

Aboriginal Archaeological Impact Assessment Lot 100 & Lot 101 in DP 1216659, 120 Hezlett Road, Kellyville, NSW

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1.0 INTRODUCTION & PROJECT AREA

1.1 PROJECT AREA

Cultural Heritage Connections Pty Ltd was commissioned by Heritage 21 in May 2017 to undertake an Aboriginal Archaeological Impact Assessment (AAIA) of an area of land at Lot 100 and Lot 101 in DP 1216659, Kellyville, also known as 120 Hezlett Road Kellyville, NSW (the project area). The location of the project area is shown in Figure 1.

1.2 STUDY CONTEXT & AIMS

The assessment is to consider the potential for harm to Aboriginal objects on the subject land prior to the construction of a new primary school. No Aboriginal objects have been previously recorded within the project area boundaries.

Preliminary consultation was undertaken with Deerubbin Local Aboriginal Land Council (DLALC). DLALC comments on the proposed development are included in Appendix 1 and summarised in Section 5.2. The consultation undertaken does not conform to the requirements of the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010a).

As detailed in “The process for investigating and assessing Aboriginal cultural heritage” (Figure 1 of the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*), the first step is “Have you determined if your proposed activity could harm Aboriginal objects or declared Aboriginal places?”. If the answer is no, then the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010c) should be referred to. This report is intended to address that question as a first step in determining harm.

The major aims of the assessment are to:

- identify whether or not Aboriginal objects are, or are likely to be, present in the area;
- if objects are present or likely to be present, determine whether or not the proposed development activities are likely to harm Aboriginal objects; and
- determine whether an Aboriginal Heritage Impact Permit (AHIP) is required.

In order to meet these objectives, the following tasks are required:

- undertake a search of the OEH AHIMS and a review of site cards for those sites within close proximity of the project area;
- check for landscape features which may indicate the presence of Aboriginal objects;
- undertake a desktop assessment using relevant background data to categorise the project area and form predictions about the likely presence of cultural sites;
- undertake a site inspection in collaboration with the Deerubbin LALC to check the desktop conclusions as well as to look for Aboriginal objects and any other relevant features that may not have been revealed during background review; and
- if necessary, consider strategies to avoid harming Aboriginal objects.

The assessment has been prepared as a consideration of the potential for the proposed development to harm Aboriginal objects and with reference to the *Code of Practice for*

Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010b). It is not, however, and Aboriginal Cultural Heritage Assessment as defined in the OEH *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*.

1.3 LEGISLATION SUMMARY

1.3.1 National Parks and Wildlife Act 1974 (amended 2010)

The *National Parks and Wildlife Act 1974* (NPW Act) protects Aboriginal objects and Aboriginal places in NSW. It has been amended by the National Parks and Wildlife Regulation 2009 (NPW Regulation). Under the NPW Act, the following are offences unless an exemption or defence is provided for under the Act:

- A person must not knowingly harm or desecrate an Aboriginal object (knowing offence)
- A person must not harm or desecrate an Aboriginal object or Aboriginal place (strict liability offence)

The maximum penalty for the knowing offence is \$550,000 or \$275,000 (depending on whether there are aggravating circumstances) and 1 or 2 years' goal for an individual. For a corporation the maximum penalty for the knowing offence is \$1.1 million. The maximum penalty for the strict liability offence is \$110,000 or \$55,000 (depending whether there are aggravating circumstances) for an individual or \$220,000 for a corporation.

Harm includes acts or omissions that “destroy, deface or damage” an Aboriginal object or Aboriginal Place, and in relation to an object, move the object from the land on which it has been situated. Harm does not include something that is trivial or negligible.

Section 91 of the Act also obliges any person who discovers an Aboriginal object to report it to the OEH for it to be entered on the AHIMS.

An Aboriginal object is defined as:

“...any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.”

An Aboriginal object is legally protected irrespective of land tenure, the significance of the object and whether or not it has been recorded.

“Aboriginal Places” are places so declared under Section 84 of the Act.

Anyone who exercises due diligence in determining that their actions will not harm Aboriginal objects has a defence against prosecution for the strict liability offence if they later harm an object. Due diligence can be exercised by complying with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010c)(or industry-specific codes of practice) that has been adopted under the National Parks and Wildlife Regulation 2009. The code provides a process to enable a reasonable determination of whether or not Aboriginal objects will be harmed by an activity or whether further investigation or an Aboriginal Heritage Impact Permit (AHIP) are required.

There is also a range of defined exemptions and low impact activities defined in the Regulation for which due diligence is not required. These include undertaking specified farming, land management, maintenance, surveying or environmental rehabilitation works.

Clause 80B Defence of carrying out certain low impact activities: section 87 (4)

(1) It is a defence to a prosecution for an offence under section 86 (2) of the Act, if the defendant establishes that the act or omission concerned:

(a) was maintenance work of the following kind on land that has been disturbed:

(i) maintenance of existing roads, fire and other trails and tracks,

Under the amended Act a permit will no longer be required to *look for* Aboriginal objects providing the investigation is undertaken in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b). Archaeological test excavations that follow the code do not require an AHIP. If objects are present and harm cannot be avoided it is necessary to apply for an AHIP.

There are also requirements for consultation with Aboriginal people relating to AHIP applications. These are set out in the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010a).

1.3.2 Environmental Planning and Assessment Act 1979

The *EP&A Act* requires that environmental impacts are considered in land use planning and decision-making. The definition of ‘environmental impacts’ includes impacts on the cultural heritage of the project area. The Act sets out specific statutory assessment processes including:

- Part 4: Development that requires consent under consideration of environmental planning instruments.
- Part 5: An assessment process for activities undertaken by public authorities and for developments that do not require a development consent but an approval under another mechanism.

1.3.2.1 State Environmental Planning Policy (Sydney Region Growth Centres) 2006

Appendix 9 of the *State Environmental Planning Policy (SEPP) (Sydney Region Growth Centres) 2006* relates to “Camden Growth Centres Precinct Plan”. Section 5.10 of Appendix 9 includes the following detail on heritage conservation.

5.10 Heritage conservation

(1) Objectives

The objectives of this clause are as follows:

- (a) to conserve environmental heritage,
- (b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,

- (c) to conserve archaeological sites,
- (d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

(2) Requirement for consent

Development consent is required for any of the following:

(a) demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance):

- (i) a heritage item,
- (ii) an Aboriginal object,
- (iii) a building, work, relic or tree within a heritage conservation area,

(b) altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 to this Policy in relation to the item,

(c) disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,

(d) disturbing or excavating an Aboriginal place of heritage significance,

(e) erecting a building on land:

- (i) on which a heritage item is located or that is within a heritage conservation area, or
- (ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,

(f) subdividing land:

- (i) on which a heritage item is located or that is within a heritage conservation area, or
- (ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.

(8) Aboriginal places of heritage significance

The consent authority must, before granting consent under this clause to the carrying out of development in an Aboriginal place of heritage significance:

(a) consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment (which may involve consideration of a heritage impact statement), and

(b) notify the local Aboriginal communities, in writing or in such other manner as may be appropriate, about the application and take into consideration any response received within 28 days after the notice is sent.

1.3.2.2 *North Kellyville Growth Centre Precincts DCP 2016*

The project area is within the land covered by the North Kellyville Growth Centre Precincts Development Control Plan 2016 (DCP). The following provisions relevant to Aboriginal Heritage have been extracted from Section 6.2 of the DCP.

Objectives

1. To protect and manage areas and elements of identified Aboriginal archaeological heritage of the Precinct.
2. To incorporate elements of Aboriginal heritage within the redevelopment of the Precinct.

