey coverage.
- Any resources that may have potentially been exploited by Aboriginal people.
- Landform elements, distinguishable areas of land approximately 40m across or with a 20m radius (CSIRO 2009).
- Photographs of the site indicating landform.
- GSV and areas of exposure.
- Observable past or present disturbances to the landscape from human or animal activities.
- Aboriginal artefacts, culturally modified trees or any other Aboriginal sites.

Where possible, the identification of natural soil deposits within the study area was undertaken. Photographs and recording techniques were incorporated into the survey including representative photographs of survey units, landform, vegetation coverage, GSV and the recording of soil information for each survey unit where possible. Any potential Aboriginal objects observed during the survey were documented and photographed.

## 4.3 Constraints to the survey

With any archaeological survey there are several factors that influence the effectiveness (the likelihood of finding sites) of the survey. The factors that contributed most to the effectiveness of the survey within the study area were low levels of exposure and GSV, and the inability to access certain areas on site.

## 4.4 Visibility

In most archaeological reports and guidelines visibility refers to GSV and is usually a percentage estimate of the ground surface that is visible and allowing for the detection of (usually stone) artefacts that may be present on the ground surface (DECCW 2010b). Overall, the study area displayed a lack of GSV (0%). This was mainly due to the well-kept grass across the study area, as well as the presence of disturbances such as driveways, footpaths and the homes themselves (Photo 6, Photo 7, and Photo 8). Spaces with slightly higher GSV were localised to areas of higher foot traffic and spaces protected from the elements (Photo 9).

**Photo 6 Low GSV (0%) in the south-western portion of the study area, facing south-east**

**Photo 7 Low GSV (0%) in the north-central portion of the study area, facing west**

**Photo 8 Low GSV (0%) in the south-eastern portion of the study area, facing south-west**

**Photo 9 Low GSV (0-10%) in the south-western portion of the study area, facing north-west**

## 4.5 Exposure

Exposure differs from visibility in that it is a percentage estimate of the amount of ground surface in which buried artefacts or deposits may be identified rather than a simple observation of the amount of ground surface that is visible (Burke & Smith 2004, DECCW 2010b). Overall, the study area displayed low exposure, typically ranging from 0-10%. This was attributed to the dense grass coverage across majority of the study area and the presence of disturbances. Areas of slightly higher levels of exposure were restricted to spaces where vehicles could access, high foot traffic, and vegetation or disturbance coverage (Photo 10, Photo 11, Photo 12 and Photo 13).

**Photo 10** Area of exposure beside a driveway in the north-western portion of the study area, facing south-east

**Photo 11** Area of exposure in a driveway in the south-western portion of the study area, facing north-west

**Photo 12** **Area of exposure beneath vegetation and in a walkway in the central portion of the study area, facing north-west**

**Photo 13** **Area of exposure beneath a trampoline in north-eastern portion of the study area, facing north-east**

## 4.6 Disturbances

Disturbances are typically associated with natural and human agents. Natural agents generally affect small areas and include the burrowing and scratching in soil by animals, such as wombats, foxes, rabbits and wallabies, and sometimes exposure from slumping or scouring. Human agents often affect larger areas and are associated with landform modification through bulk earthworks, development of infrastructure and agricultural practices,

The disturbances present within the study area are largely associated with human action and cover large sections of the land surface. This includes development associated with the construction of residential dwellings. This involves, vegetation removal; landscaping and land modification which includes bulk earthworks; installing of services lines (gas, water, drainage etc.); construction of recreational areas such as pools and tennis courts; and the construction of the residential buildings themselves (Photo 14, Photo 15, Photo 16, Photo 17, and Photo 18). These developments would have greatly impacted any archaeological material present in the study area.

**Photo 14 One of the original homes built on Beaconsfield Parade, visible in 1943 imagery, facing north-west**

**Photo 15 One of several pools built across the study area, facing north-east**

**Photo 16 An example of land cutaway in the south-central portion of the study area, facing east**

**Photo 17** Another example of land cutaway in the north-eastern portion of the study area, facing south-east

**Photo 18** Several disturbances (house, above ground pool, land modification) in the north-eastern portion of the study area, facing south-east

## 4.7 Investigation results and discussion

The archaeological investigation consisted of a total of three meandering transects walked across most of the study area. The results of the field investigation have been summarised below and transect locations are provided in Figure 8.

