



Technical Paper 6

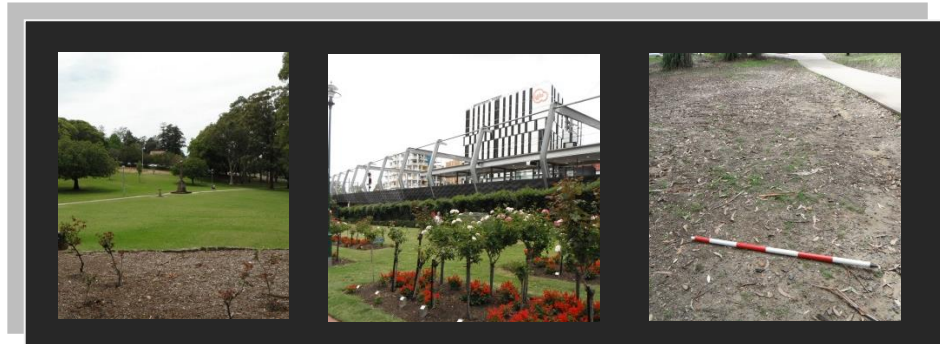
Aboriginal archaeological impact assessment



Lindfield Substation

Aboriginal heritage due diligence assessment

July 2014



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Executive Summary

Artefact Heritage has been commissioned by Parsons Brinckerhoff to conduct an Aboriginal Heritage Due Diligence Assessment for the construction of a proposed traction power substation at a site in Lindfield in Sydney, NSW and ancillary electrical works, generally between Killara Station and the Clanville Road overbridge.

This assessment of Aboriginal heritage for the Lindfield substation and associated electrical works study area found that:

- There are no previously recorded Aboriginal sites within the study area.
- The study area has been heavily modified with high levels of ground disturbance.
- The study area has a low Aboriginal archaeological sensitivity.

Following the results of this due diligence assessment, it is recommended that:

- No further archaeological investigation is required within the study area.
- If suspected Aboriginal objects are located during construction, an archaeologist would be notified to assess the nature and significance of the find. The NSW Office of Environment and Heritage (OEH) and the Metropolitan Local Aboriginal Land Council (MLALC) would be notified if the find is an Aboriginal object. Further investigation and permits may then be required before works commence.
- If suspected human skeletal remains were uncovered at any time within the study area all excavation activity in the vicinity of the remains would cease, the NSW Police and OEH would be notified and there would be no recommencement of activity in the vicinity of the remains unless authorised in writing by OEH.



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1.0 Introduction and background

1.1 Background

The NSW Government has developed a plan to transform and modernise Sydney's rail network so that it can grow with the city's population and meet the needs of customers into the future. The NSW Government has identified that Sydney's rail system is reaching the limits of its capacity.

In future, Sydney Trains (formerly RailCorp) intends to operate increasing train services on the North Shore Line. A new traction power substation is required to allow for an increase in the capacity along the North Shore Line to cater for these additional train services to be run and will support the delivery of the North West Rail Link. Therefore, a new substation is proposed to be constructed at Lindfield to supply the North Shore Line. The proposal also includes ancillary electrical works generally between Killara Station and the Clanville Road overbridge, Lindfield.