Controls

1. Properties with potential Aboriginal archaeological significance are shown in Figure 49.
2. Aboriginal cultural heritage shall be avoided where possible in zones where impacts may occur (such as constrained land/environmental living).
3. Within areas where impacts to Aboriginal heritage cannot be avoided development of potential Aboriginal archaeological significance shall not proceed without appropriate investigation and consultation with the relevant local Aboriginal groups and until a Plan of Management has been prepared that addresses the ongoing management of any archaeological deposits within the Conservation Areas.
4. Aboriginal cultural heritage shall be conserved where no impacts occur. The locations of Aboriginal sites should be identified in a conservation management plan to ensure the sites are not inadvertently damaged as a result of construction works or future land uses.
5. Section 90 consent under the National Parks and Wildlife Act 1974 will be required for all impacted archaeological sites. Section 90 consent should only cover that part of the site that will be impacted. Consent should be obtained prior to any works which will directly affect these sites. It will be necessary to obtain an excavation permit pursuant to Section 60 or Section 140 of the Heritage Act 1977.
6. Test/salvage excavation of Aboriginal sites or areas of archaeological potential is warranted for some of the recorded archaeological sites and potential archaeological deposits which will be impacted by future development. A section 87(1) permit under the National Parks and Wildlife Act 1974 should be obtained for these sites.

1.4 LIMITATIONS AND AUTHORSHIP

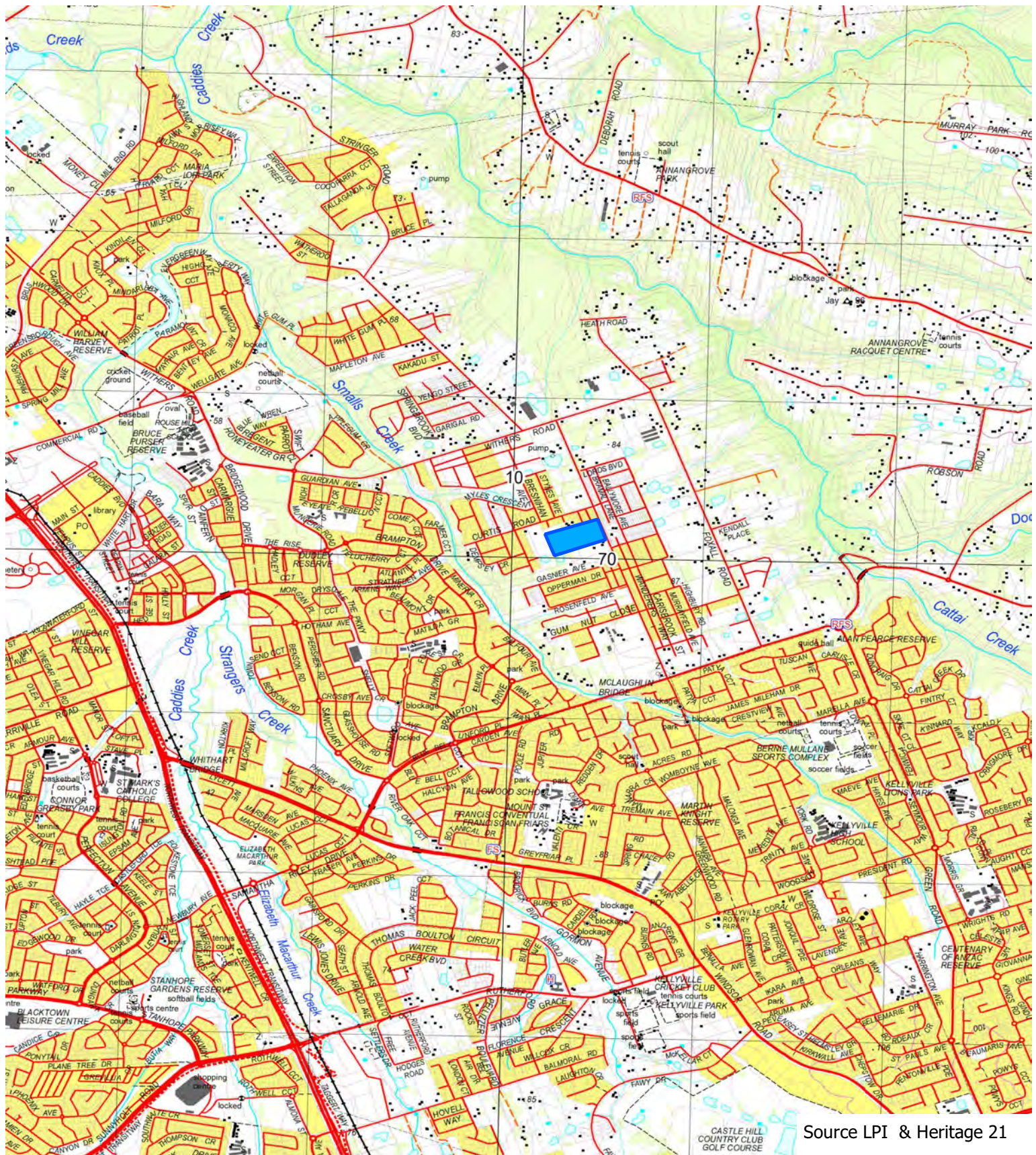
This assessment addresses the Aboriginal archaeological potential of the project area, the archaeological (scientific) value and the likely presence of Aboriginal objects. Cultural Heritage Connections recognises that Aboriginal people are the determinants of the cultural significance of their heritage. This is also recognised by OEH who provide a guideline for minimum requirements for consultation with Aboriginal stakeholders (DECCW 2010a) when archaeological testing or an AHIP are required. This report includes a summary of the comments by the DLALC. A copy of their comments is included in Appendix 1.

No assessment of non-Aboriginal archaeological potential has been undertaken.

Analysis of the archaeological background, design of the methodology, field inspection and reporting for the assessment was undertaken by Vanessa Hardy (BA Hons), archaeologist and Director of Cultural Heritage Connections Pty Ltd.

1.5 REPORT OUTLINE

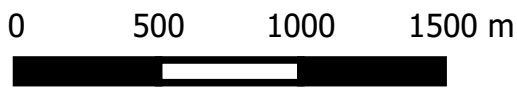
The following section (Section 2.0) of this report provides a summary of the environmental context of the project area. Section 3.0 examines the archaeological background and Section 4.0 presents the results of the site inspection. Section 5.0 provides a discussion, looks at potential impacts of the development and presents recommendations arising from the assessment.



Source LPI & Heritage 21

Legend

Study area



Maps and figures in this document may be based on third party data, may not be to scale and are intended as a guide only. We do not warrant the accuracy of such maps or figures.

Figure 1: Study area location



2.0 ENVIRONMENTAL CONTEXT

Analysis of the environmental context is essential for developing accurate models of cultural activity, site distribution patterns and the archaeological potential of any given area. Environmental characteristics influence the types of archaeological sites. An understanding of how the landscape looked and behaved in the past can help us to predict where Aboriginal people may have undertaken various activities and therefore the types of archaeological sites that may be found in the present. In addition, environmental processes influence the preservation of sites. Heavy erosion or acidic soils are likely to destroy or damage certain types of evidence, reducing the likelihood of locating evidence of past occupation.

The project area is located within the Sydney Basin. Its environmental setting is discussed below.