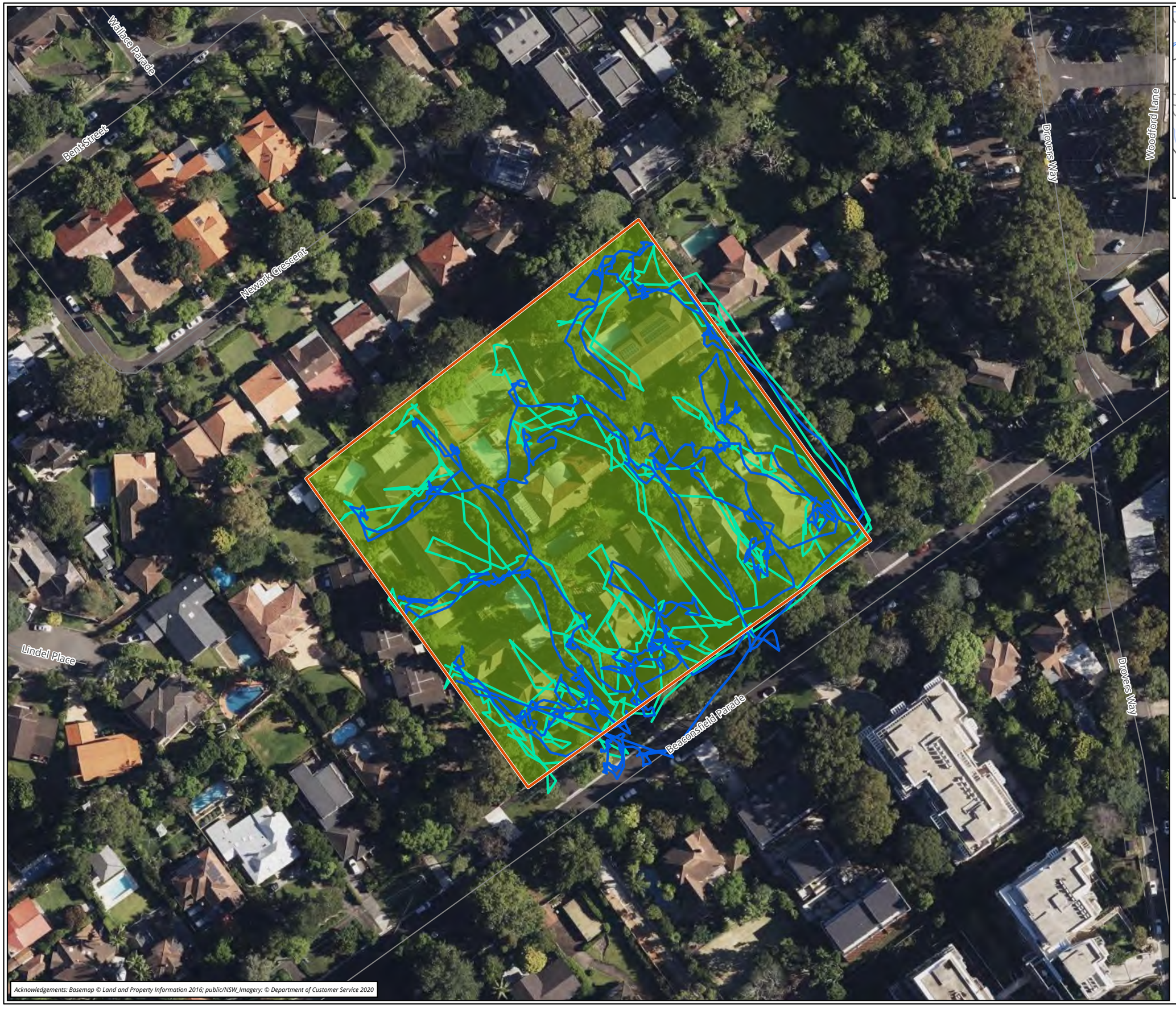
Background research identified that the study area is characterised by the Glenorie soil landscape. Glenorie soils are erosional in nature, which means they comprise soils that are generally subject to movement of shallow soils, which can result is poor preservation of the archaeological record. Additionally, when the land is cleared of vegetation, the soils can be subjected to more extensive levels of erosion. The study area has undergone extensive development through the construction of several residential dwellings which are present in historical aerials as early as 1943, indicating that archaeological material which may have been present likely would have been impacted. A search of the AHIMS register identified that artefact sites were most likely to be identified within the region.