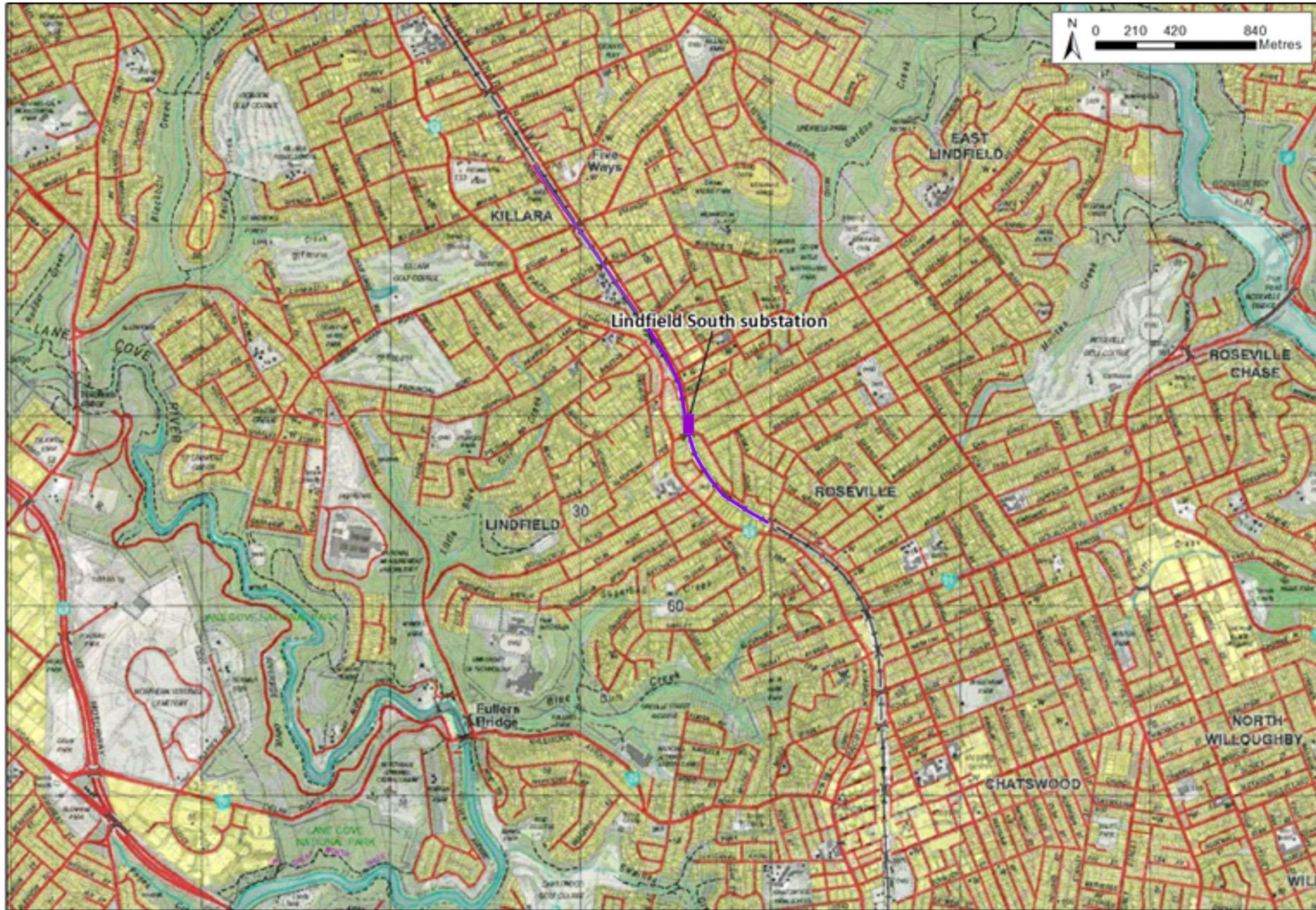
1.2 The study area

The substation site (where the substation will be constructed) is located on Lindfield Avenue at the intersection with Strickland Avenue in Lindfield, approximately 300 metres to the south of the Lindfield Railway Station. The site is located within the existing rail corridor, between the North Shore Line up-track (i.e. travelling towards the Sydney central business district (CBD)) and Lindfield Avenue. In addition, the study area comprises areas of ancillary electrical works, including the installation of aerial earth wires to existing power poles generally between Killara Station and Russell Avenue, Lindfield, and the realignment of existing overhead wiring generally between Russell Avenue and the Clanville Road overbridge, Lindfield (Figure 1).

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Figure 1: The area of proposed impact shown in purple. Base map SIX Maps.





1.3 The proposal

The proposal is for the construction and ongoing use of a substation at a site in Lindfield and associated electrical works between Killara Station and the Clanville Road overbridge (Figures 2 and 3). The key features of the proposal are listed below.

- Construction and operation of a new traction power substation at Lindfield in order to continue to power the Sydney Trains network (in particular the North Shore Line). Components of the substation would generally include:
 - Construction of two new rectifier transformers
 - Installation of switchgear room containing switchgear and switchboards, batteries and changers, voice and data communications equipment
 - Installation of the rectifier and reactor unit(s)
 - Office and associated facilities
 - Earthworks and construction of a retaining wall on the western side of the substation site, adjacent to the rail line
- Construction of a new driveway access to the proposed substation site from Lindfield Avenue and a paved surface area for car parking for approximately four vehicles within the proposed substation compound
- Security and permanent maintenance lighting within and external to the building
- Landscaping and vegetation surrounding the proposed substation building, generally to the east and south of the substation
- Realignment of the existing 33 kilovolt (kV) and 11 kV overhead wiring (OHW) to a new combined services route (CSR), generally between power pole P57 (to the south of Lindfield Station near the intersection with Russell Avenue) and power pole P49 (to the north of the Clanville Road overbridge)
- Relocation and installation of signalling and communication cable to the substation to connect with existing cables along the North Shore Railway Line
- Installation of feeder and return cabling to the OHW system on the North Shore Line
- Installation of an aerial earth wire to the top of the existing (Sydney Trains) poles, generally between Russell Avenue, Lindfield and Killara Station
- Relocation of street lighting and power routes to provide access to the substation for construction and maintenance.

