



17 January 2023

ORCHARD HILLS NORTH: TECHNICAL STUDY ADDENDUM

Kelleher Nightingale Consulting Pty Ltd prepared the Orchard Hills North Aboriginal Heritage Study in support of the Planning Proposal seeking to rezone a 151.9 hectare parcel of land referred to as Orchard Hills North.

Since the original report was prepared, various amendments have occurred to the Planning Proposal leading up to and following the public exhibition period. These amendments generally include:

- Revision to the configuration of the potential new school site and adjoining open space OS8 in response to the requirements of Schools Infrastructure NSW
- Incorporation of planning mechanisms relating to reservation of a proposed north-south road corridor, including incorporation of a Transport Investigation Area (TIA) overlay
- Introduction of an additional stormwater detention basin B8, on the northern side of Frogmore Road
- Altering or incorporating a range of planning mechanisms relating to:
 - Lot size controls
 - Building height provisions for the potential new school site
 - Precinct boundaries and yield controls
 - Provision of local infrastructure

Importantly, there has been no overall change to the proposed yield of 1,729 lots or the fundamental intent of the Planning Proposal to facilitate urban development of the site supported by provision of appropriate local infrastructure. The final structure plan is shown in the following plan:



The final Planning Proposal was endorsed by Penrith City Council on 12 December 2022.



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The Planning Proposal is supported by a site specific Development Control Plan (DCP) and draft Section 7.11 Local Contributions Plan.

Technical Study Conclusions

The amendments incorporated into the final Planning Proposal are generally minor in nature and have no impact on the conclusions and recommendations of the original Orchard Hills North Aboriginal Heritage Study.

The relevant recommendations of the report have been previously incorporated into the Planning Proposal and/or DCP as appropriate, and the final Planning Proposal remains consistent with the outcomes of our assessment.

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Director/Archaeologist



ORCHARD HILLS NORTH
Aboriginal Heritage Study

Prepared for Legacy Property

Penrith Local Government Area

March 2018

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Executive Summary

Legacy Property is preparing a planning proposal for the rezoning of lands at Orchard Hills, NSW, within the Penrith Local Government Area. The lands in question are known as 'Orchard Hills North' and constitute the rezoning area of the proposal. Legacy Property engaged Kelleher Nightingale Consulting Pty Ltd to complete an Aboriginal heritage study of the Orchard Hills North rezoning area to inform future development planning.

This assessment has been undertaken with reference to the Office of Environment and Heritage *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* and *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*.

No Aboriginal objects (artefacts) or Aboriginal archaeological sites were identified within the rezoning area. Seven areas of Potential Archaeological Deposit (PAD) displaying moderate Aboriginal archaeological potential were identified within the rezoning area:

- Orchard Hills PAD 1
- Orchard Hills PAD 2
- Orchard Hills PAD 3
- Orchard Hills PAD 4
- Orchard Hills PAD 5
- Orchard Hills PAD 6
- Orchard Hills PAD 7

According to the indicative master plan, all seven PADs would be impacted by subsequent residential development enabled by rezoning. The remainder of the rezoning area displayed low archaeological potential as a result of natural erosional processes and contemporary land use disturbance.

Future subdivision and development of the land should avoid impact to identified PADs where possible. If avoidance is not possible, the PADs do not pose a constraint to future rezoning, subdivision or development but they will require a process of further assessment to comply with relevant legislation and associated requirements prior to any impact. This may include a test excavation program undertaken in accordance with the OEH *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*. If Aboriginal objects are identified as a result of test excavation program, an Aboriginal heritage impact permit (AHIP) will be required prior to impact.

Contents

CONTENTS.....	III
FIGURES	IV
TABLES	IV
1 INTRODUCTION.....	1
1.1 PROJECT BACKGROUND	1
1.2 ASSESSMENT PROCESS.....	3
1.3 SUMMARY OF FINDINGS.....	3
1.4 INVESTIGATORS AND CONTRIBUTORS	3
2 ABORIGINAL STAKEHOLDER CONSULTATION	7
3 ARCHAEOLOGICAL CONTEXT	8
3.1 DATABASE SEARCH (AHIMS) AND KNOWN INFORMATION SOURCES.....	8
3.1.1. AHIMS web services	8
3.1.2. Other heritage registers and databases	8
3.2 DISCUSSION OF AHIMS SEARCH RESULTS.....	10
3.3 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS	10
4 LANDSCAPE CONTEXT	12
5 REGIONAL CHARACTER AND SITE PREDICTIONS	15
6 SAMPLING STRATEGY AND FIELD METHODS	16
7 SURVEY RESULTS.....	18
7.1 IDENTIFIED ARCHAEOLOGICAL FEATURES WITHIN THE REZONING AREA	18
7.2 SURVEY COVERAGE.....	23
7.2.1. Survey Unit 1.....	23
7.2.2. Survey Unit 2.....	23
7.2.3. Survey Unit 3.....	24
7.2.4. Survey Unit 4.....	24
7.3 SURVEY COVERAGE ANALYSIS	25
7.4 ANALYSIS AND DISCUSSION.....	26
7.4.1. Assessment of archaeological research potential.....	26
8 PRELIMINARY IMPACT ASSESSMENT.....	28
9 LEGISLATIVE CONSIDERATIONS.....	30
10 CONCLUSIONS AND RECOMMENDATIONS	31
REFERENCES.....	32
APPENDIX A DLALC REPORT	33
APPENDIX B AHIMS SEARCH RESULTS.....	34

Figures

Figure 1. Regional Context Plan.....	4
Figure 2. Proposed rezoning area.....	5
Figure 3. Orchard Hills North indicative master plan	6
Figure 4. Registered Aboriginal sites near rezoning area (AHIMS search results).....	9
Figure 5. Geology and soil landscapes of the rezoning area	13
Figure 6. Topography of the rezoning area	14
Figure 7. Survey units and landforms of the rezoning area.....	17
Figure 8. Assessed archaeological potential within the rezoning area.....	22
Figure 9. Indicative master plan and PAD areas	29

Tables

Table 1. Investigators/Contributors.....	3
Table 2. Frequency of site features from AHIMS database search	8
Table 3. Survey unit coverage calculations.....	25
Table 4. Landform coverage calculations	25
Table 5. Impact assessment for identified Aboriginal areas of potential archaeological deposit.....	28

1 Introduction

1.1 Project background

Legacy Property is proposing to rezone a site in Orchard Hills North, located within the Penrith Local Government Area (LGA). The proposed rezoning area is approximately 151.92 hectares (ha) with frontages to Caddens Road to the north, Kingswood Road to the west, the Western Motorway to the south and Claremont Meadows residential lots to the east.

Orchard Hills North, is well located being north of the Western Sydney Motorway, in close proximity to the University of Western Sydney (to the north), Nepean Hospital (to the north) and to the Penrith City Centre. South of the Motorway is currently mostly Orchard Hills rural lands, Defence Lands and to the south west is Glenmore Park. Further south, will be the Badgerys Creek Airport. The regional context is shown in Figure 1.

The rezoning site comprises 54 existing lots (including the school and uniting church) within the proposed rezoning area, located at the following addresses:

- 80-154 Caddens Road, Orchard Hills
- 26-48 Kingswood Road, Orchard Hills
- 117-149 Castle Road, Orchard Hills
- 53-105 Castle Road, Orchard Hills
- 182-226 Caddens Road, Orchard Hills
- 2-164 Castle Road, Orchard Hills
- 1-5 Castle Road, Claremont Meadows
- 7 Castle Road, Claremont Meadows
- 5,9,13,19,23,29,33 and 35 Frogmore Road, Orchard Hills

The proposed rezoning area is identified in Figure 2.

The existing fragmented ownership of the site has historically been a barrier to coordinated planning or development of the area, however Legacy Property has now secured agreements covering the majority of the rezoning area. Legacy Property nominated the Orchard Hills North site under Penrith City Council's Accelerated Housing Delivery Program (AHDP) in October 2017. In November 2017 the site was endorsed by Penrith City Council as a short-term rezoning opportunity to provide for housing delivery over the next 3-5 years.

Structure Plan and Rezoning Area

The Planning Proposal (PP) for Orchard Hills North aims to rezone the 151.92ha site from agricultural land to mixed land uses, forming around 1,729 residential lots, a neighbourhood centre and numerous areas of green space. Discussions with the Department of Planning and Environment (DP&E) and Council have highlighted the need to consider the logical extension of the rezoning area west (namely the Structure Plan area) to The Northern Road, to ensure that future land uses and connections for the entire Orchard Hills North precinct are planned in a holistic manner.

In order to ensure that the future development is fully integrated, a high level Structure Plan has been prepared for the entire precinct, covering an area of approximately 268.06ha. The Structure Plan considers how the rezoning area (151.92ha) integrates with the balance of the precinct (116.14ha) and identifies potential future land uses as well as key road connections. It is expected that the Structure Plan will provide a framework for the future rezoning of the remaining area, either through a Council Local Environmental Plan (LEP) amendment or a developer/owner led Planning Proposal.

Council has endorsed proceeding with the rezoning area at present to meet the objectives of its Accelerated Housing Delivery Program. A significant factor in this approach is that Legacy Property has secured agreements covering a majority of the rezoning area and is therefore in a position to progress with the planning proposal and provide greater certainty for coordinated future development. Council is also proposing to undertake a strategic corridor study for The Northern Road and any proposal to rezone that land may pre-empt the outcome of this study.