2.1 GEOLOGY & LANDSCAPE

The project area is within the Cumberland Lowlands. The Cumberland Lowlands (also known as the Cumberland Plain) is an area of approximately 180,000 hectares of land within the Sydney Basin. The underlying geology is predominantly Wianamatta Group shales. The Lowlands are, in general, gently undulating plains on shale with a “dense drainage net of predominantly northward flowing channels” (Bannerman and Hazelton 1990). The topographic relief of the region is generally subdued with elevations typically less than 100 metres AHD. Slopes are typically less than 5%. The majority of the Cumberland Lowlands is within easy access (less than 500 metres) of a temporary or permanent water source.

Most of the Cumberland Lowlands is underlain by Wianamatta Group shales. Triassic sediments of the Wianamatta Group overlay the Mittagong formation and divide into two formations: the Ashfield Shale and the overlying Bringelly Shale. The Ashfield Shale is the most extensive to the west of Sydney, comprised of black to dark grey siltstone and laminite. Extensive areas of Bringelly Shale are also present across the lowlands. Bringelly Shale is typically comprised of shale (claystone and siltstone), carbonaceous claystone, laminite and fine to medium grained lithic sandstone (Bannerman and Hazelton 1990).

Stone suitable for tool manufacture occurs across the Cumberland Lowlands. Recorded artefacts have been made from silcrete, chert, ‘indurated mudstone’/‘silicified tuff’, quartz, quartzite and basalt. Many of these materials can be commonly found as cobbles or boulders eroding out of deposits near creek lines. The most commonly recorded material type in the Lowlands is silcrete. Two large outcrops of St Marys formation silcrete occur at Plumpton Ridge and at Marsden Park with smaller outcrops known at Riverstone and Erskine Park (Jo McDonald CHM 2002e). There are other numerous local sources for suitable stone including creek gravels.

There may have been ephemeral first order creek lines running within 100 metres of the project area and flowing into Smalls Creek which is approximately 500 metres west of the project area. The eastern (Hezlett Road) boundary of the project area is part of the upper slopes of a ridge line that reaches its crest to the north. The remainder of the area slopes away to the west/southwest. The extent of the sloping nature of the project area can be seen in the survey plan included in Appendix 2.

2.2 SOILS

The project area is mapped as within the residual Blacktown Soil Landscape (Hazelton, et al. 1989). This landscape is common across the Cumberland Plain, although the accuracy of mapping can vary.

Typical soil profiles of the Blacktown soil landscape are – on crests: up to 30 centimetres of friable brownish black loam to clay loam topsoil overlaying 10-30 centimetres of hard setting brown clay loam A2 horizon overlying B horizon and subsoils; upper slopes and midslopes: up to 30 centimetres of A1 horizon topsoil over 10-20 centimetres of A2 horizon overlying B horizon clay; lower sideslopes: up to 30 centimetres of A1 horizon and 10-30 centimetres if A2. Ironstone and gravel shale fragments tend to increase in quantity with depth. This suggests a maximum of 60 centimetres of soils that could contain archaeological deposits (Bannerman and Hazelton 1990). These depths would vary across the landscape.

2.3 FLORA AND FAUNA

The vegetation communities of the greater Sydney area have over 200 species with edible parts (Attenbrow 2002). Many plants were exploited as a minor food resource, for example berries or plant nectars. Aboriginal firing of the landscape may have resulted in opening up of grasslands in the valleys and ridge tops, which, in turn, increased the habitat for large macropods.

The project area has been completely cleared since European settlement. In the past, the area would have provided a wide variety of flora and fauna resources for the Aboriginal communities who lived there.

Dry sclerophyll forest is most commonly associated with soils of the Blacktown Landscape. Its dominant species would have included Grey Box (*Eucalyptus moluccana*) and Spotted Gum (*E. maculata*). Forest Red Gum (*E. tereticornis*), narrow-leaved ironbark (*E. creba*) and broad-leaved ironbark (*E. fibrosa*) would also have been present (Bannerman and Hazelton 1990; Benson and Howell 1990).

Wood was used to make canoe poles, weapons, woomeras, boomerangs and was used for firewood. Plant resins were used to fix parts of tools together. Bark was used for huts, carrying vessels, canoes, shields, fishing lines, bedding, blankets and torches, amongst other things (Attenbrow 2002: 113). Fibres were used to make ropes that could then be used in traps and nets for trapping animals, birds and fish. Local knowledge of medicine plants was also an important part of Aboriginal culture.

Animal resources were important to the Aboriginal people of the region, not only as a food source but because they could also be used for manufacturing. The use of animal skin clothing and animal bone tools has been well documented.

Most Australian land mammals are available all year around as they are not migratory; however, some may be easier to catch at certain times, for example possums are less active in the winter months. Possums are frequently referred to as part of the diet of Aboriginal people in inland Sydney areas. It was thought that a marked difference would be found between the inland and coastal diet of groups in the Sydney area, due to the coastal availability of fish and shellfish. However, many of the same animal species are found in bone remains excavated at archaeological sites. In general, macropods are common and

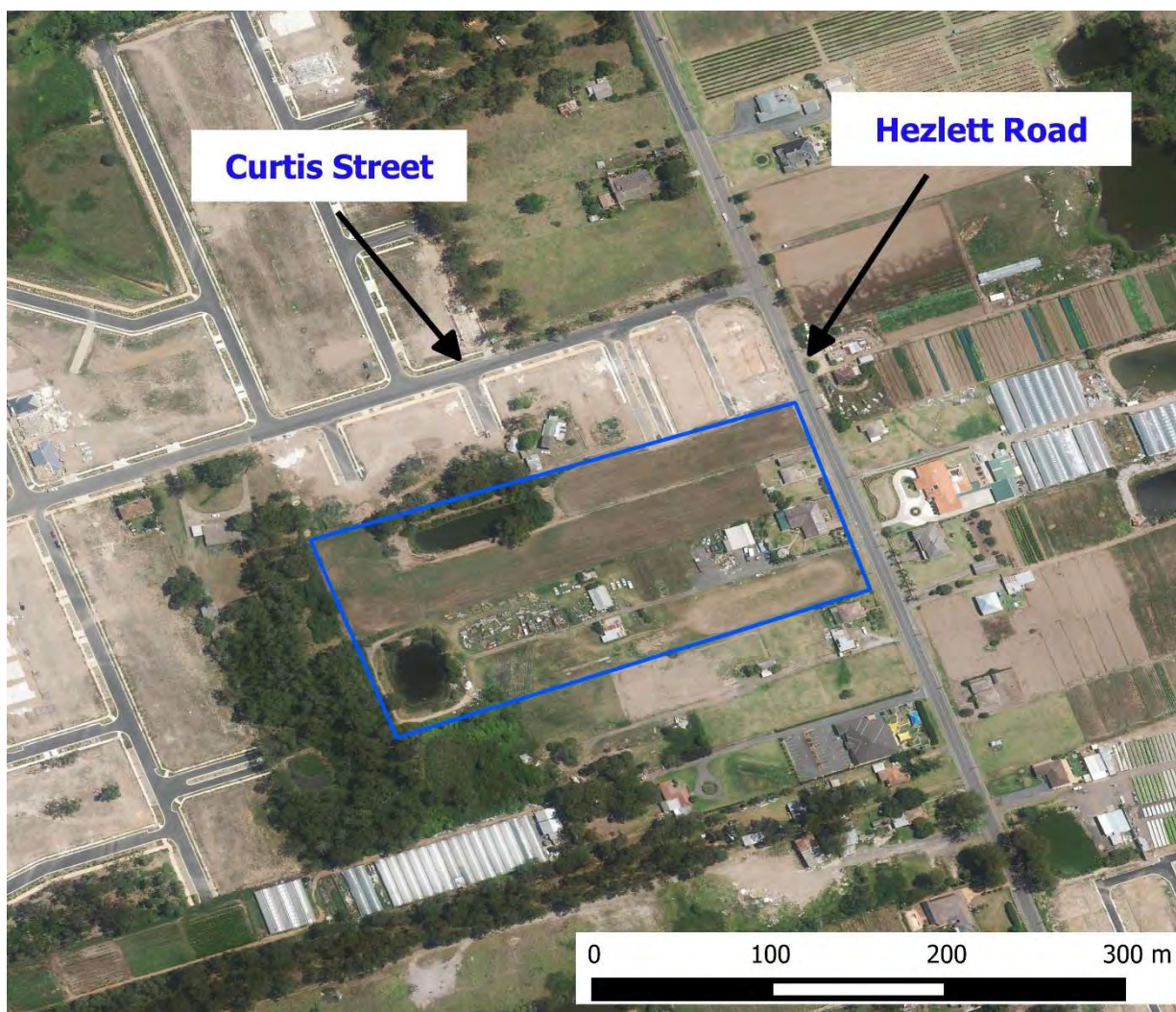
would have formed an important part of the diet (Attenbrow 2002: 71). Water based plants and animals would also have been exploited in the local area. Other less permanent resources include migratory birds, such as the mutton bird, and seasonally available eggs of both birds and reptiles.