Minor enabling works are expected to be undertaken in late 2014. Service relocation will commence in mid-2015 with construction of the substation expected to commence in early 2016, with testing and commissioning anticipated in August 2017. The substation site is expected to be handed over to Sydney Trains in late 2017.



1.4 Aims of this study

The aim of this due diligence assessment of Aboriginal heritage is to:

- Describe the proposal.
- Discuss the environmental context of the proposal.
- Discuss the Aboriginal historical and archaeological context of the locality.
- Identify known Aboriginal sites in the vicinity of the proposal.
- Develop an archaeological predictive model.
- Describe the results of the preliminary field inspection conducted within the proposal area.
- Outline the high level archaeological sensitivity of the study area, including areas that are likely to contain un-recorded Aboriginal objects.
- Recommend whether further investigation or heritage management and mitigation measures are required within the proposal area.

1.5 Report authorship

This report was prepared by Josh Symons, Senior Archaeologist, with contributions from Archaeologist Jenny Winnett and management input from Dr Sandra Wallace, Principal Archaeologist at Artefact Heritage.

1.6 Report limitations

Preparation of this report did not involve consultation with Aboriginal stakeholders.

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Figure 2: The northernmost extent of the study area.



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Figure 3: The southernmost extent of the study area





2.0 Statutory context

2.1 Aboriginal heritage legislation

This study has been undertaken in the context of several items of legislation that relate to Aboriginal heritage and its protection in New South Wales (NSW).

2.1.1 National Parks and Wildlife Act (1974)

The (NSW) *National Parks & Wildlife Act 1974*, administered by the OEH provides statutory protection for all Aboriginal 'objects' (consisting of any material evidence of the Aboriginal occupation of NSW) under Section 90 of the Act, and for 'Aboriginal Places' (areas of cultural significance to the Aboriginal community) under Section 84.

The protection provided to Aboriginal objects applies irrespective of the level of their significance or issues of land tenure. However, areas are only gazetted as Aboriginal Places if the Minister is satisfied that sufficient evidence exists to demonstrate that the location was and/or is, of special significance to Aboriginal culture.

The Act was recently amended (2010) and as a result the legislative structure for seeking permission to impact on heritage items has changed. An s.90 permit is now the only Aboriginal Heritage Impact Permit (AHIP) available and is granted by the OEH. Various factors are considered by OEH in the AHIP application process, such as site significance, Aboriginal consultation requirements, Ecologically Sustainable Development (ESD) principles, project justification and consideration of alternatives. The penalties and fines for damaging or defacing an Aboriginal object have also increased.

Under the amendments to the Act, the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* was introduced in October 2010 by the OEH (formerly the Department of Environment, Climate Change and Water). The aim of the guidelines is to assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for consent in the form of AHIP.

A due diligence assessment should take reasonable and practicable steps to ascertain whether there is a likelihood that Aboriginal sites will be disturbed or impacted during the proposed development. If it is assessed that sites exist or have a likelihood of existing within the development area and may be impacted by the proposed development, further archaeological investigations may be required along with an AHIP. If it is found to be unlikely that Aboriginal sites exist within the study area and the due diligence assessment has been conducted according to the Code of Practice, work may proceed without an AHIP.



2.1.2 Aboriginal Land Rights Act (1983)

The (NSW) *Aboriginal Land Rights Act 1983* is administered by the NSW Department of Education and Communities - Aboriginal Affairs. This Act established Aboriginal Land Councils (at State and Local levels). These bodies have a statutory obligation under the Act to; (a) take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law, and (b) promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area.

The study area is within the Metropolitan Local Aboriginal Land Council (MLALC) boundary.

2.1.3 Native Title Act (1994)

The (NSW) *Native Title Act 1994* was introduced to work in conjunction with the (Commonwealth) *Native Title Act 1993*. Native Title claims, registers and Indigenous Land Use Agreements are administered under the Act.

3.0 Background Context

An understanding of the environmental context of the study area assists in assessing the potential nature of Aboriginal archaeological sites and possible land use strategies of Aboriginal people.

3.1 Geology and soils

The study area is located within the broad sandstone plateau of the Sydney Basin. The sandstone geology is overlaid on the broader portions of the ridge crest landforms by Ashfield Shale. Soils across the gently sloping crest landforms would largely be residual in nature, with some colluvial movement on slopes and fluvial deposition associated with watercourses.