As a result, the same level of technical investigations undertaken for the rezoning area have not yet been undertaken for the wider Structure Plan area. The balance of the Structure Plan area has been considered as part of investigations for this planning proposal, however not at a detailed level to support rezoning.

Background

The cultural landscape of the Orchard Hills North site has developed as a rural landscape over the past 100 years with constantly evolving pastoral practices and declining Cumberland Plain Woodland. Within the last 50 years Orchard Hills North has typically been associated with orchard food production, grazing farming practices with some specialisation in agricultural farming and rural residential communities.

Although genuine food production practices have steadily declined over recent years, and only two lots within the site are currently used for any form of agricultural production, the site remains zoned as RU4 Primary Production Small lots. Today, the majority of the site is utilised for residential purposes and has been substantially cleared.

Our Vision

Orchard Hills North will be a residential community set amongst rolling hills in the rich natural landscape of Western Sydney, offering panoramic views to the Blue Mountains and surrounding areas. The development will incorporate a diverse mix of housing types across approximately 1,729 residential lots, focused around a new neighbourhood centre that forms the focal point of the future community and offers a high level of convenience for residents.

The overarching vision of Orchard Hills North is to support a safe and connected community. This will be achieved through the provision of a wide variety of green spaces and links, connecting each of the future neighbourhood precincts with one another as well as the wider regional community, thereby placing a focus on active transport such as walking and cycling.

Design principles

A site analysis, supported by extensive technical studies, has informed the following design principles for the Structure Plan and rezoning area:

- Retain key creek lines and capitalise on the opportunity to create a central green link
- Retain existing significant vegetation as natural bushland.
- Manage and retain views into and out of the site.
- Provide opportunities for a diverse mix of housing types, with medium density housing located around the neighbourhood centre and major open space.
- Create a new neighbourhood centre combined with a relocated primary school to establish a community focal point.
- Respect heritage buildings and the character of the area.
- Integrate with the community to the north, west and east.
- Link O'Connell Lane, Caddens Road, Frogmore Road and The Northern Road into a meaningful urban road network.
- Improve water quality and water flow.
- Utilise landscaping and topography on the southern boundary to manage noise.
- Promote pedestrian and cycle linkages.
- Generate employment opportunities along the Northern Road.

Master Plan and Rezoning description

It is proposed to rezone the site from RU4 Primary Production Small Lots, under Penrith Local Environmental Plan (PLEP) 2010, to part R1 General Residential, B2 Local Centre, RE1 Public Recreation, E2 Environmental conservation and E3 Environmental Management in the south eastern corner of the site, as well as provide for appropriate controls relating to minimum lot size, height, heritage items, and visual landscape.

The rezoning of Orchard Hills North will provide approximately 1,729 residential lots. It is expected that the site will ultimately provide a broad mix of housing types ranging from larger environmental living lots (2,000m²) to traditional detached residential lots (primarily 300-600m²) and smaller compact and attached housing lots (minimum of 220m²). The proposed neighbourhood centre will provide around 6,000-8,000m² of retail space supported by cycle and pedestrian links with approximately 15.77ha of open space, bushland and riparian corridors.

A new/relocated primary school is proposed adjacent to the neighbourhood centre, supported by open space to facilitate share usage. The location of parks and open space areas have been carefully selected to enhance the existing value of the natural landscape, such as hill tops and creek lines, and to retain the significant bushland areas, in order to provide the highest level of amenity for future residents.

The site is physically and strategically suited for urban development, noting that:

- It is a discrete area formed by the boundary of an existing urban area and major road infrastructure.
- It adjoins an existing residential subdivision, and in close proximity to the hospital, Western Sydney University and the Penrith CBD.
- There are limited environmental or physical constraints that would prevent redevelopment.
- It is outside the Western Sydney Priority Growth Area and is therefore better placed to be rezoned through a developer led PP.
- Upgrades are currently being undertaken to the Northern Road, which the Orchard Hills site is located east thereof, and gains access thereto. Thus, the rezoning of the land will support the Government's cost of infrastructure and will result better utilisation of the land.
- It is able to capitalise on the availability of new and existing infrastructure, such as the recently completed Werrington Arterial Road and new M4 on and off-ramps, the signalisation of the Frogmore Road/Northern Road intersection as part of The Northern Road upgrade, and four train stations within 4.5km of the site (Penrith, Kingswood, Werrington, St Marys).

The indicative Concept Master Plan for the site is identified in Figure 3.

1.2 Assessment process

Legacy Property engaged Kelleher Nightingale Consulting Pty Ltd (KNC) to complete an Aboriginal heritage study of the Orchard Hills North rezoning area to inform future planning. The subject land known as Orchard Hills North is hereafter referred to as the 'rezoning area'.

The Aboriginal heritage study included background research, desktop assessment and an archaeological field survey. The assessment has been undertaken with reference to Office of Environment and Heritage (OEH) requirements and guidelines, including:

- *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (OEH 2010a)
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH 2010b)

1.3 Summary of findings

No Aboriginal objects (artefacts) or Aboriginal archaeological sites were identified within the rezoning area. Background research, desktop assessment and archaeological field survey identified seven areas of Potential Archaeological Deposit (PAD) within the rezoning area displaying moderate Aboriginal archaeological potential: Orchard Hills PAD 1, Orchard Hills PAD 2, Orchard Hills PAD 3, Orchard Hills PAD 4, Orchard Hills PAD 5, Orchard Hills PAD 6 and Orchard Hills PAD 7. The remainder of the rezoning area displayed low archaeological potential due to a combination of natural and contemporary disturbance as a result of erosional processes and modern land use practices.

Future subdivision and development of the land should avoid impact to identified PADs where possible. If avoidance is not possible, the PADs do not pose a constraint to future rezoning, subdivision or development but they will require a process of further assessment to comply with relevant legislation and associated requirements prior to any impact. Deerubbin Local Aboriginal Land Council recommended further detailed investigation of identified areas of potential prior to development of the lands. This may include a test excavation program undertaken in accordance with the OEH *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*. If Aboriginal objects are identified as a result of the test excavation program, an Aboriginal heritage impact permit (AHIP) will be required prior to impact.

1.4 Investigators and contributors

The study has been undertaken by the people in the following table.

Table 1. Investigators/Contributors

Investigator/Contributor	Affiliation	Role
Matthew Kelleher	KNC	Advisor, survey, reporting and review
Steve Randall	DLALC	Survey, Cultural Heritage Advisor
Madeline Harding	KNC	Reporting
Ben Anderson	KNC	GIS mapping