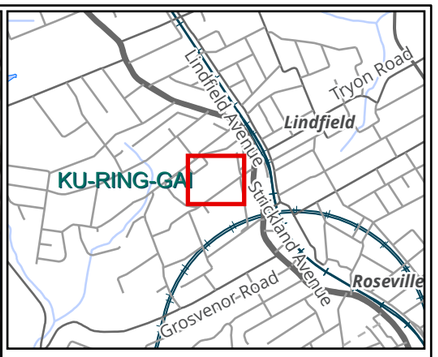
The closest water source to the study area is Little Blue Gum Creek, a first-order, non-perennial, natural watercourse, located approximately 300 metres west of the study area. Little Blue Gum Creek is a tributary of the Lane Cove River, located approximately 1.7 kilometres south-west of the study area, which is the closest perennial water source in the locality. The distance from permanent water sources indicates that the study area was more likely to have been used by Aboriginal groups for transitory purposes rather than occupational purposes. Predictive models which have been developed in the region have a tendency to favour high-order streams as the locations of campsites as they would have been more likely to provide a stable source of water and by extension other resources which would have been used by Aboriginal groups.

Previous assessments have identified a variety of Aboriginal sites throughout the local area including PADs, shell middens, shelters and artefact sites (Conyers 1990, Corkill 1991, HLA-Envirosciences 2003, Artefact Heritage 2011). Local investigations have also recognised that areas which have undergone significant disturbance are less likely to contain archaeological material (Evans 1981, Artefact Heritage 2014, Biosis 2019, Biosis 2020b, Biosis 2023a).

Topographically, the study area is located on a simple slope landform, increasing 8 metres in elevation from north-west to south-east. While the landforms and resources available indicate that Aboriginal groups may have utilised some portions of the study area for transitional purposes, the levels of disturbance suggest that any archaeological evidence is likely to have been destroyed, which is supported by historical aerials.

During the archaeological investigation, no Aboriginal sites or objects were identified, and it has been determined that there the study area has low potential to contain archaeological material. It was recommended by Josh Marr from Metropolitan LALC that a representative from the LALC be present during any works of a subsurface nature to advise and mitigate harm to any potential unanticipated archaeological material.




**Legend**

Study area

**Survey tracks**

Track 1

Track 2

**Archaeological potential**

Low



**Figure 8 Survey results and coverage**

0 8 16 24 32 40

Metres

Scale: 1:1,000 @ A3

*Coordinate System: GDA2020 MGA Zone 56*

N

biosis

APEM Group

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# 5 Conclusions and recommendations

## 5.1 Conclusions

This assessment has determined that the study area has low potential to contain archaeological material based mainly on the levels of disturbances that may have destroyed or removed any potential Aboriginal deposits. The result of this assessment is also demonstrated in the Due Diligence Flow Chart (Figure 9).

## 5.2 Recommendations

The following management recommendations have been developed relevant to the study area and influenced by:

- Predicted impacts to Aboriginal cultural heritage.
- The planning approvals framework.
- Current best conservation practise, widely considered to include:
  - Ethos of The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance, 2013 (the Burra Charter).
  - The Code.

Prior to any impacts occurring within the study area, the following is recommended:

### Recommendation 1: No further archaeological assessment is required

No further archaeological work is required due to the entire study area assessed as having low archaeological potential.