Overall, the resources available to inhabitants of the project area region could have provided a varied and generally reliable resource to sustain the many economic and social requirements of large Aboriginal groups.

2.4 LAND USE HISTORY

The entire project area has been cleared of original vegetation. Aerial photos show that there has been significant recent activity that has affected the land surface. A number of dwellings and other buildings have been constructed as well as two dams. Elsewhere in the project area, the soil shows signs of cultivation and stripping as can be seen in Figure 2. Adjacent areas to the east of Hezlett Road, appear to be market gardens. It is likely that activity in the project area would have disturbed or removed the majority of any intact archaeological deposit that may have been present.

Figure 2: Aerial showing disturbances in the project area (SixMaps- LPI)



3.0 ARCHAEOLOGICAL CONTEXT

For the purposes of determining settlement and site location patterns, archaeologists examine regional and local trends in the distribution of known sites in relation to environment and topography. This information can be used to provide a picture of behaviour in the past as well as indicate how evidence of that past behaviour might be preserved in the archaeological record. The following provides a brief overview of known regional and local archaeological evidence.

3.1 REGIONAL PREDICTIVE MODELLING

Many hundreds of artefact sites (also known as open campsites or artefact scatters) have been recorded within the Cumberland Lowlands. This is despite the fact that over half of the Cumberland Plain has already been developed to such an extent that any archaeological evidence that may have once been present has been destroyed. Open artefact scatters can range from a few discarded stone pieces (resulting from a one-off use of an area) to large sites which may have been visited by a large number of people and/or been repeatedly used over many years. In these larger sites, distinct areas relating to specific activities can sometimes be located, such as knapping floors where individuals would have sat to manufacture stone tools. They can also include other habitation remains such as animal bone, shell or fireplaces (known as hearths). In areas where sandstone rock overhangs are present sites are commonly located within the overhangs and other sites such as middens, where shellfish are processed and discarded occur along waterways.

Over the last 30 years, a series of models of occupation of the Cumberland Lowlands have been proposed. These are being continually refined as further work takes place across the Lowlands and the broader Sydney region

An analysis of 666 sites recorded on the Cumberland Lowlands (Jo McDonald CHM 1998) found that open artefact scatters (89%) were the most common site type across the area, with scarred trees making up 2.1%. Shelters and axe grinding grooves accounted for only 3.6% of recorded sites, and these were concentrated at the junction of shale and sandstone geology along the periphery of the Lowlands. The study also highlighted difficulties associated with archaeological visibility on the Plain by assessing the potential for areas with no surface evidence to contain buried sub-surface deposits. The study found that an absence of surface evidence is not a reliable guide to the potential, nature or density of sub-surface material. The results of McDonald's studies clearly demonstrate the limitations of surface survey for identification of archaeological deposits. It was concluded that one of the main reasons a high proportion of sites were recorded in creek flat areas was the increased visibility conditions rather than it being a reflection of past human behaviour patterns (Jo McDonald CHM 1998).

McDonald synthesised the various Rouse Hill studies ((Jo McDonald CHM 1998, 2002c, 2002a, 2002d, 2002b, 2002e) and developed a predictive model for the local area based on sub-surface investigation as well as surface finds. This has broader application for the entire Cumberland Lowlands. McDonald's model includes the following key elements:

- Site complexity and density in the area is far greater than what analysis of material recorded during initial limited testing programs or analysis of surface remains suggests.

- Most areas, even those without identifiable surface remains, may contain sub-surface archaeological material.
- There is potential for stratified and/or intact deposits in some areas, particularly in stable or aggrading landforms including alluvial deposits.
- The potential for intact deposits is not necessarily greatly diminished by ploughing of an area, which only tends to affect the top 30 centimetres of a deposit.
- Extensive testing has revealed the presence of backed blade manufacturing sites, heat treatment locations, general camp sites and other specialised activity areas.
- Sites are more extensive and complex in landscapes with more permanent water.
- Sites with ephemeral water sources were found to be sparser and to contain evidence of more localised one-off behaviour.
- Grinding grooves may be found in the sandstone or shale/sandstone transition areas.
- Scarred trees may occur in stands of remnant vegetation.
- The most common raw material is silcrete, though some indurated mudstone/silicified tuff and quartz artefacts may also be found.

After ground-truthing the model in a number of places, including at the Australian Defence Industries site (McDonald and Mitchell 1997), McDonald concluded that the three main factors influencing the density and complexity of open artefact sites in the Cumberland Lowlands are:

- stream order;
- landscape unit (ie landform type); and
- proximity to a stone source suitable for extracting stone for tool manufacture.

Baker (AMBS Consulting 2000) proposed a model based on excavation at Mungerie Park (near Caddies Creek). He suggested that three zones of 'archaeological complexity' could be described, namely

- a 'complex zone' of overlapping knapping floors or activity areas and high-density artefact concentration due to repeated occupation;
- a 'dispersed zone' where activity areas are more spatially discrete due to either less frequent use or activities occurring away from main camp sites; and
- a 'sparse zone' of consistently low-density artefact distribution likely to be resulting from discard events rather than knapping (AMBS Consulting 2000: 53-54).

McDonald reviewed this and other models in the light of excavations along Second Ponds Creek and nearby sites. She suggests that the earliest occupants of the Sydney region focused habitation on the Nepean River and large creek lines. As time progressed they gradually moved away from these locations and began to occupy more distant places. At this point populations were highly mobile and transported stone material from the Nepean River Gravels. When this was not possible they made do with whatever local

stone sources were available. As sea levels rose and then stabilised after 6,000 before present (BP), groups from the coast were forced inland. Population gradually increased and many new occupation sites were inhabited in different regions. People began to focus on local stone sources, in the Rouse Hill region people relied on silcrete. Heat-treating of the stone became more common. It is likely that stone was partially worked or prepared at its source and transported back to habitation camps. Backed artefacts became increasingly common. In the last 1,000 years ground stone becomes more common and it is possible that changes in frequencies of use of different raw materials points to 'more restricted social movement, and contact via exchange networks'(Jo McDonald CHM 2005).