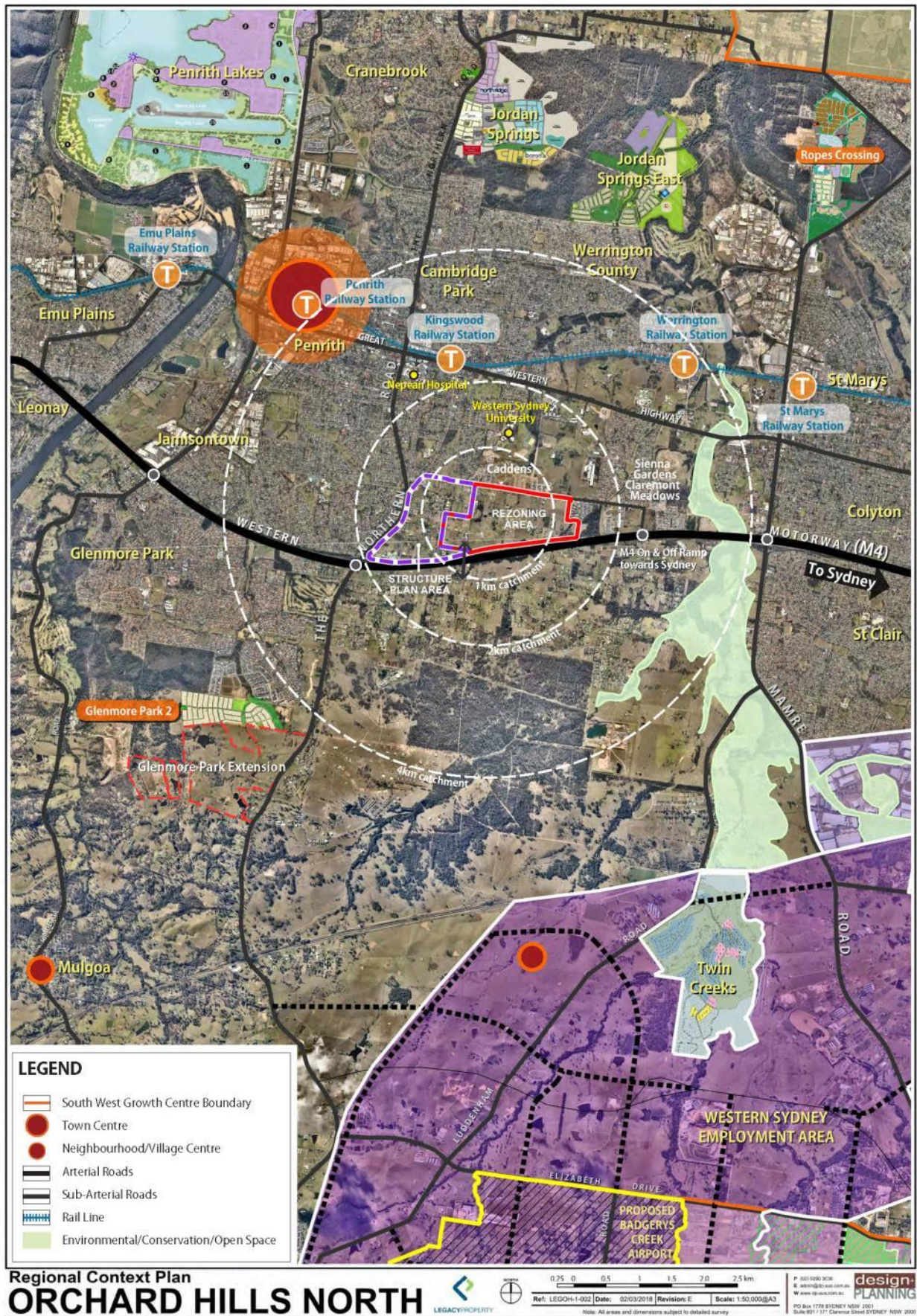


Figure 1. Regional Context Plan

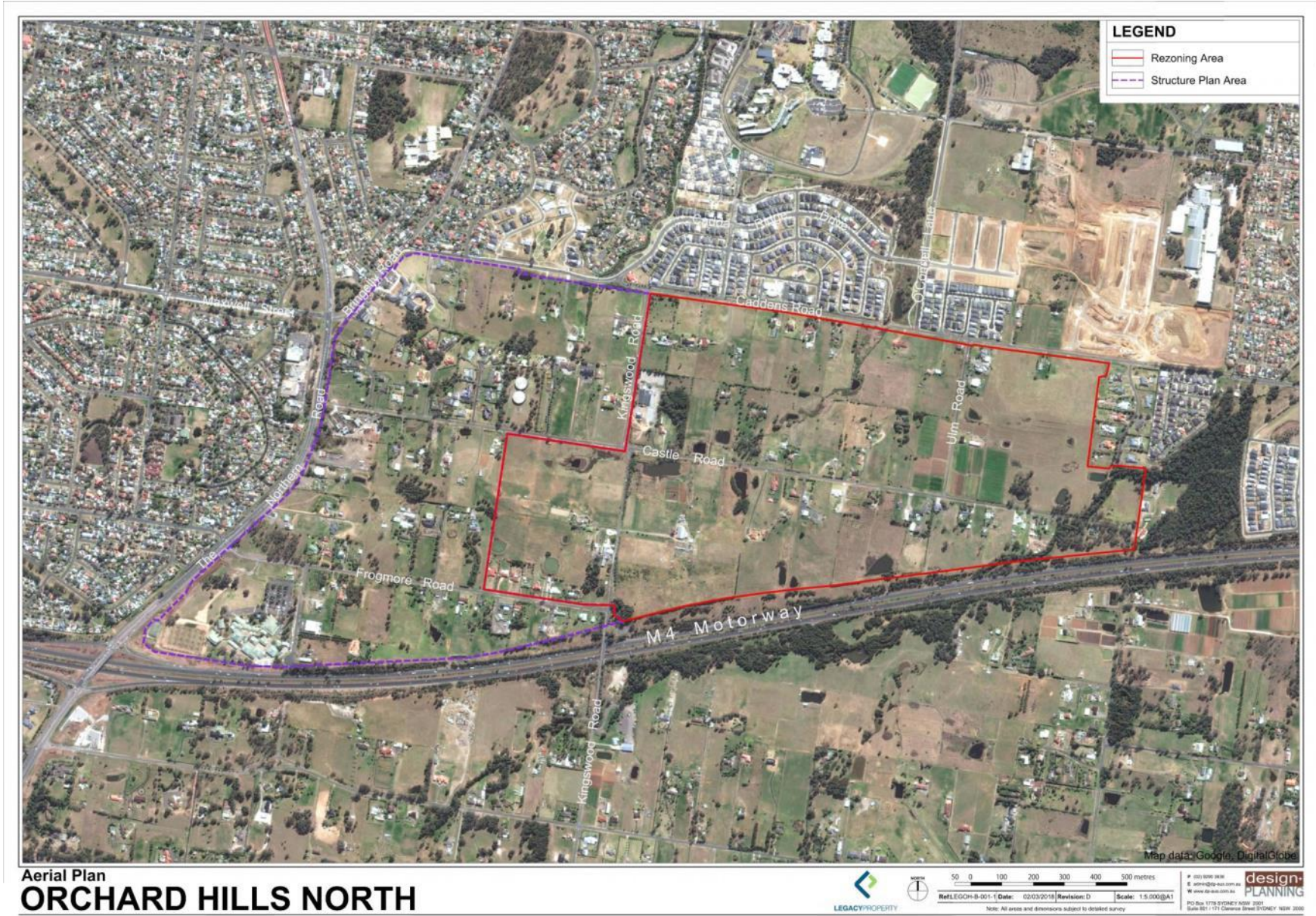


Figure 2. Proposed rezoning area

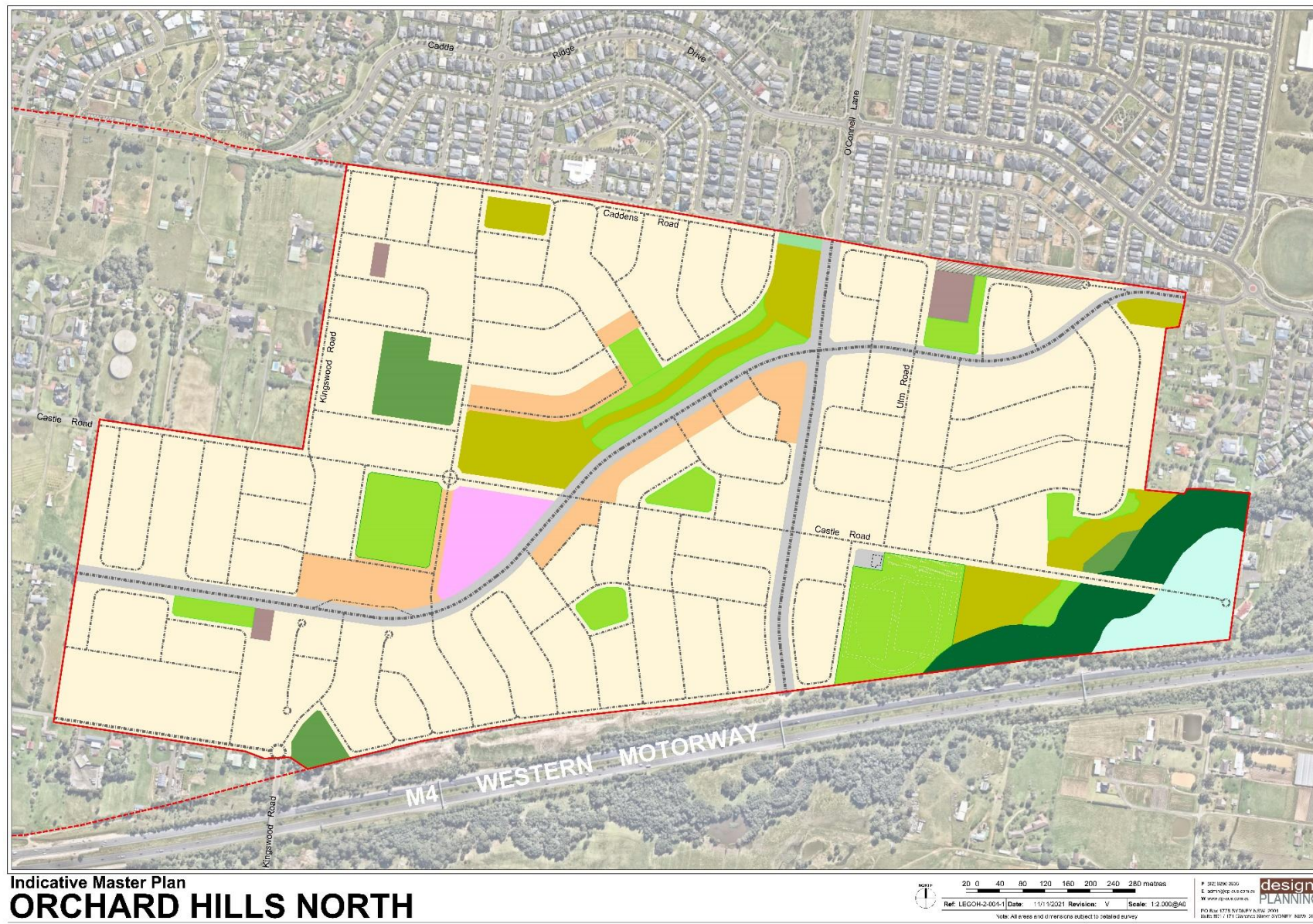


Figure 3. Orchard Hills North indicative master plan

2 Aboriginal stakeholder consultation

The Aboriginal heritage study was undertaken in consultation with Deerubbin Local Aboriginal Land Council (DLALC) whose boundaries covered the rezoning area. DLALC was contacted at the commencement of the project to discuss the project and was invited to participate in site investigations. Land Council representative Steve Randall participated in the archaeological survey on 13 December 2017.

No Aboriginal objects (artefacts) or Aboriginal archaeological sites were identified within the rezoning area. Seven PAD areas were found within the rezoning area. The Land Council recommended further detailed investigation of identified areas of potential prior to development of the lands (Appendix A).

3 Archaeological context

3.1 Database search (AHIMS) and known information sources

3.1.1. AHIMS web services

The Aboriginal Heritage Information Management System (AHIMS) is a database operated by OEH, regulated under section 90Q of the *National Parks and Wildlife Act 1974*. AHIMS contains information and records related to registered Aboriginal archaeological sites (Aboriginal objects, as defined under the Act) and declared Aboriginal places (as defined under the Act) in NSW.