3.2 Vegetation

The study area would originally have been vegetated Sandstone Ridgetop Woodland, Sydney Turpentine Ironbark Forest, and Western Sandstone Gully Forest, as indicated by some remnant stands of trees. Tree species would have included Smooth-barked Apple (*Angophora costata*), Scribbly Gum (*Eucalyptus haemastoma*), Turpentine (*Syncarpia glomulifera*), Grey Gum (*Eucalyptus punctata*), Grey Ironbark (*Eucalyptus acmenoides*), and Blackbutt (*Eucalyptus pilularis*). The understory would have primarily consisted of shrubs such as Banksia and grass and fern species.

3.3 Post-European colonisation and land-use history

The focus of the suburb of Lindfield was originally on the Lane Cove River where a government convict timber-getting camp was established around 1810, known as the Lane Cove Sawing Establishment. The convict camp located at the river end of what is now Fiddens Wharf Road may have been established as early as 1805.¹ The timber was transported to the river and floated down to Sydney.

The study area was part of a grant of 400 acres made to Daniel Dering Mathew in 1819. The original grant covered the area from the Pacific Highway to Archbold Road, and from Boundary Street north to Tryon Road. Mathews named the area the Clanville Estate. Around 1830 Mathew sold the estate to Richard Archbold, his neighbour to the south. Archbold worked the estate for its timber and then planted the land with fruit trees. After Archbold's death in 1836 the farm was worked by his wife, Mary, using convict labourers, until her death in 1850.

On Mary's death the estate was divided between the Archbold children, Richard and Gerald. The study area is located in the northern estate of Richard Archbold, the eldest son. The timber and fruit of the Archbold estates had to be transported to Sydney for sale, and was taken to the Lane Cove River down a track known for a time as Dick's Road (now Grosvenor Road).

¹. 'Lindfield' accessed online from the KU-Ring-Gai Historical Society <http://www.khs.org.au/local/lindfield.html>, 19/12/2013.



The Clanville Estate was one of the last in the area to be substantially subdivided. In 1893 and 1894 the estate underwent a series of subdivisions throughout the late 19th and early 20th centuries, with the area increasing in popularity with the establishment of the North Shore railway line in the early 1890s. This subdivision pattern continues to be reflected in the layout of the suburb of Lindfield, and the area immediately surrounding the study area, to the present day.

4.0 Aboriginal Historical and Archaeological Context

4.1 Aboriginal material culture

Aboriginal people have lived in NSW for more than 50,000 years. Evidence of Aboriginal occupation has been found dated to 40-60,000 years before present (yBP) at Lake Mungo in south western NSW and basal dates of over 14,000 years have been recorded within the Sydney basin (Nanson and Young 1987; JMcDCHM 2005a). The archaeological material record provides evidence of this long occupation, but also provides evidence of a dynamic culture that has changed through time.

The existing archaeological record is limited to certain materials and objects that were able to withstand degradation and decay. As a result, the most common type of Aboriginal objects remaining in the archaeological record are stone artefacts. Archaeological analyses of these artefacts in their contexts have provided the basis for the interpretation of change in material culture over time. Technologies used for making tools changed, along with preference of raw material. Different types of tools appeared at certain times, for example ground stone hatchets are first observed in the archaeological record around 4,000 yBP in NSW (Attenbrow 2010:102). It is argued that these changes in material culture were an indication of changes in social organisation and behaviour.

The Eastern Regional Sequence was first developed by McCarthy in 1948 to explain the typological differences he was seeing in stone tool technology in different stratigraphic levels during excavations such as Lapstone Creek near the foot of the Blue Mountains (McCarthy 1948). The sequence had three phases that corresponded to different technologies and tool types (the Capertian, Bondaian and Eloueran). The categories have been refined through the interpretation of further excavation data and radiocarbon dates (Hiscock & Attenbrow 2005, JMcDCHM 2005b).

It is now thought that prior to 8,500 yBP tool technology remained fairly static with a preference for silicified tuff, quartz and some unheated silcrete. Bipolar flaking was rare with unifacial flaking predominant. No backed artefacts have been found of this antiquity. After 8,500 yBP silcrete was more dominant as a raw material, and bifacial flaking became the most common technique for tool manufacture. From about 4,000 yBP to 1,000 yBP backed artefacts appear more frequently. Tool manufacture techniques become more complex and bipolar flaking increases (JMcD CHM 2006). It has been argued that from 1,400 to 1,000 years before contact there is evidence of a decline in tool manufacture. This reduction may be the result of decreased tool making, an increase in the use of organic materials, changes in the way tools were made, or changes in what types of tools were preferred (Attenbrow 2010:102). The reduction in evidence coincides with the reduction in frequency of backed blades as a percentage of the assemblage.