### Recommendation 2: Discovery of Unanticipated Aboriginal Objects

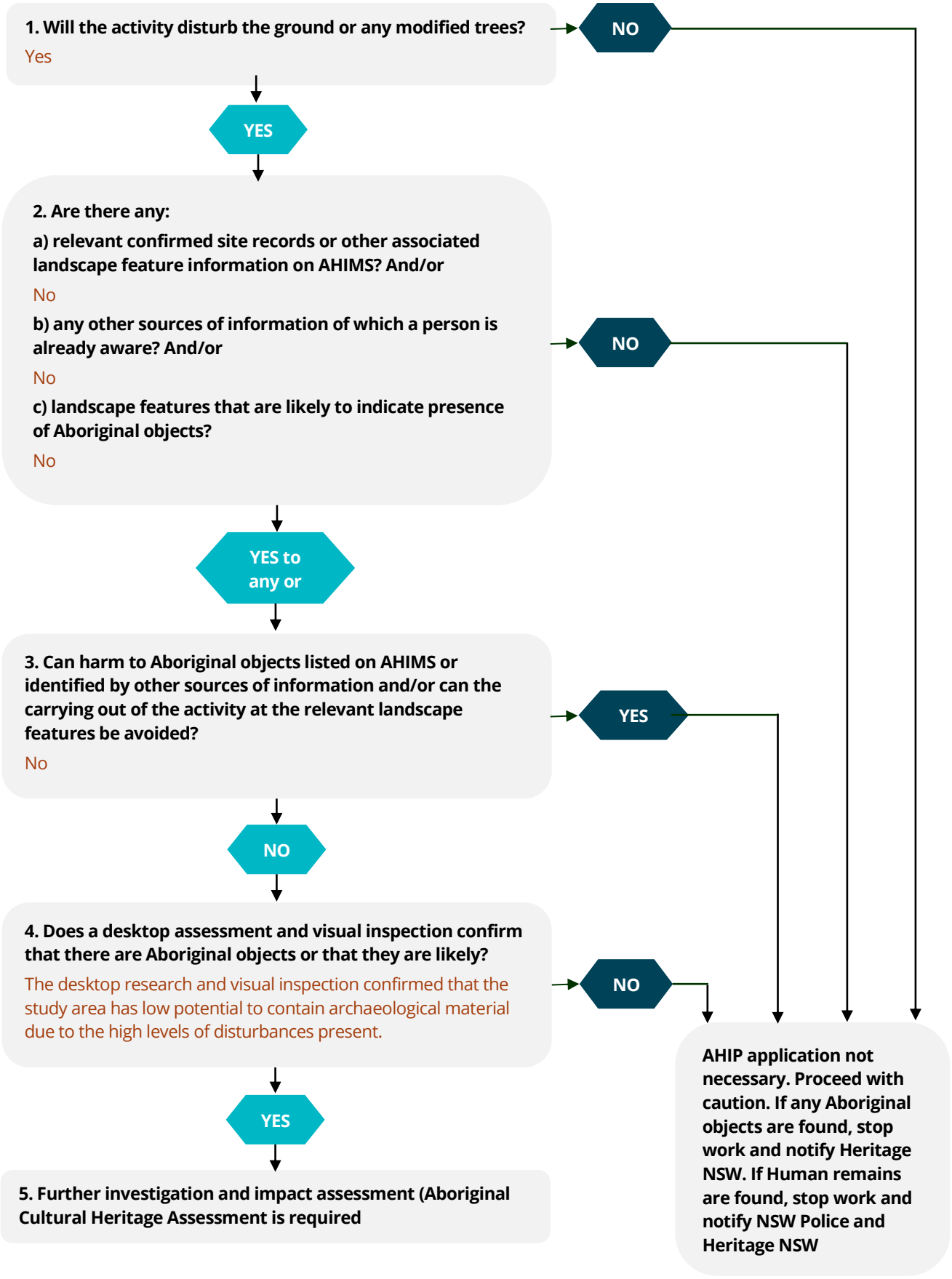
All Aboriginal objects and Places are protected under the NPW Act. It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by Heritage NSW. Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object, the archaeologist will provide further recommendations. These may include notifying Heritage NSW and Aboriginal stakeholders.