A recent review of the various occupation models based on the wealth of data in the Rouse Hill Development Area (McDonald and White 2010) produced the following key findings supporting some of the previous models:

- artefact distribution can better be seen as part of a landscape rather than discrete sites as implied by Kohen and others;
- artefact distribution does appear to be related to proximity to water, although this further varies with stream order;
- stream order does seem to be a significant factor in site distribution as suggested by McDonald and Mitchell (1997);
- artefact density does appear to vary significantly with landform (McDonald and Mitchell 1997);
- the orientation of open land surfaces seems to have an influence on the selection of artefact discard locations - with slopes facing north and north-east generally having higher densities;
- distance from known silcrete sources does not seem to have a large influence on artefact density;
- these trends in artefact density and distribution indicate long-term, large scale patterns; and
- social and/or symbolic factors may also have influenced site selection (McDonald and White 2010; AECOM 2011).

AHMS undertook a desktop and field assessment for the North West Growth Centres water infrastructure (AHMS 2011). The study found that 179 Aboriginal objects, sites and places had been previously recorded within the desktop assessment area and an additional 36 sites were recorded during the field assessment. Some of these sites were later found to be duplicates leaving a total of 208 sites within the AHMS project area. A detailed predictive model. An evaluation of the predictive model used concluded that the model was "between 67 and 72 % (average = 69.5%) effective at predicting archaeological materials, and between 67 and 83% (average = 75%) effective at capturing sites of high or very high archaeological significance" within the desktop assessment area (AHMS 2011: 59).

One of the failings of the model, according to the authors, was that it over predicted the presence and survival of Aboriginal objects. This was largely due to the fact that detailed land disturbance data was not available for much of the area. Therefore, some of the areas

predicted to contain Aboriginal objects would be found to be unlikely to preserve archaeological deposit in light of the extent of ground surface disturbance due to past land use. This suggests that the extent of land disturbance is an important factor in assessing the likelihood of Aboriginal objects occurring in a given area.

In addition, the study highlighted the following key findings:

- The majority of recorded sites are artefact sites (either isolated finds or artefact scatters).
- Stream order is of primary importance in determining the distribution frequency and scale (extent, artefact densities and complexity) of sites.
- Low density artefact sites have been identified within all landform types near lower order streams. The landforms include floodplains, creek banks, elevated spurs, lower slopes, mid slopes and upper slopes. The sites demonstrate evidence of short term or transient use and ephemeral occupation.
- Higher density artefact sites and those which demonstrate a variety of tool types, frequent or repeated occupation and use, and complex assemblages occur most frequently on lower slopes, floodplains and ridges near high order streams.
- Proximity to raw material sources is a key factor in site distribution. Natural rock outcroppings and/or Aboriginal stone tool quarries (rather than local river or creek gravels) are the preferred source of raw materials for artefact production.
- Areas of historical and/or modern disturbance (such as buildings, roads, services, market gardens etc) severely compromise Aboriginal archaeological preservation and survival. Accordingly, where this type of disturbance is high, intact archaeological material is considered less likely to occur (AHMS 2011: 52-53).

3.1.1 Database Searches

Searches of the NSW State Heritage Register, Inventory and the Australian Heritage database were undertaken on the 1 June 2017. No Aboriginal archaeological sites or places of cultural heritage significance were recorded on these databases. No Aboriginal sites are recorded on *The Hills Local Environmental Plan 2012*.

A search of the OEH AHIMS database was undertaken on 1 June 2017 for an area at datum: GDA, Zone 56, Eastings: 308000 - 312000, Northings: 6268000 – 6272000. A total of 80 sites was recorded within this area. none of the sites is within the project area boundary. Most of the sites are clustered along creek lines. The distribution also reflects the locations of where assessment has been carried out.

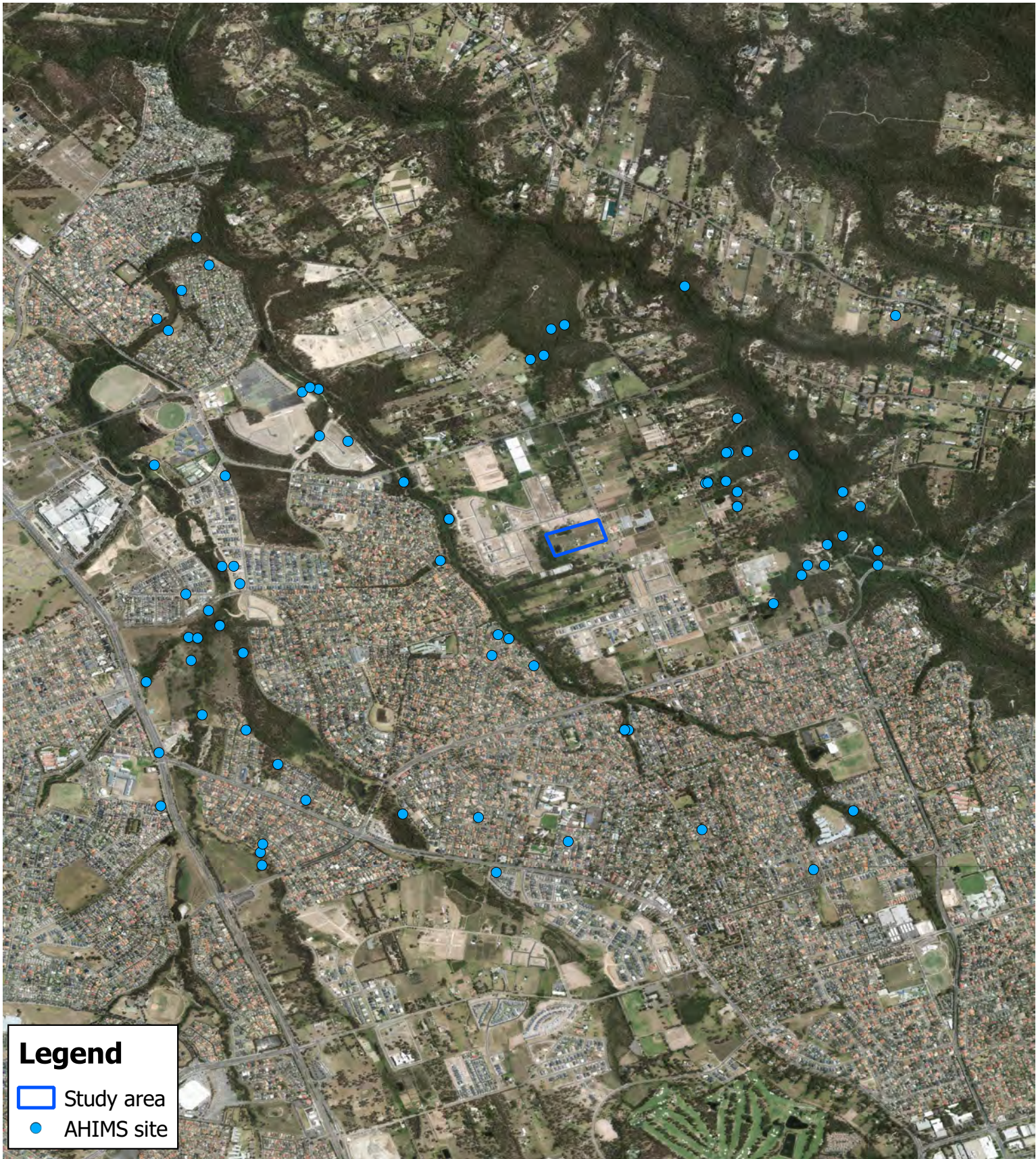
The locations of the registered sites recorded in AHIMS are shown in Figure 3. The location information for sites recorded within the AHIMS is subject to variation in recording methods. Coordinates provided are often indicative rather than exact. As can be seen by some of the site being recorded in the water, the accuracy of locations cannot always be relied on. The author cannot vouch for the accuracy of the information provided by OEH or other agencies.