4.2 Aboriginal histories of the locality

Prior to the appropriation of their land by Europeans, Aboriginal people lived in small family or clan groups that were associated with particular territories or places. It seems that territorial boundaries were fairly fluid, although details are not known. The language group spoken on the Cumberland Plain is known as Darug (Dharruk – alternative spelling). This term was used for the first time in 1900 (Matthews & Everitt) as before the late 1800s language groups or dialects were not discussed in the literature (Attenbrow 2010:31). The Darug language group is thought to have extended from Appin in the south to the Hawkesbury River, west of the Georges River, Parramatta, the Lane Cove River and to Berowra Creek (Attenbrow 2010:34). This area was home to a number of different clan groups throughout the Cumberland Plain.

The study area is within the territory of the Wallumedegal (or Wallumattagal) clan. The exact boundaries of the territory are not known, and may have been fluid, but the Wallumedegal area is thought to have extended around Sydney Harbour from Lane Cove along the northern bank of the Parramatta River (Smith 2005: 1, Attenbrow 2010: 23).

European appropriation of Wallumedegal territory occurred very early in the colonization period. Boats were sent along the harbour up the Lane Cove and Parramatta Rivers within days of the arrival of the First Fleet. Numerous overland parties quickly arrived to explore the potential of land surrounding the harbour. Information about the way that Aboriginal people lived before white settlement can be gained from observations of these early parties of explorers.

Lieutenant William Bradley wrote on his observations of Aboriginal people during an expedition up the Lane Cove River in February 1788. He noted that Aborigines were plying the river in canoes, but it is not known what their activities were.

‘We did not meet with any Natives again ‘till this day, at day light saw several canoes in the Cove we were surveying; they all fled, some out of the Cove and others up to a Cove above’ (Bradley 1969: 74)’

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’ (Smith 2005:1 quoting Philip).

In May 1788 Surgeon George Worgan described the landscape of Wallumedegal country. He describes ‘ the trees are small and grow in almost regular rows so that together with the evenness of the land to a considerable extent it resembles a beautiful park’ (Worgan quoted in Smith 2005:11).



Aboriginal people through selective use of fire had shaped the countryside described. This 'fire stick farming' was designed to modify the landscape to attract game, which was seen to be plentiful and to is said to have supported a pre-contact population of approximately 3000-5000 people in the Sydney region. The small pox epidemic of 1789 had a profound effect on the population of the Sydney region, and would have decimated groups in the Ryde area. From 1790 any Aboriginal people remaining in the Ryde area would have been further disenfranchised, as convicts were moved in to harvest the timber and lime resources of the area.

4.3 OEH AHIMS site register

An extensive search of the OEH Aboriginal Heritage Information Management System (AHIMS) database was conducted on 2 December 2013 for sites registered within the following coordinates:

| | |
|------------------|----------------------|
| GDA94 MGA 56 | 321000E to 333000E |
| | 6258000N to 6263000N |
| Buffer: | 50 metres |
| Number of sites: | 70 |
| AHIMS Search ID: | 118366 |

The location of Aboriginal sites is considered culturally sensitive information therefore the AHIMS data appearing on heritage maps for the proposal has been removed from this report as it is to enter the public domain (Figure 4).

70 sites were located within the AHIMS search area, however no recorded Aboriginal sites are located within the study area.

The most frequently recorded Aboriginal site types within the AHIMS search area include art sites (pigment or engraved) (n=19), artefact sites (n=17), and midden sites (n=15). Other site types identified in the area include potential archaeological deposit (PAD), grinding grooves, and habitation structures.

Of the 70 sites recorded within the AHIMS search area, 36 are listed as closed sites and 34 as open sites. A closed site context indicates the site is located within a shelter or overhang, formations which occur amongst suitable outcropping sandstone in the local area. Site types within shelter formations include midden and/or stone artefacts within the floor deposit, pigment or charcoal art on shelter walls, and engravings and/or grinding grooves. Open site contexts indicate site types that have not been identified in a shelter formation, and can include artefact and midden sites.

The variety of site types in the local context, and their association with both open and closed site contexts, demonstrates the variability of Aboriginal settlement history of the area, and the use of subsistence resources from the local watercourses and use of sandstone shelter formations.

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Figure 4: OEH AHIMS extensive search (Background © Google 2013 and © NSW LPI) Study area shown in blue.

Figure removed for public version



4.4 Archaeological context

There have been a number of archaeological investigations in the local area, especially along the banks of the Lane Cove River, and in the Lane Cove National Park to the north of the proposal area.

During an archaeological survey along the route of the F2 [now M2]-Castlereagh Freeway in 1989 Laila Haglund located two rock shelters with deposit less than a kilometre to the southeast of the current study area. Both shelters (AHIMS #45-6-1855 and AHIMS #45-6-1854) contained middens with oyster and whelk shell recorded, while the latter also had possible remnants of stencil art along the back wall.