The search of AHIMS was conducted on 19 January 2018 (Client Service ID: 323044) to identify registered (known) Aboriginal sites or declared Aboriginal places within or adjacent to the rezoning area. Search results are attached as Appendix B.

The AHIMS Web Service database search was conducted within the following coordinates (GDA, Zone 56):

Eastings: 288139 - 291246
 Northings: 6258872 - 6260945
 Buffer: 0m (search coordinates included an extensive buffer around the rezoning area)

The AHIMS search results showed:

18	Aboriginal sites are recorded in or near the above location
0	Aboriginal places have been declared in or near the above location

The distribution of recorded Aboriginal sites within these coordinates is shown on Figure 4. The frequencies of site features (site 'types') within the AHIMS database search area are listed in Table 2. AHIMS search results are discussed further in Section 3.2.

Table 2. Frequency of site features from AHIMS database search

Site Context	Site Features	Frequency	(%)
Open Site	Artefact	18	100
Total		18	100

3.1.2. Other heritage registers and databases

Other sources of information including heritage registers and lists were also searched for known Aboriginal heritage in the vicinity of the rezoning area. These included:

- Penrith Local Environmental Plan (LEP) 2010
- Sydney Water Heritage Register
- State Heritage Register
- State Heritage Inventory
- Commonwealth Heritage List
- National Heritage List
- Australian Heritage Places Inventory
- Historic Heritage Information Management System (HHIMS)
- Register of the National Estate (non-statutory list).

No items of Aboriginal heritage were listed or registered on these databases within the rezoning area.

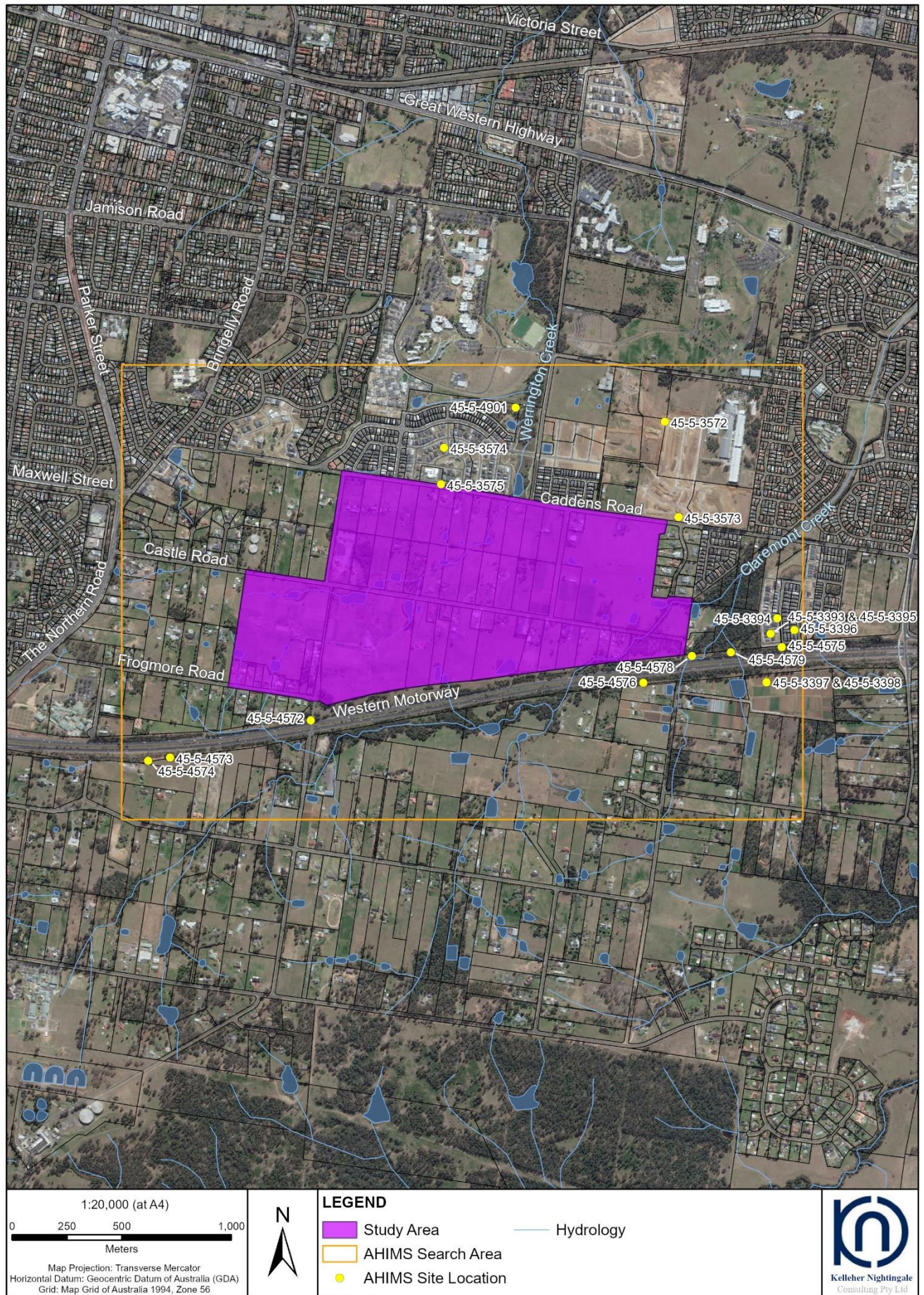


Figure 4. Registered Aboriginal sites near rezoning area (AHIMS search results)

3.2 Discussion of AHIMS search results

As well as determining if there are any registered (known) sites within a given area, an AHIMS search also helps to characterise local archaeology by illustrating the distribution of sites within the local landscape.

AHIMS search results indicate that open sites with artefacts (i.e. open camp sites, artefact scatters and isolated finds) were the only site types recorded around the rezoning area. No culturally modified (scarred or carved) trees were identified within the search. Culturally modified trees are likely absent from the rezoning area and its surrounds as a result of historic vegetation clearance. The majority of the previously recorded sites are located to the north and south of the rezoning area. These sites have been recorded as part of previous heritage assessments undertaken in association with development and infrastructure projects in the local area. Nine of these registered sites have been recorded as destroyed.

No previously recorded sites in the AHIMS database were located within the boundaries of the rezoning area.

3.3 Previous archaeological investigations

Database searches and review of known information sources have identified archaeological sites in the vicinity of the rezoning area. The majority of recorded sites in the AHIMS search area have been identified during archaeological assessments related to infrastructure and planning and development projects within the vicinity of the rezoning area. The pertinent investigations and sites identified as a result of these archaeological investigations are summarised below.

Claremont Meadows

In 1981, archaeological survey of the proposed housing subdivision at Claremont Meadows was undertaken by Jenny Hanrahan. One artefact scatter was identified during the survey along Claremont Creek to the north of Caddens Road (Hanrahan 1981). Whilst it was considered likely that this deposit would extend further along Claremont Creek, it was determined that it had been extensively disturbed by rural and historic land use.

Additional Aboriginal heritage investigations were conducted by Environmental Resources Management Australia Pty Ltd (ERM) at Claremont Meadows, east of the rezoning area and north of the M4 Motorway. In 2003, investigations identified nine Aboriginal archaeological sites including two open artefact scatter sites, two isolated finds, two manuports, two open archaeological deposits and one possible scarred tree (ERM 2003). Further archaeological survey at Claremont Meadows was conducted in 2006 covering Lots 8, 9, 10 DP27107 and Lot 19 DP239091 on Caddens Road. A total of six sites were identified. In 2009, a test and salvage excavation of five of these sites was completed with a total of 773 artefacts recovered (ERM 2010). CMSW 4 (AHIMS # 45-5-3396) was later registered as an Aboriginal site by KNC in August 2016. The site was comprised of three silcrete flakes and two mudstone flakes.

Caddens Release Area

Archaeological assessment was undertaken adjacent to the northern boundary of the current rezoning area, within the Caddens Release Area. Archaeological survey was undertaken by ERM in 2005 and 2007. A total of eight sites were identified as a result of these surveys. These sites consisted of artefact scatters and isolated finds made of silcrete, quartz and mudstone. Sites were identified on exposures located within animal stock grazing areas or exposed areas within proximity to first order creeklines or along creek banks. Sites within the western and central portion of the assessment area were identified on a prominent ridgeline, along creek banks and at a creek junction. These sites remained relatively undisturbed and were considered to contain moderate to high potential for relatively intact archaeological potential (ERM 2007).

Archaeological subsurface investigations were also undertaken by Jo McDonald Cultural Heritage Management (JMCHM) at the Caddens Release Area in 2009. Excavations revealed that sites CRA1 (AHIMS # 45-5-3572), CRA2 (AHIMS # 45-5-3573) and CRA7+8 (AHIMS # 450503574) were of low archaeological significance, due to low density archaeological information and soil disturbance (JMCHM 2009). Site CRA3-6 (AHIMS # 45-5-3574) was of moderate-high archaeological significance, particularly due to the high artefact density of the site, the discovery of an intact hearth and unusual trench feature at the site, and the information this provided about Aboriginal occupation in the region. Subsequent due diligence assessment by KNC (2016) confirmed the location of these sites and that they had since been destroyed under a Section 90, Consent to Destroy (AHIP #1131273).

M4 Western Motorway

A series of archaeological investigations have been conducted for proposed upgrade works to the M4 Western Motorway, located approximately 100 metres north of the current rezoning area.