Table 1: Site features from AHIMS results

Site Feature	Frequency	Approx %
Aboriginal Ceremony and Dreaming	1	1.25
Aboriginal Resource and Gathering	2	2.5
Art	6	7.5
Artefact & Art	3	3.75
Artefact & Grinding Groove	4	5
Artefact & Habitation Structure & PAD	1	1.25
Artefact & Hearth	1	1.25
Artefacts (Open Camp Site or Isolated Finds)	44	55
Grinding Groove	3	3.75
Grinding Groove & Art	1	1.25
Grinding Groove & Waterhole	1	1.25
Modified Tree (Scarred or Carved)	2	2.5
Potential Archaeological Deposit (PAD)	9	11.25
Stone Quarry	2	2.5
Total	80	100%

The most common site type in the locality is artefact sites. This is consistent with predictive modelling. Some areas of outcropping sandstone geology in the broader area means that shelter sites (some with art) and grinding grooves are also present. These site types are less common elsewhere on the Cumberland Plain.

In summary, there would have been relatively large Aboriginal populations utilising the project area and surrounds. The number of sites recorded on AHIMS is a fraction of what once would have been present. The major factor influencing the potential for unrecorded sites to be located will be the level of disturbance in this developed area.



Source LPI, OEH AHIMS & Heritage 21

Maps and figures in this document may be based on third party data, may not be to scale and are intended as a guide only. We do not warrant the accuracy of such maps or figures.

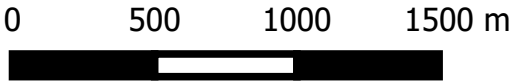


Figure 3: AHIMS search results



4.0 SITE INSPECTION

The archaeologist, Vanessa Hardy undertook a site inspection on Monday 29th May 2017 and again on Wednesday 1st November 2017 with Steve Randell representing the Derrubbin LALC. Conditions were fine and sunny.

4.1 AIMS & METHODS

The aim of the site inspections was to determine whether any unrecorded Aboriginal objects or areas of sub-surface archaeological potential would be likely to occur in the project area and whether development of the subject land could have the potential to impact these sites or areas. In addition, it was central to the assessment to provide the LALC with opportunity to comment on any cultural values of the project area.

4.2 RESULTS

No Aboriginal objects were located during the site inspection. No trees with potential for Aboriginal scarring were located in the project area. No areas of archaeological sensitive landform were located within the project area.

The area has been substantially disturbed. The evidence of demolished buildings was present on the site. Figure 4 shows disturbance near the Hezlett Road frontage where a dwelling previously stood. In addition, some areas have been stripped of topsoil (Figure 5) and two large dams have been excavated.

Figure 4: Project area disturbances



Figure 5: Central roadway in project area facing toward Hezlett Road



The landforms of the project area are largely sloping. No permanent water source is present within the project area apart from the artificial dams. Visibility across the area was generally poor. Some areas of exposure revealed a mid-brown clay loam A Horizon soil that had in parts eroded to a reddish clay B horizon with ironstone inclusions. Parts of the project area showed furrows consistent with cultivation and/or market gardening. Aerial photos of the surrounding area show that this type of intensive cultivation occurs in the project area vicinity (Figure 2). Figure 6 shows evidence of cultivation within the project area. Most of the site has been subject to increased erosion due to vegetation clearing and development. The construction of the dams has resulted in removal and sections of deposit (Figure 7). Some of the excavated material has been used to create the dam walls. The extent of disturbances are summarised in Table 2.

Figure 6: Slope to western boundary of project area



Figure 7: Dam in the project area



Table 2: Disturbance Impacts

Disturbance Level	Types of Past Activities	Examples in Project Area
<p>HIGH Areas of severe soil disturbance with little potential for survival of <i>intact</i> archaeological deposits although Aboriginal objects may still occur.</p>	<p>Construction of dwellings, graded roads (depending on depth of soils), service trenches for sewers etc., dams, high erosion, intensive landscaping or cultivation.</p>	<p>Demolished house and outbuilding sites, two dams, central driveway.</p>
<p>MODERATE Some disturbance to soils with average potential for intact archaeological deposits.</p>	<p>Clearing or partial clearing, stock activity, light cultivation or ploughing, low erosion.</p>	<p>Cultivated and eroded slopes across most of the project area.</p>
<p>LOW Partially cleared or even grazed, but not subject to intensive soil disturbance or erosion therefore retaining good potential for intact deposit.</p>	<p>Non-mechanical clearing, stock grazing, either a depositional soil environment or minimal erosion.</p>	<p>None observed.</p>

4.2.1 Summary

No known sites are recorded within the project area boundaries. No Aboriginal objects were located during the site inspection. No trees with the potential for cultural scars were located within the project area. The site inspection revealed a disturbed landscape and landforms assessed as of low archaeological sensitivity.

5.0 DISCUSSION & RECOMMENDATIONS

This section provides a summary of the results of the assessment. It also presents recommendations for ongoing management based on the assessment findings and the legislative context.

5.1 DEVELOPMENT IMPACTS

The proposal is to construct a new primary school including, classroom buildings, demountables, playground spaces, landscaped areas and sports courts/fields. The proposed layout and plans are included in Appendix 2. Due to the extent of cut and fill required to level the ground and construct the planned facilities, it has been assumed that impacts could include the complete disturbance or removal of soils across the project area.

5.2 ABORIGINAL COMMUNITY INPUT

Following the site inspection, DLALC provided written comment on the project area on 17 November 2017. A copy of the comment is included in Appendix 1. In summary, DLALC concluded that due to the extent of disturbance to the project area no cultural materials were likely to be harmed and there're, they have no objection to the development of the land.

5.3 DISCUSSION & CONCLUSIONS

On the basis of the regional predictive modelling and the observed disturbance on site it is concluded that the project area has low archaeological potential. It is unlikely that intact in situ deposits would be preserved sub-surface. DLALC also concluded that the development would be unlikely to impact cultural heritage.

Most of the project area is sloping in nature. It is over 200 metres from a significant water source. It is therefore unlikely to have been a favoured camping location. While lower density artefact sites or other evidence of transient land use may have been present in the area the extent of the disturbance to the ground surface is considered likely to have removed most, if not all, traces of past Aboriginal occupation.

5.4 RECOMMENDATIONS

Based on the findings of the above archaeological assessment, the views expressed by the DLALC and the legislative framework for protecting and assessing Aboriginal archaeological sites in NSW, the following recommendations are provided:

- There is no impediment to development in the project area on archaeological grounds and it is recommended that development can proceed with the following conditions:
 - On-site employees or contractors involved in ground surface disturbance should be made aware of the statutory obligations that apply to the discovery of Aboriginal objects.

- If Aboriginal objects are uncovered during ground surface works, all works must cease and OEH and the Deerubbin LALC should be contacted to determine a course of action.
 - In the unlikely event that suspected human remains are found the *Coroners Act 2009* requires that all work must cease, the site should be secured and the NSW Police and the NSW Coroner's Office should be notified. If the remains are found to be archaeological, OEH and the Deerubbin LALC should be contacted to assist in determining appropriate management.
- DLALC should be provided with a copy of the final version of this report for their records.