In 1990 Conyers conducted a comprehensive survey of the Lane Cove River State Recreation Area (SRA), now known as Lane Cove National Park. Approximately one third of the SRA was surveyed during a twelve-day survey. Seven previously unrecorded Aboriginal sites were located - two engraving sites, two middens, and three rock shelters with deposit. Five potential habitation sites were also recorded along with three engraving sites which had previously been recorded.

In 1995 Wirrima Consulting conducted a survey for Aboriginal sites for the widening of Delhi Rd, Ryde by the RTA. A rock shelter with midden (AHIMS #45-6-2211), which was first recorded by Conyers, was relocated.

In 1997 Tessa Corkhill conducted an excavation of a rock shelter with potential archaeological deposit (CSIRO PAD1) at Riverside Corporate Park, approximately one kilometre to the east of the current study area. The PAD was first located in 1991 and it was recommended at that time that further investigation would be required if the site was to be affected by development. Ten test pits were excavated to bedrock at depths varying from 47 cm to 18 cm. Fourteen stone artefacts were recovered although the deposit was found to be relatively disturbed with evidence of European material throughout much of the profile.

In 2000 Bobbie Oakley completed a survey for a proposed sewerage upgrade within Lane Cove National Park. Two new Aboriginal sites were located in the southern portion of the National Park. Both new sites (LCRM1 and LCRM2) are shell midden scatters and associated areas of potential archaeological deposit (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.

The route of the proposed M2 upgrade was investigated by AECOM in 2009/2010. The route was from Lane Cove Road in North Ryde, to Windsor Road at Baulkham Hills. Fifteen Aboriginal sites were found or previously recorded within the M2 corridor. The only site within the vicinity of the current North Ryde Station Precinct project study area was a rock shelter with deposit, site AHIMS #45-6-1953. After obtaining the original site card, AECOM concluded that the co-ordinates of the site as listed on AHIMS were in error and the site was actually located to the south of the M2 corridor.



In 2011 Artefact Heritage conducted a survey of an area along the northern edge of Stringybark Creek in Lane Cove West, approximately 1.3 km southeast 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 (2012a) prepared an archaeological assessment of the North Ryde Station Precinct for a rezoning study. The study area for that investigation incorporated a large portion of the current proposal area, including the area around the current North Ryde station entrance. The investigation concluded that there were no recorded Aboriginal objects within the Precinct and that overall limited archaeological potential. The study area was assessed as demonstrating low archaeological significance.

Archaeological investigations conducted for the NWRL included an initial assessment of an earlier version of the proposed NWRL corridor by JMcD CHM (2006) and a later Aboriginal heritage assessment as part of the Environmental Impact Statement (EIS) prepared for NWRL major civil construction works (GML + JMcD CHM 2012).

The assessment prepared by JMcD CHM (2006) identified the rail corridor between Epping and Beecroft train stations as demonstrating low archaeological sensitivity. The areas around Epping Station investigated for the EIS, including Construction Sites 1 and 2 (Decline and Epping services facility), were described as disturbed with a high level of surface impact and no potential for Aboriginal heritage (GML + JMcD CHM 2012: 59). Construction Sites 1 and 2 are located to the north of the proposal area buffer zone around Epping Station for the current assessment.

An Aboriginal cultural heritage assessment prepared by Artefact Heritage (2012b) for the Epping to Thornleigh Third Track Project (ETTT) did not identify any Aboriginal sites and concluded that the entire rail easement between Epping and Thornleigh demonstrated low/ no archaeological potential.

5.0 Predictions

5.1 Aboriginal land use

Assumptions about Aboriginal land use patterns are made on the basis of archaeological information gained from the local area, from observations made by Europeans after settlement of the area, and from information known about available natural resources.

As Aboriginal people were mobile hunter-gatherers, it would be likely that they moved across the landscape between resources. It would also be likely that movement was related to socio/cultural factors such as gatherings and ceremonial obligations. Campsites would have provided temporary residences such as bark structures. It is difficult to ascertain whether a campsite existed at a given location, but correlations between stone artefact density and campsites are often assumed. While it would be likely that knapping would have occurred at a campsite, it would also be likely that knapping would have occurred during movement across the landscape, as tools were prepared or repaired during hunting and gathering activities.

Archaeological data gathered in the locality suggests that artefacts would be found across the landscape in varying densities, and sites associated with the retrieval of naturally occurring mudstone raw material from river gravels may occur.

5.2 Predictive model

Archaeological data gathered in the locality has demonstrated the widespread and varying use of the area by Aboriginal people. This predictive model comprises a series of statements about the nature and distribution of evidence of Aboriginal land use that is expected in the study area. These statements are based on information gathered regarding the following:

- Landscape context and landform units.
- Ethno-historical evidence of Aboriginal land use.
- Distribution of natural resources.
- Results of previous archaeological work in the vicinity of the study area.
- Predictive modelling from previous investigations.