An archaeological survey for Aboriginal sites within the M4 Western Motorway corridor between Parramatta and Emu Plains was originally conducted in 1996 (Helen Brayshaw Heritage Consultants 1996). The archaeological survey identified 20 Aboriginal archaeological sites that were predominantly low density artefact scatters (less than five artefacts) and isolated artefacts. Much of the road corridor was found to be heavily disturbed, resulting in an

archaeological record that was not considered to be reflective or representative of past Aboriginal occupation and use of this area.

Two artefact scatters located near South Creek were found to have relatively high artefact density and low disturbance. These sites were located in close proximity to major waterways on defined topography such as terraces or level hills/ridges with limited disturbance from modern land use practices and protection from fluvial activity and erosion. Silcrete artefacts dominated the recorded assemblages, with lower numbers of indurated mudstone, quartz, quartzite and igneous materials also identified. The assemblage comprised 70% flakes or flake fragments and 30% cores or core fragments. The high proportion of broken or damaged artefacts was considered to be the result of disturbance and post-discard breakage.

An Aboriginal archaeological survey and subsequent cultural heritage assessment of the M4 Motorway corridor was undertaken by KNC as part of the M4 Managed Motorway (M4MM) project (KNC 2013; KNC 2015). The investigation, a follow-up from the 1996 Brayshaw and Haglund assessment, included a review of background information, including identification of previously recorded Aboriginal sites registered on the AHIMS register, sites known to the local Aboriginal community or others and any archaeologically sensitive landforms or areas or potential archaeological deposit in the M4MM project area. The investigation identified 33 Aboriginal archaeological sites within the M4MM corridor including two previously unrecorded artefact scatters. The survey revisited the previously recorded sites to assess subsequent disturbance and archaeological potential. The majority of sites were found to be highly disturbed with no intact archaeological deposit due to modern land use practices and natural processes.

4 Landscape context

The rezoning area is located on the Cumberland Plain, a large low lying and gently undulating physiographic region of the Sydney Basin. The formation of the Sydney Basin began between 250 to 300 million years ago when river deltas gradually replaced the ocean that had extended as far west as Lithgow (Clark and Jones 1991). Landforms within the rezoning area consist of undulating slopes and crest, with two low ridgelines running north-west through the central and western parts of the rezoning area (Figure 6). The eastern part of the rezoning area is defined by a ridgeline spur with moderate to gentle slopes leading to the flats located above Claremont Creek.

Claremont Creek flows northeast into South Creek approximately three kilometres northeast of the rezoning area. South Creek is a prominent permanent watercourse in western Sydney. The hydrology is also influenced by the ephemeral tributaries of Werrington Creek located throughout the rezoning area. A number of on-line dams have been constructed on these drainage lines, affecting the hydrological and drainage characteristics of the drainage valley and surrounding slopes.

The underlying geology consists of Bringelly Shale, a member of the Wianamatta Group formed during the late Triassic period (Figure 5). Bringelly Shale geology comprises shale, carbonaceous claystone, claystone, laminate, fine to medium grained lithic sandstone, rare coal and tuff (Clark and Jones 1991). Quaternary alluvium consisting of fine-grained sand, silt and clay, has been deposited within the south eastern corner of the rezoning area by Claremont Creek, a major tributary of South Creek.

The soil landscapes within the rezoning area comprises Luddenham and South Creek soils which are derived from the underlying geology (Figure 5). The Luddenham Soil Landscape is characterised by an A1 horizon of friable dark brown loam to silty clay, an A2 horizon of clay loam to fine sandy clay loam and a B horizon of reddish brown to bright yellowish brown silty clay to heavy clay with shale rock fragments common throughout (Bannerman, Hazleton and Tille 1990). Aboriginal sites within the Luddenham soils are likely to be disturbed low-density scatters exposed by the eroding landscape.

South Creek soils are located on the present active floodplain of the larger drainage networks of the Cumberland Plain. These soils are characterised by brown apedal single-grained loams and dull brown clays ranging from a dull reddish brown to dull yellowish brown. Bright brown clays usually occur in the B Horizon and consist of reddish brown to bright yellowish brown sandy clays which are yellow or grey when mottled. This soil landscape is prone to frequent flooding and erosion leading to natural disturbance of Aboriginal sites present within this soil landscape.

Land use in the area is predominantly semi-rural in nature. Contemporary land use practices include agriculture and horticulture, such as market farms and animal grazing. The more elevated parts of the rezoning area along the ridge spurs have been cleared of original vegetation and replaced with pasture grasses and landscaped gardens and exotic plantings associated with residential dwellings. Some larger regrowth trees and possible old growth trees remain along the creek bank margins and steeper lower slopes.