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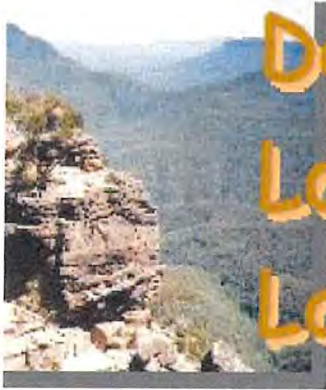
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MCDONALD, J. AND B. WHITE

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APPENDIX 1 – LALC COMMENT



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NSW 2751 AUSTRALIA

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W: <http://www.deerubbin.org.au>

Gutteridge, Haskin and Davey Pty Ltd

Our Ref: 2888

Level 15, 133 Castlereagh Street

SYDNEY NSW 2000

17 November 2017

PROTECTION OF ABORIGINAL CULTURAL HERITAGE

Kellyville North Primary School

Lot 100 and 101 in DP 1216659

120 Hezlett Road, Kellyville

Attention: Mike Dean – Project Manager

A representative of Deerubbin Local Aboriginal Land Council inspected 120 Hezlett Road, Kellyville on Wednesday, 1 November 2017. An Aboriginal cultural heritage assessment was undertaken to evaluate the likely impact the proposed development has on the cultural heritage of the land.

Because of the land clearing, buildings, cultivation and dam of these lots. Very little intact topsoils remains. No Aboriginal cultural materials (in the form of stone artefacts, for example) were found during the assessment.

Deerubbin Local Aboriginal Land Council therefore, has no objection for the development of Kellyville North Public School, 120 Hezlett Road, Kellyville.

Yours Faithfully,

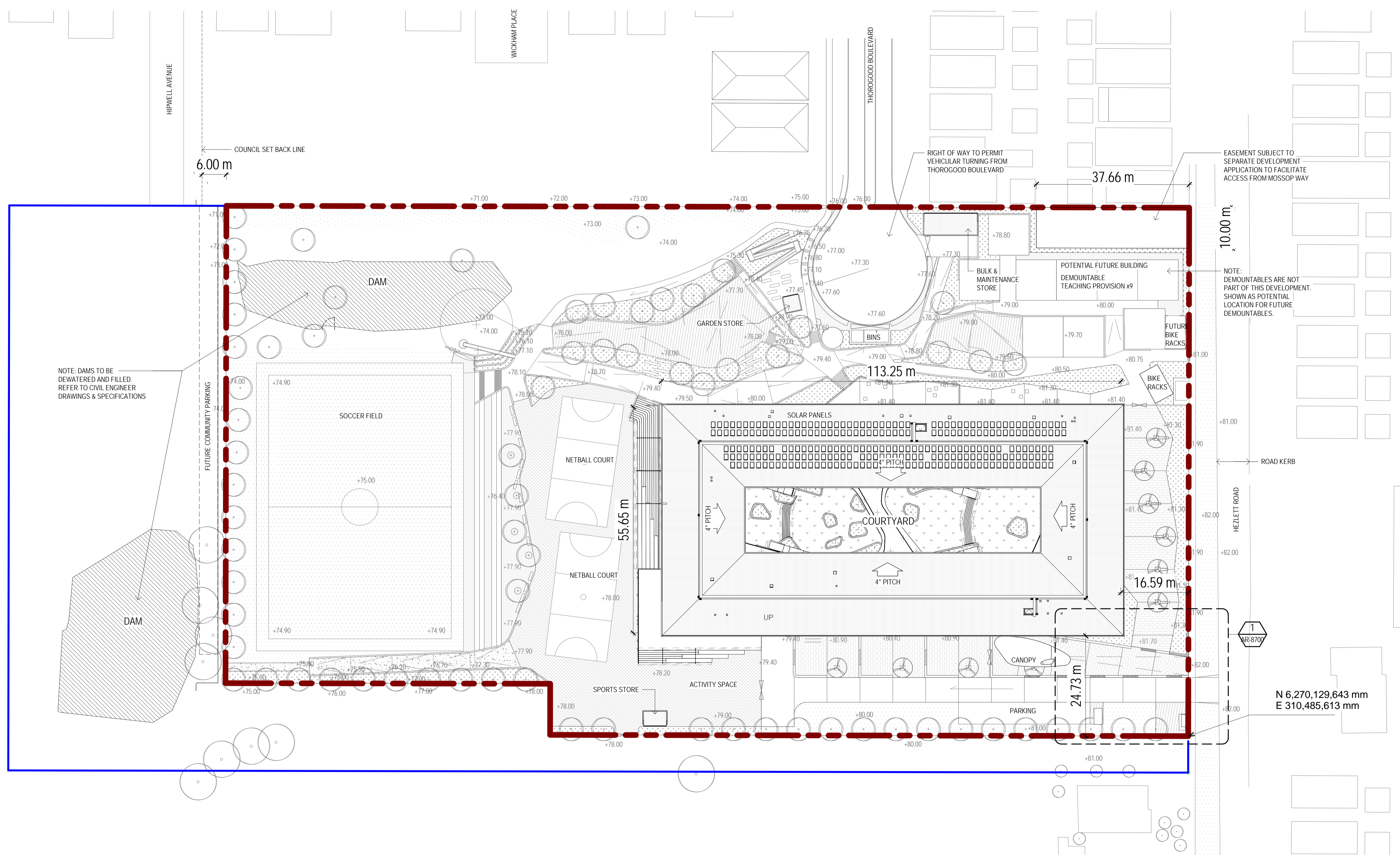
Steven Randall

(Aboriginal Cultural Heritage Officer)

C.c. Miranda Firman – Office of Environment & Heritage

C.c. Vanessa Hardy – Cultural Heritage Connections Pty Ltd

APPENDIX 2 – DEVELOPMENT PLANS



NOTE: DAMS TO BE DEWATERED AND FILLED. REFER TO CIVIL ENGINEER DRAWINGS & SPECIFICATIONS

NOTE: DEMOUNTABLES ARE NOT PART OF THIS DEVELOPMENT. SHOWN AS POTENTIAL LOCATION FOR FUTURE DEMOUNTABLES.

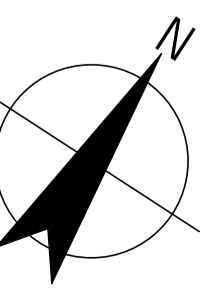
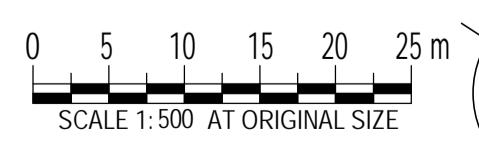
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E 310,485,613 mm

--- SCHOOL SITE BOUNDARY
--- DOE LAND HOLDING

MAIN BUILDING SETOUT PLAN
SCALE 1:500

DEVELOPMENT APPLICATION

No	Revision	Note	Drawn	Job Manager	Project Director	Date
L		SSD SUBMISSION	LR	MD*	BM*	24.11.2017
K		PRELIMINARY SD SUBMISSION	LR	MD*	BM*	23.11.2017
J		SCHEME DESIGN FOR APPROVAL	LR	MD*	MW*	20.09.2017
H		SD SUBMISSION	LR	MD*	MW*	31.08.2017
G		SSD SUBMISSION	LR	SM*	MW*	29.08.2017
F		SSD SUBMISSION	LR	SM*	MW*	11.08.2017
E		TENDER ADDENDUM 02	LR	SM	MW	28.07.2017
D		REISSUED FOR TENDER	LR	SM	MW	28.06.2017