5.2.1 Predictive statement

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

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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.

6.0 Site Inspection

6.1 Site definition

An Aboriginal site is generally defined as an Aboriginal object or place. An Aboriginal object is the material evidence of Aboriginal land use, such as stone tools, scarred trees or rock art. Some sites or Aboriginal places can also be intangible and although they might not be visible, these places have cultural significance to Aboriginal people.

The OEH Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW guidelines state in regard to site definition that one or more of the following criteria must be used when recording material traces of Aboriginal land use:

- The spatial extent of the visible objects, or direct evidence of their location.
- Obvious physical boundaries where present, e.g. Mound site and middens (if visibility is good), a ceremonial ground.
- Identification by the Aboriginal community on the basis of cultural information.

For the purposes of this study, an Aboriginal site was defined by the recording the spatial extent of visible traces or the direct evidence of their location.

6.2 Results

A site inspection was undertaken by Senior Heritage Consultant Jenny Winnett on 20 March 2014 with an additional site inspection of the areas to be impacted by the ancillary electrical works undertaken on 24 June 2014.

The site of the proposed substation was found to be highly disturbed with extensive ground level modification evident (Figure 5). The cut and fill across the site of the proposed substation has occurred as a result of the construction of the adjacent railway line and Middle Harbour Road.

The study area to the north of the substation site is primarily adjacent to Werona Avenue, or within the rail corridor. This section of the study area was found to be highly disturbed and no areas of archaeological potential were identified.

The study area to the south of the substation site is located along the eastern side of the rail corridor. The majority of this section of the study area was found to be highly disturbed. A small section of the study area between power poles P50 and P51 appeared to be less disturbed and may contain remnant landform (Figure 3). This area did not exhibit any evidence for Aboriginal archaeological potential as it is not within the vicinity of permanent water and did not include a sensitive landform unit.

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Figure 5: Views into the proposed Lindfield substation site. Artefact Heritage 2013.



7.0 Discussion

7.1 Archaeological sensitivity

The archaeological sensitivity of the study area was found to be low due to high levels of ground disturbance and modification.

7.2 Impact assessment

The aim of this due diligence assessment is to assess whether any Aboriginal objects or areas of archaeological potential are located within the study areas, to assess whether any Aboriginal objects or areas of archaeological potential are likely to be impacted by the proposal, and if so to recommend whether further investigation is required.

As the study area has been found to be of low archaeological sensitivity there are unlikely to be impacts to Aboriginal heritage values as a result of the proposal.

7.3 Unexpected finds procedure

If suspected Aboriginal objects are located during construction, an archaeologist would be notified to assess the nature and significance of the find. If the find is an Aboriginal object, further investigation and permits may be required before works commence. If the find is an Aboriginal object OEH and the MLALC would be notified.

If suspected human skeletal remains were uncovered at any time within the study area, the following actions would need to be followed:

- Immediately cease all excavation activity in the vicinity of the remains.
- Notify NSW Police.
- Notify OEH via the Environment Line on 131 555 to provide details of the remains and their location, and
- No recommencement of activity in the vicinity of the remains unless authorised in writing by OEH.



8.0 Conclusions and recommendations

This assessment of Aboriginal heritage for the study area (which includes the Lindfield substation site and ancillary electrical works between Killara Station and the Clanville Road overbridge) found that:

- There are no previously recorded Aboriginal sites within the study area.
- The study area has been heavily modified with high levels of ground disturbance.
- The study area has a low Aboriginal archaeological sensitivity.

Following the results of this due diligence assessment, it is recommended that:

- No further archaeological investigation is required within the study area.
- If suspected Aboriginal objects are located during construction, an archaeologist would be notified to assess the nature and significance of the find. The OEH and the MLALC would be notified if the find is an Aboriginal object. Further investigation and permits may then be required before works commence.
- If suspected human skeletal remains were uncovered at any time within the study area all excavation activity in the vicinity of the remains would cease, the NSW Police and OEH would be notified and there would be no recommencement of activity in the vicinity of the remains unless authorised in writing by OEH.