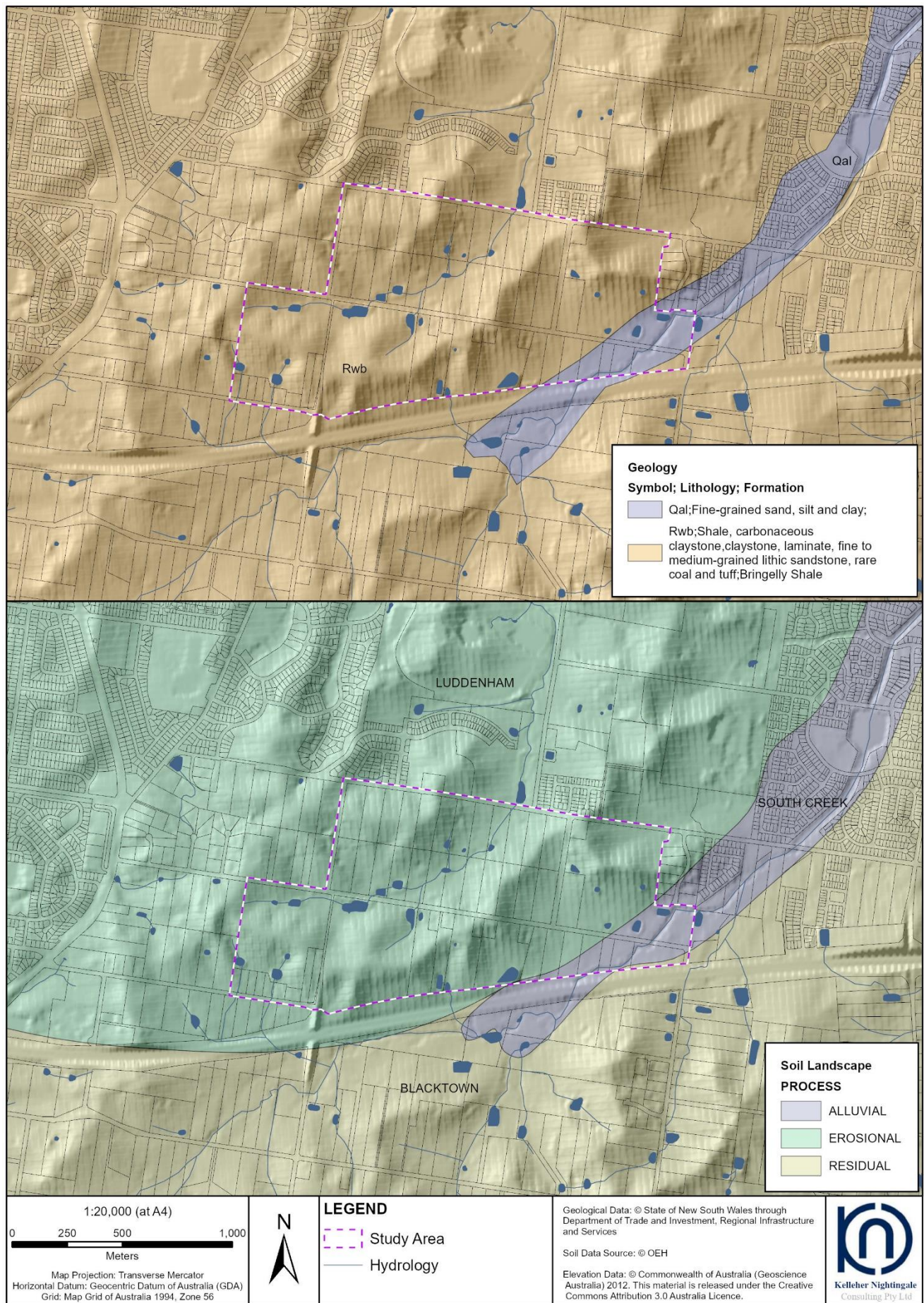


Figure 5. Geology and soil landscapes of the rezoning area

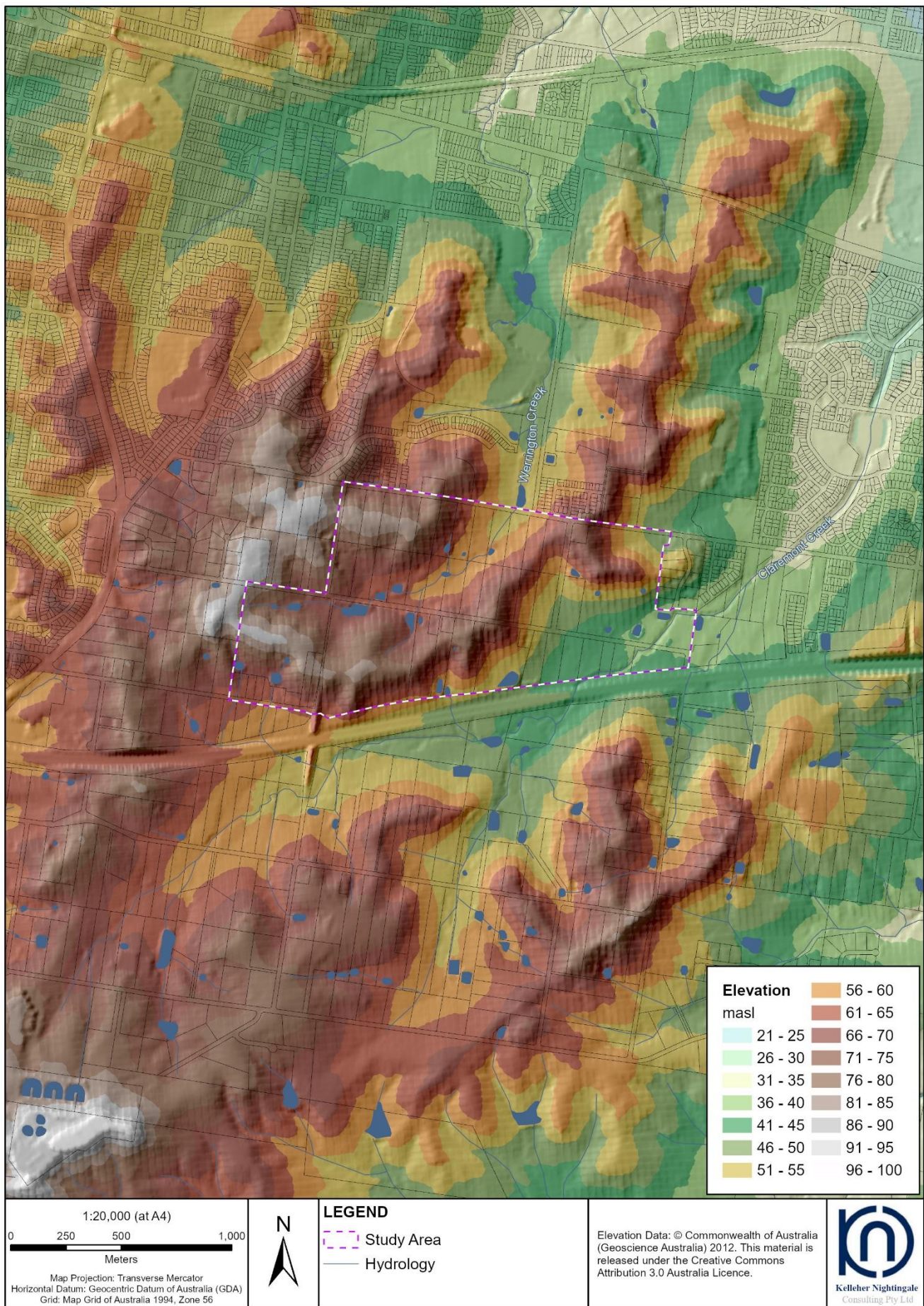


Figure 6. Topography of the rezoning area

5 Regional character and site predictions

Previous archaeological investigations have provided data on site distribution, site typology and lithic raw material use that aid in assessing the archaeological character of the region. Site frequency and density can be related to key landscape factors including distance to water, landform, aspect, degree of slope, soil landscape and proximity to environmental resources. Additionally, an understanding of historical and contemporary land use practices provide insight into levels of disturbance that may impact upon Aboriginal heritage within the rezoning area.

Aboriginal archaeological assessments undertaken within proximity to the rezoning area have indicated that the archaeological sites identified in the region generally occur as surface artefacts and isolated finds on the underlying Bringelly shale geologies. Open sites predominate, as the underlying geology of the Cumberland Plain is not conducive to the formation of rock shelters. Additionally, previous studies have demonstrated that relatively elevated landforms along the margins of creeks, especially those offering permanent water and associated environmental resources, would have been favourable for occupation by Aboriginal people. This is reflected in the archaeological record by higher artefact densities recorded at these sites, potentially reflecting repeated or more intensive use of these locations. Elevated locations on hilltops and ridge crests tend to display a different archaeological signature, chiefly a sparser artefact distribution and less evidence for 'everyday' or utilitarian activities, suggesting that these areas were often used differently.

Regional archaeology has been variably impacted by historical and current land use practices as well as by natural processes. Preservation of archaeological sites in open contexts is difficult because of the adverse effects of erosion, floods and disturbance from various human activities. The use of animal grazing paddocks, market gardens and landscaped gardens throughout the rezoning area has contributed to natural processes such as erosion which disturb both surface and subsurface deposits. Conversely, ground surface visibility is often increased by these processes, leading to increased identification of surface artefacts in these areas. However, Aboriginal objects are unlikely to survive in situ within these contexts.

The information outlined in previous sections allows several predictions to be made about the nature of the archaeology that may be expected in the rezoning area. Site predictions for the rezoning area include the following:

- Archaeological sites are likely to consist of open artefact scatters and/or isolated artefacts on elevated locations associated with the Bringelly shale landscape.
- It can be expected that silcrete will be the most commonly encountered artefact raw material in open context sites, with occurrences of silicified tuff, quartz and occasional chert.
- Clearance of original vegetation lessens the likelihood of identifying culturally modified trees, but old growth trees may be present in the rezoning area (especially along Claremont Creek) and have the potential to display scars of Aboriginal origin.
- Archaeological sites are more likely to be identified in areas that have been subject to less intensive disturbance.
- Identification of archaeological sites is likely to be affected by differential visibility of the ground surface, but successful assessment of areas of PAD or archaeological potential can be made based on landform and other environmental factors such as topography, erosion, flood levels aspect and distance to water.

6 Sampling strategy and field methods

The aim of the archaeological survey was to conduct a pedestrian inspection of the rezoning area to record any Aboriginal archaeological sites or areas with potential to contain Aboriginal objects. Access to several properties was not available but inspection from the boundary of neighbouring properties allowed a general assessment of landform and archaeological potential to be carried out in those locations. The rezoning area was divided into four survey units based on established property boundaries (Figure 7).

Survey Unit 1 was located in the north east portion of the rezoning area and was bounded by private properties to the east, Caddens Road to the north, Ulm Road to the west and Castle Road to the south. The survey unit contained market gardens, paddocks and semi-rural residential properties. Survey unit 1 was characterised primarily by crests and slopes which lead to flats located above the open depression associated with Claremont Creek. A number of dams were also dispersed throughout the survey unit.

Survey Unit 2 was situated in the north western part of the rezoning area. Boundaries of this survey unit were defined by Caddens Road to the north, Ulm Road to the east, Kingswood Road to the west and Castle Road to the south. The survey unit contained a series of on-line dams which had been constructed along Werrington Creek. Slopes on either side of the open depression lead to two ridges running in a north-west direction. A series of semi-rural residential properties had been built on the crest landforms along the ridges with landscaped gardens and cleared paddocks. Market gardens were also present in the south western corner of the survey unit.

Survey Unit 3 was defined by Castle Road to the north, Kingswood Road to the east, Frogmore Road to the south and private property to the west. The survey unit encompassed the entire semi-rural property lot located at 166-204 Castle Road, Orchard Hills and semi residential lots to the south. The survey unit was characterised by slope and crest landforms which continue on from Survey Unit 2. The open depression landform was associated with first order tributaries of Werrington Creek. The survey unit comprised grazing paddocks and several on-line dams.

Survey Unit 4 contained the southern part of the rezoning area with its boundaries defined by Kingswood Road to the west, Castle Road to the north, and property boundaries to the south and east. The landforms in this survey unit extended from survey unit 2 and comprised the crest of a north-west running ridge, with slopes leading down either side to the open depressions associated with Werrington Creek and Claremont Creek. The western part of the survey unit also contained an extensive creek flat bordering Claremont Creek.

Based on the archaeological background, landscape context and regional character, it was anticipated that overall surface visibility would be low except in areas of exposure such as vehicle tracks, along creek lines, fence lines and dam walls. The generally poor visibility of the rezoning area led to an increased focus on landform and topography. Potential old-growth trees were also examined for evidence of scarring.

Assessment of archaeological potential was also carried out, focusing on a combination of factors such as landform, topography, gradient, erosion, flood level, distance to water and relation to identified Aboriginal sites. The level of soil disturbance was also assessed, as this has the potential to impact upon any subsurface archaeology that may be present.

The survey units were traversed by pedestrian survey. The survey team consisted of Matthew Kelleher (KNC) and Steve Randall (DLALC). Survey was undertaken on 13 December 2017.

The survey team were equipped with high resolution aerial photography and topographic maps showing the rezoning area boundary. A non-differential GPS receiver was used for spatial recordings. All GPS recordings were made using the Geocentric Datum of Australia (GDA) coordinate system. Detailed notes on the condition of each survey unit were compiled by the survey team including an assessment of surface visibility, vegetation coverage, modern disturbance and current land use.



Figure 7. Survey units and landforms of the rezoning area

7 Survey results

The survey identified seven areas of Potential Archaeological Deposit (PAD) within the rezoning area. No Aboriginal objects (artefacts) or Aboriginal archaeological sites were identified within the rezoning area. The results of the survey are shown in Figure 8 and described below.

7.1 Identified archaeological features within the rezoning area

PAD Name: Orchard Hills PAD 1
PAD Coordinates: 289815E 6260292N
Landform Context: Slope

Orchard Hills PAD 1 was an area of potential archaeological deposit situated on an elevated landform approximately 55 metres west of Werrington Creek. The PAD was located approximately 100 metres southwest of the Caddens Road/Mariposa Crescent intersection. Visibility was low across the PAD area due to high grasses and maintained pasture grasses however visible surface disturbance was low. The PAD extent was defined by the slope landform, the road boundary and a residence to the west. The PAD was assessed as having moderate archaeological potential due to topographic location and low levels of visible disturbance.