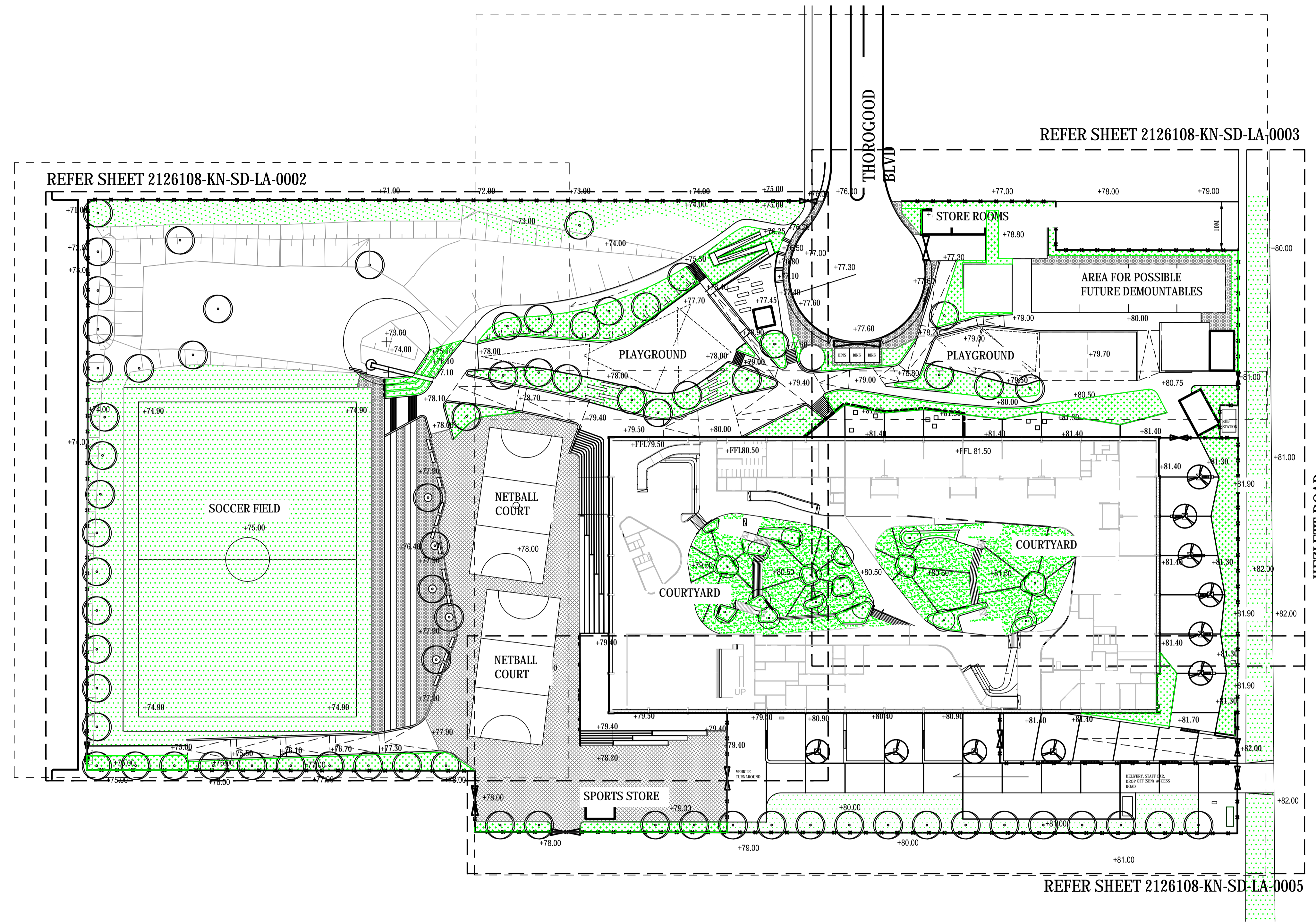
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Drafting Check	S. BEATON*	Design Check	P. THATCHER*
Approved (Project Director)			
Nominated / Responsible Architect	A. MILLER		
Scale	1 : 500		

Client	NSW DEPARTMENT OF EDUCATION		
Project	NORTH KELLYVILLE NEW PRIMARY SCHOOL		
Title	MAIN BUILDING SETOUT PLAN		
Original Size	A1	Drawing No:	21-26108 - KN-SD - AR-1000
Rev:	L		

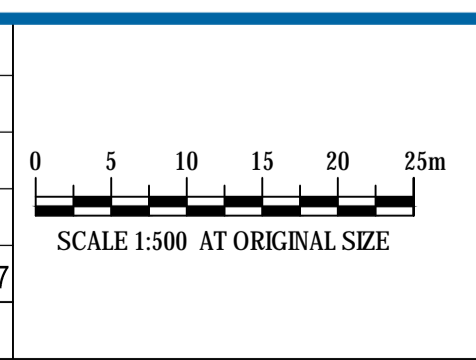
PLANTING SCHEDULE				
BOTANICAL NAME	COMMON NAME	POT SIZE	NUMBER	TYPICAL USE
TREES				
BACKHOUSIA CITRIODORA	LEMON MYRTLE	100 Ltr	29	Path/ avenue planting
CORYMBIA CITRIODORA	LEMON SCENTED GUM	100 Ltr	40	School perimeter planting
EUCALYPTUS TERETICORNIS	FOREST RED GUM	100 Ltr	4	Scattered lawn planting
TRUSTANIOPSIS LAURINA	WATER GUM	100 Ltr	10	Plaza planting
WATERHOUSIA FLORIBUNDA	WEEPING LILLY PILLY	100 Ltr	16	Indoor Planters
SHRUB & GROUND COVER PLANTING				
ASPIDISTRA ELATOR	CAST IRON PLANT	200mm	40	Indoor Plants
ASPLENIUM ANTIQUUM	BIRDS NEST FERN	150mm	36	Indoor Planters
CORYLINE MINI PINK SPECIAL	MINI PINK SPECIAL	150mm	40	Indoor Planters
DIANELLA TASMANICA	TASMAN FLAX LILLY	150mm	1275	Feature garden beds and slope stabilisation
GREVILLE 'BRONZE RAMBLER'	GREVILLEA	tubestock	900	Slope stabilisation
GREVILLE 'FOREST RAMBLER'	GREVILLEA	tubestock	900	Slope stabilisation
FATSIA JAPONICA	JAPANESE ARALIA	200mm	36	Indoor Planters
HIBBERTIA SCANDENS	GOLDEN GUINEA VINE	tubestock	1175	Slope stabilisation & feature garden beds
LEPTOSPERMUM LAEVGATUM	COASTAL TEA TREE	tubestock	300	Screening & slope stabilisation
LOMANDRA TANIKA	TANIKA	150mm	1275	Feature garden beds and slope stabilisation
MELALEUCA THYMIFOILA	THYME HONEY MYRTLE	150mm	375	Feature garden bed
STRELITZIA REGINAE	BIRD OF PARADISE	150mm	375	Feature garden bed
VIOLA HEDERACEA	NATIVE VIOLETS	tubestock	150	Indoor Planters
	MIXED HERBS	punnets	30	Indoor Planters



IRRIGATION NOTE: CONTRACTOR TO ALLOW FOR THE DESIGN AND CONSTRUCTION OF AN AUTOMATED IRRIGATION SYSTEM FOR ALL LAWN AREAS, INTERNAL COURTYARD PLANTERS, SPORTS TURF AREAS, TREES AND GARDEN BED AREAS

PRELIMINARY

No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
I		SCHEME DESIGN FOR APPROVAL	SH	PM*	MD*	20.09.17



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Client	NSW DEPARTMENT OF EDUCATION
Project	NORTH KELLYVILLE NEW PRIMARY SCHOOL
Title	SITE PLAN
Original Size	A1
Drawing No:	2126108-KN-SD-LA-0001
Rev:	I