9.0 References

- AECOM (2010) *M2 Upgrade Project – Preliminary Aboriginal Heritage Assessment*. Report to Leighton Contractors
- Artefact Heritage (2011) *150 Epping Rd, Lane Cove West–Heritage Study Aboriginal Cultural Heritage Assessment and Assessment of non-Indigenous heritage for a Concept Plan application*. Report to Rose Group.
- Artefact Heritage (2012a). *North Ryde Station Precinct Rezoning Study*. Report to Transport for NSW.
- Artefact Heritage (2012b). *Northern Sydney Freight Corridor: Epping to Thornleigh Third Track Project*. Report to Parson Brinckerhoff.
- Attenbrow, V. (2010) *Sydney's Aboriginal Past: Investigating the archaeological and historical records*. UNSW Press.
- Bradley (1969) *A Voyage to New South Wales. The Journal of Lieutenant William Bradley RN of HMS Sirius 1786-1792*.
- Collins, D. 1798. (1975). *An Account of the English Colony of New South Wales, Volume 1*, edited by B.H. Fletcher, A.H. & A.W. Reed in association with the Royal Australian Historical Society, Terry Hills, NSW.
- Corkill, T. (1997) *Test Excavation of Rockshelter, CSIRO PAD 1, site 2 Riverside Corporate Park, North Ryde, NSW*. Report to Australia Pacific Projects.
- Department of Environment, Climate Change & Water [now OEH] 2010 *Aboriginal cultural heritage consultation requirements for proponents 2010*.
- Department of Environment, Climate Change & Water [now OEH] 2010 *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*.
- EcoLogical (2008) *Assessment of the Ecological Values of TIDC's M2 and Bundara Reserve sites*.
- Farlow (2008) 'North Ryde' *Dictionary of Sydney* Accessed on 27/7/11 at: <
http://www.dictionaryofsydney.org/entry/north_ryde>
- Godden Mackay Logan and Jo McDonald CHM, 2012. *North West Rail Link EIS 1: Major Civil Construction Works Indigenous Heritage*. Report prepared for NWRL Planning Approvals Team.



- Haglund & Associates (1989) *Preliminary survey for Aboriginal sites along F2-Castelreagh Freeway. Pennant Hills Road to Lane Cove Road*. Report to DMR.
- Herbert, C. (1983) Sydney 1:100 000 Geological Sheet 9130, 1st edition. Geological Survey of New South Wales, Sydney.
- Hiscock, P. and Attenbrow, V. (2005) *Australia's Eastern Regional Sequence Revisited: Technology and Change at Capertee 3*. Oxford: BAR Monograph Series 1397 Archaeopress.
- HLA Eurosciences (2002) *Archaeological Assessment, Cistern M2 Worksite, Parramatta Rail Link*. Report to Thiess Hochtief Joint Venture.
- Jo McDonald CHM Pty Ltd. 2005a. *Archaeological salvage excavation of site CG1 (NPWS #45-5-2648), at the corner of Charles and George Streets, Parramatta, NSW*. Report for Meriton Apartments Pty Ltd.
- Jo McDonald CHM Pty Ltd. (2005b) *Archaeological Salvage Excavations of site RMS-G1 109-113 George Street Parramatta*. Report to Landcom.
- Jo McDonald CHM Pty Ltd. (2006) *Archaeological Salvage Excavation of the Colebee Release Area, Schofields, NSW, Volume 1*. Report prepared for Medallist Golf Holdings Pty Ltd.
- McCarthy, F. D., Brammell, E., and Noone, H. V. V. (1948) The stone implements of Australia. *Memoirs of the Australian Museum* 9, 1-94
- Nanson, G.C., Young, R.W., & Stockton, E.D. (1987) Chronology and palaeoenvironment of the Cranebrook Terrace (near Sydney) containing artefacts more than 40,000 years old. *Archaeology in Oceania*, 22 (2): 72-78.
- NSW Heritage Branch (2001) *Assessing Significance*.
- NSW Heritage Branch (2009) *Assessing Significance for Historical Archaeological Sites and Relics*.
- Oakely, B. (2000) *Indigenous Heritage Assessment – Proposed Sewerage Upgrade REF, Lane Cove National Park*. Report to Australian Water Technologies Pty. Ltd.
- Redding, G. (1986) *A History of North Ryde, 1850-1950* (North Ryde Public School Ex-Pupils History Group).
- Smith, V. (2005) *Wallumedegal: An Aboriginal history of Ryde*. City of Ryde.
- The Sydney Morning Herald* 6 June 1919 'Death notice of William Owen'



Transport for NSW (Cox Richardson) (2012) Draft Indicative Layout Plan – North Ryde Station
Precinct

White, E. and J. McDonald. (2010) Lithic Artefact Distribution in the Rouse Hill Development Area,
Cumberland Plain, New South Wales. *Australian Archaeology* 70:29-38.

Wirrina Consulting (1995) *Archaeological survey for Aboriginal sites. Delhi Rd – Main Rd No. 191,*
CSIRO to Northern Suburbs Crematorium, Lane Cove, NSW. Report to RMS.