### Recommendation 3: Discovery of Aboriginal Ancestral Remains

Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity, you must:

1. Immediately cease all work at that location and not further move or disturb the remains.
2. Notify the NSW Police and Heritage NSW' Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
3. Not recommence work at that location unless authorised in writing by Heritage NSW.

## Figure 9 Due diligence flow chart



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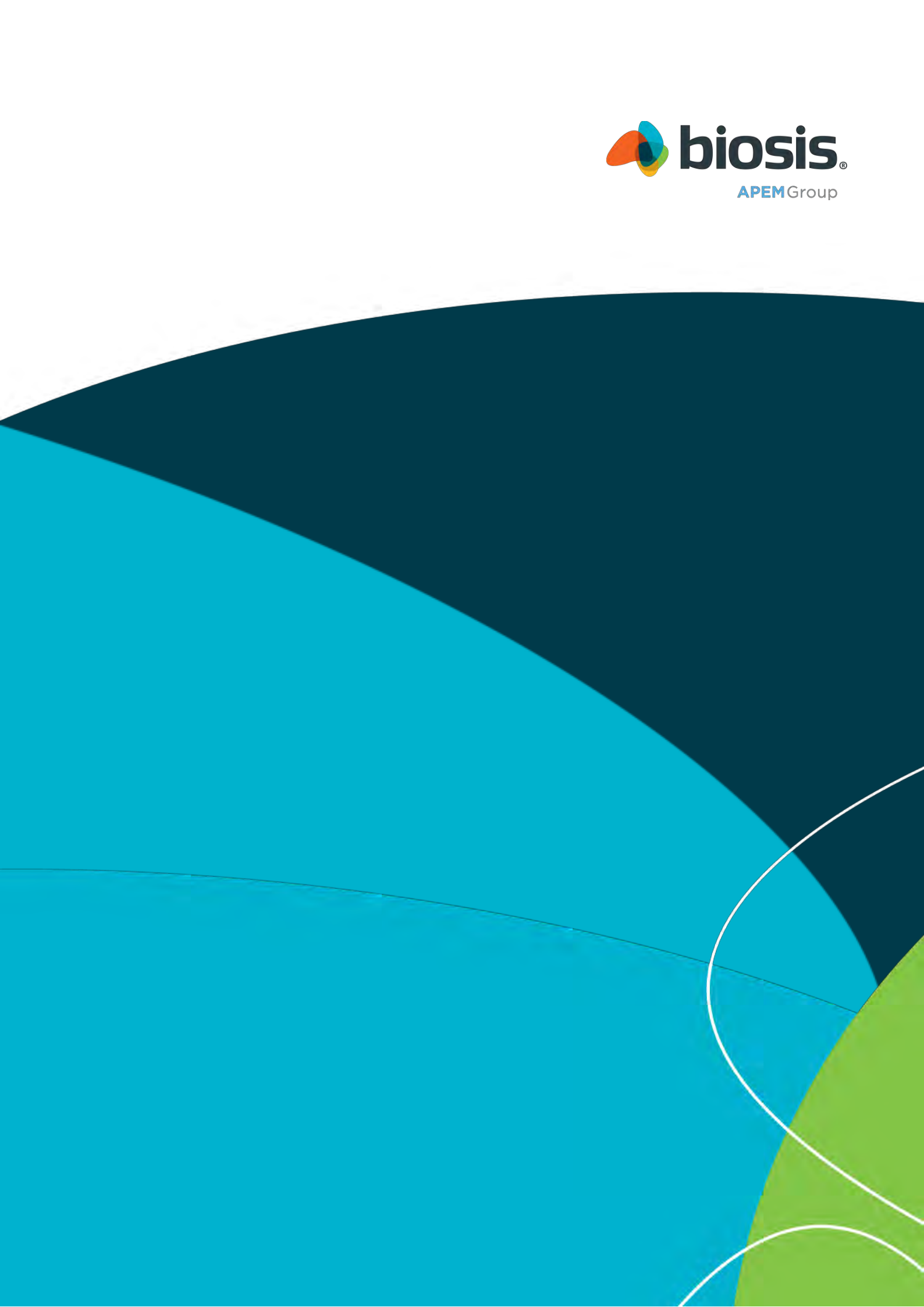
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