Plate 1. Looking south across Orchard Hills PAD 1 on gentle slope above Werrington Creek.



Plate 2. Looking south across Orchard Hills PAD 1 showing area of maintained low grasses.

PAD Name: Orchard Hills PAD 2
PAD Coordinates: 289662E 6260141N
Landform Context: Slope

Orchard Hills PAD 2 was an area of potential archaeological deposit on an elevated gentle gradient slope landform approximately 70 metres from Werrington Creek. The PAD was located within the southern part of a paddock south of Caddens Road, between a series of semi-rural residential lots. Visible surface disturbance was very low across the PAD and restricted to past vegetation clearance. The site was assessed as having moderate archaeological potential due to topographic location above an open depression and low levels of visible disturbance.



Plate 3. Facing north, Orchard Hills PAD 2 located behind trees (as indicated by black arrow).

PAD Name: Orchard Hills PAD 3
PAD Coordinates: 289478E 6259959N
Landform Context: Open Depression

Orchard Hills PAD 3 was an area of potential archaeological deposit situated within an open depression landform, along an ephemeral drainage section of Werrington Creek. The PAD area was located at the confluence of two drainage tributaries with its boundaries defined by the construction of a dam and several dwellings. Orchard Hills PAD 3 was situated approximately 60 metres north of Castle Road. Visible surface disturbance was low across the PAD area and restricted to past vegetation clearance. The area was assessed as having moderate archaeological potential due to the location at the confluence of two tributaries of Werrington Creek and low level of visible disturbance.



Plate 4. Facing north, looking at Orchard Hills PAD 3 and cleared vegetation as well as tree coverage.

PAD Name: Orchard Hills PAD 4
PAD Coordinates: 289920E 6260010N
Landform Context: Crest/slope

Orchard Hills PAD 4 was an area of potential archaeological deposit located on the edge of a crest, above a moderate gradient slope landform overlooking the lower valley flats above Claremont Creek. The PAD was located between two creeks; 228 metres southeast of Werrington Creek and 620 metres northwest of Claremont Creek. The ridgeline the PAD is located on forms part of the watershed between the two creek catchments. The PAD was located approximately 170 metres north of Castle Road on a semi-rural property. Visible surface disturbance was low across the PAD and restricted to past vegetation clearance. The site extent was clearly defined by the crest landform, and modern land use disturbance created by a vehicle track and associated land use. The site was assessed as having moderate archaeological potential due to its topographic location and low level of visible disturbance.



Plate 5. Facing north towards Orchard Hills PAD 4 demonstrating crest and slope landforms.

PAD Name: Orchard Hills PAD 5
PAD Coordinates: 288948E 6259934N
Landform Context: Open Depression/Slope

Orchard Hills PAD 5 was an area of potential archaeological deposit situated on an elevated landform located above an open depression landform. The PAD area was split into two areas located above a constructed dam. The PAD was located south of Castle Road and west of Kingswood Road. Disturbance across the PAD was low, with overgrown pasture present. The site was assessed as having moderate archaeological potential due to elevated location adjacent to the drainage line and low levels of visible disturbance.



Plate 6. Looking southwest towards Orchard Hills PAD 5, with black arrows showing two locations of the PAD.

PAD Name: Orchard Hills PAD 6
PAD Coordinates: 290545E 6259745N
Landform Context: Flat

Orchard Hills PAD 6 was identified as an area of archaeological potential on a flat landform bordering Claremont Creek, north of Castle Road. The PAD was positioned on the elevated flats above Claremont Creek in an area mostly cleared of vegetation, with the exception of scattered regrowth trees. Disturbance across the PAD area was relatively low with evidence of vegetation clearance. The PAD extent was clearly defined by disturbance from dams to the north and west and Castle Road to the south. The area was assessed as having moderate archaeological potential due to its topographic location above the creek and low levels of visible disturbance.



Plate 7. Facing north, overlooking cleared land at Orchard Hills PAD 6 above Claremont Creek.

PAD Name: Orchard Hills PAD 7
PAD Coordinates: 290660E 6259830N
Landform Context: Flat

Orchard Hills PAD 7 was identified as an area of archaeological potential on a flat landform. The PAD area was located on the south side of Castle Road and extended either side of Claremont Creek. Visible surface disturbance was low across the PAD and restricted to areas of vegetation clearance. The PAD extent was also determined by disturbance associated with a residence on the southern side of Castle Road. The area was assessed as having moderate archaeological potential due to its topographic location above the creek and low levels of visible disturbance.



Plate 8. Facing northeast overlooking Orchard Hills PAD 7 and Claremont Creek.

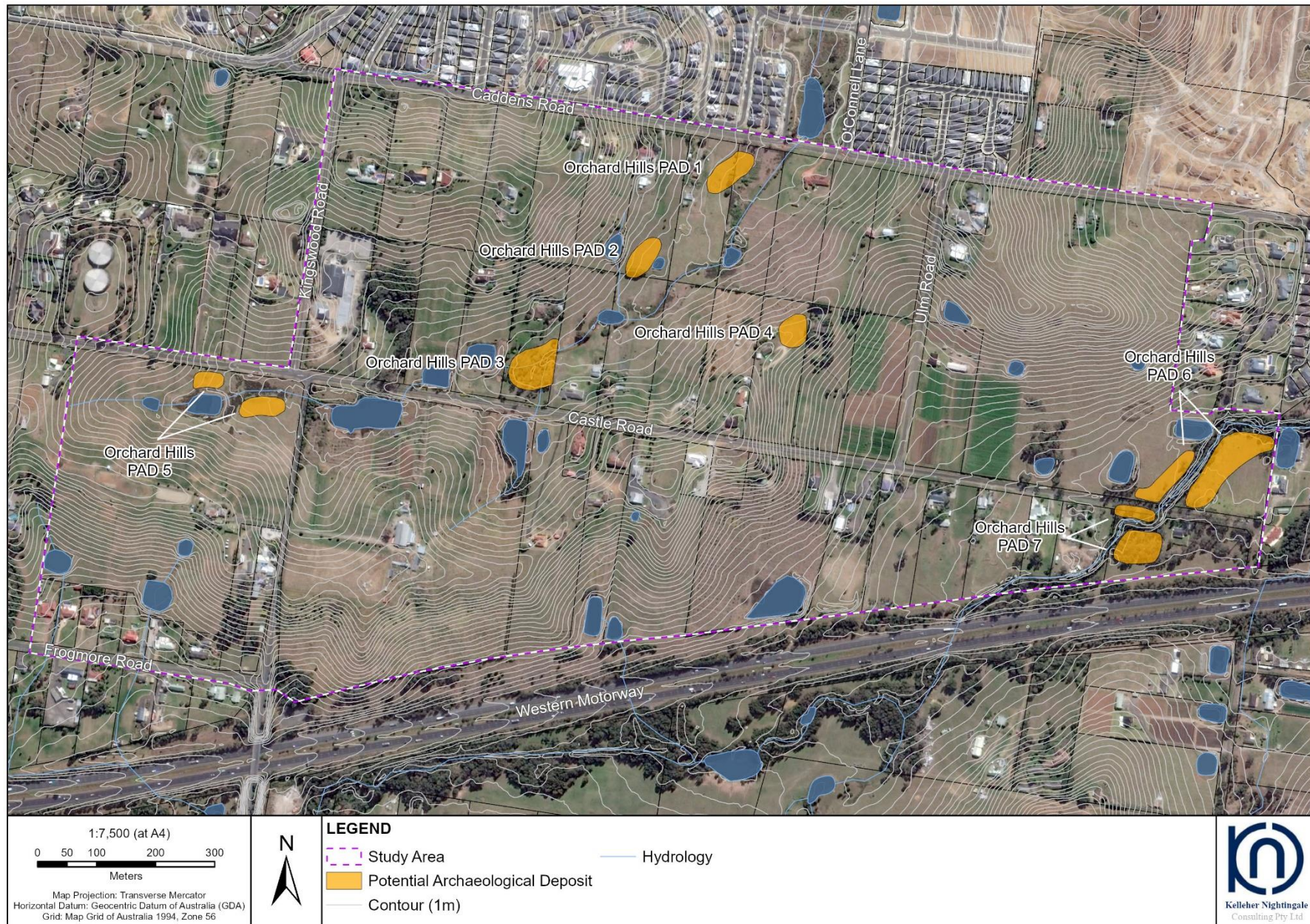


Figure 8. Assessed archaeological potential within the rezoning area

7.2 Survey Coverage

7.2.1. Survey Unit 1

Survey commenced in Survey Unit 1 within the lands located on the southern side of Caddens Road. The survey unit was characterised primarily by cleared paddocks containing low pasture grasses on the slope landform. A crest landform was present in the centre of the survey unit. Visibility within the rezoning area was generally low as a result of pasture grasses and vegetation. A small area of exposure was present on the crest landform where the soils had eroded away. Small scrubby pasture weeds were also located on the crests. Three dams were identified on the lower slopes with areas of exposure present around dams and on dam walls. These were inspected for Aboriginal objects, however none were identified. Mature trees present surrounding dams and along Claremont Creek were checked for evidence of scarring, however none were identified. Lower slopes were the most common landform in this survey unit and led down to a flat landform located above Claremont Creek in the southeast corner of the rezoning area.

Disturbance within the survey unit was mostly present within areas which had been affected by the construction of semi-rural properties, earthen dams, market garden, fences and road infrastructure. The majority of the landscape has been extensively cleared for animal grazing or landscaped gardens, but did not show extensive signs of disturbance. On the crest landform, it was evident that natural processes of erosion had taken place following vegetation clearance, with soils appearing thin and sandy in exposure. The flat landform within the southern part of the survey unit contained low pasture grasses, cattle grazing and two large dams. Ground surface visibility was generally low; areas of exposure were present along fence lines and dam walls within this part of the rezoning area. Larger exposed areas were mostly present along the edges of dams. These were inspected for Aboriginal objects, however none were identified. Visibility around the banks of Claremont Creek within this part of the survey unit was very low due to shrubs, leaf litter and tree coverage. This area was identified as Orchard Hills PAD 6, which was identified within the survey area on the flat landform either side of Claremont Creek.



Plate 9. Survey Unit 1 facing east, showing crest landform.



Plate 10. Survey Unit 1 facing south, view from moderate slope, overlooking flats in the southern part of the survey unit.

7.2.2. Survey Unit 2

Survey Unit 2 was characterised by crest, slope and open depression landforms. Survey of this area began on the crest landform located west of Ulm Road and continued further west across the survey unit. Ground surface visibility in this part of the survey unit was low, mostly as a result of ongoing landscaping maintenance. The lots within this survey unit generally comprised residential properties with mown grasses, vegetation clearance and introduced vegetation and trees. Some areas however, within close proximity to the ephemeral drainage section of Werrington Creek were overgrown and contained dense shrubbery with high unmaintained grasses. These decreased visibility within the open depression landform. Areas of exposure were minimal and restricted to areas containing evidence of disturbance, such as along dirt vehicle tracks, fence lines and where stock movement had led to erosion. These areas were inspected for Aboriginal objects, however none were identified. Visibility on exposures was low to moderate due to leaf litter and gravels. Four PADs (Orchard Hills PAD 1, Orchard Hills PAD 2, Orchard Hills PAD 3 and Orchard Hills PAD 4) were identified within Survey Unit 2, as a result of their elevated positions in the landscape and proximity to watercourses.

Properties within this survey unit contained grazing paddocks where the vegetation mostly consisted of low grasses, but were not as landscaped as the properties to the north. Visibility through the open depression was low, with dense vegetation. Areas of exposure remained restricted to dirt and gravel vehicle tracks as well as driveways. These were checked for any evidence of Aboriginal objects, though none were located. The majority of slope landform appeared relatively undisturbed, apart from cattle grazing and discrete areas of landscaping around residences. The crest landform had been largely disturbed in this portion of the rezoning area as a result of the construction of residences.



Plate 11. Survey Unit 2 view to north, displaying exposures and cleared paddocks.



Plate 12. View north, overlooking gentle slope landforms and land use disturbance present in Survey Unit 2.

7.2.3. Survey Unit 3

Survey Unit 3 contained a large semi-rural property used primarily for animal grazing and several semi-rural residences along Frogmore Road. Slope, open depression and crest landforms in this survey unit were a continuance of existing landforms on the opposite side of Kingswood Road. Crest landforms within the survey unit had the greatest amount of exposure. These were present along the property driveway, around dams and within areas affected by stock movement. The remainder of the survey unit was covered in pasture grasses. Disturbance within Survey Unit 3 was more evident on the crest, where a house and dam had been constructed. Another dam had been constructed in the northern part of the survey unit, along the open depression. One PAD area (Orchard Hills PAD 5) was identified within this part of the survey area. The remainder of the slope landform displayed little evidence of surface disturbance. Surface exposures and areas at the base of mature trees were inspected for Aboriginal objects however none were identified.

7.2.4. Survey Unit 4

Survey Unit 4 encompassed the crest, slope, flat and open depression landforms south of Castle Road. The majority of the slope displayed low visibility as a result of maintained grasses across the properties. Agricultural land use practices were evident throughout this part of the rezoning area, similar to land uses identified in the other survey units. The crest and slope landforms in the surveyed area contained semirural properties and demolished structures with overgrown areas of dense exotic weeds. These areas had been extensively disturbed from landscaping, past agricultural use and the construction of structures, utilities and driveways. Areas of exposure identified on the crest landform were the result of fence construction and erosion. These generally displayed good visibility and sandy soils. No artefacts were identified.

A flat landform was identified in the eastern portion of the survey unit bordering Claremont Creek. Vegetation in proximity to the creek was dense with shrubbery and tree cover; consequent ground surface visibility was very low. Some small areas of exposure at the base of trees were inspected for Aboriginal objects, and the trees were inspected for scars, however neither were identified. One PAD area (Orchard Hills PAD 7) was identified within the survey area on the flat landform either side of Claremont Creek.



Plate 13. Survey Unit 4 view to the south, area of exposure present in the foreground.



Plate 14. Survey Unit 4, along the open depression of Claremont Creek, note thick vegetation.

7.3 Survey coverage analysis

Overall exposure across the survey area was low, primarily limited to vehicle tracks, erosion scours and cleared areas created by modern land use disturbance. Vegetation within areas of semirural and agricultural land use on the crest, upper and lower slope landforms generally consisted of short dense grass and scattered regrowth trees. Lower slopes, minor creeklines and areas adjacent to the open depressions appeared relatively unaffected by modern land use and vegetation varied between remnant regrowth woodland or dense exotic weeds and mixed trees.

Survey coverage analysis indicated that the flat and crest landforms were the most effectively surveyed in terms of landform coverage. This is attributable to more frequent exposures and higher visibility due to land use disturbance and subsequent erosion. Open depression landforms were the least effectively surveyed due to dense vegetation.

Details of survey coverage and landform coverage are outlined in Tables 3 and 4 below.

Table 3. Survey unit coverage calculations

Survey Unit	Landform	Survey Unit area (m ²)	Exposure %	Visibility %	Effective Coverage Area (m ²)	Effective Coverage Area (%)
1	Crest	26,533	15	30	1,194	4.5
	Drainage Depression	7,406	5	10	37	0.5
	Flat	44,777	15	20	1,343	3
	Slope	185,793	10	10	1,858	1
2	Crest	60,063	15	20	1,802	3
	Drainage Depression	75,429	5	10	377	0.5
	Slope	411,818	10	10	4,118	1
3	Crest	21,115	20	30	1,267	6
	Drainage Depression	15,279	5	10	76	0.5
	Slope	179,583	15	10	2,694	1.5
4	Crest	50,542	15	20	1,516	3
	Drainage Depression	37,993	5	10	190	0.5
	Flat	71,596	20	10	1,432	2
	Slope	331,512	10	10	3,315	1

Table 4. Landform coverage calculations

Landform	Landform Area (m ²)	Area Effectively Surveyed (m ²)	Area Effectively Surveyed (%)
Crest	158,253	5,779	3.65
Drainage Depression	136,107	681	0.50
Flat	116,373	2,775	2.38
Slope	1,108,707	11,985	1.08

7.4 Analysis and discussion

Background research, AHIMS records and archaeological field survey identified seven areas of potential archaeological deposit. Orchard Hills PAD 1, Orchard Hills PAD 2, Orchard Hills PAD 3, Orchard Hills PAD 4, Orchard Hills PAD 5, Orchard Hills PAD 6 and Orchard Hills PAD 7 were identified in the rezoning area during the archaeological field survey. These PAD areas were identified in all four survey units, on all landforms. No Aboriginal objects or archaeological sites were identified within the rezoning area.

The characterisation of archaeological potential was based on several factors known to influence both the location and preservation of archaeological sites within the region. These factors included landform context, gradient, erosion, distance to water and integrity of the ground surface / assessment of disturbance. Within the seven PADs identified within the rezoning area, the presence of archaeological material is considered to be probable, but not identified during survey due to poor ground surface visibility. The survivability of archaeological sites in areas of moderate potential is dependent on landform stability, slope gradient and various disturbance processes.

The ground surface was not visible within the majority of the rezoning area due to the presence of maintained grazing paddock grasses and other vegetation cover in addition to farm related structures, dams, residences, landscaping and roads. Despite the lack of surface visibility it was still possible to assess the archaeological potential based on landform and disturbance. The remainder of the rezoning area exhibited low archaeological potential. The archaeologically sensitive landforms it contained were generally modified to the extent that they were unlikely to retain intact archaeological deposits.

Following the survey, Deerubbin LALC recommended further detailed investigation of identified areas of potential prior to development of the lands.

7.4.1. Assessment of archaeological research potential

Background research and survey identified seven areas of potential archaeological deposit. Assessment of archaeological potential for each area has been developed based on background research and the current archaeological assessment (field survey).

Orchard Hills PAD 1 exhibits *moderate archaeological research potential*. The PAD area was identified on a slope located above the open depression landform associated with an ephemeral section of Werrington Creek. The area displayed relatively low levels of disturbance. Its close proximity to a watercourse and favourable topographic context would have made it an attractive locale for Aboriginal landscape use. Archaeological deposit associated with the PAD would have the potential to inform on Aboriginal landscape use in the local area.

Orchard Hills PAD 2 exhibits *moderate archaeological research potential*. The PAD area was identified on a slope located above the open depression landform associated with an ephemeral section of Werrington Creek. The area displayed relatively low levels of disturbance. Its close proximity to a watercourse and favourable topographic context would have made it an attractive locale for Aboriginal landscape use. Archaeological deposit associated with the PAD would have the potential to inform on Aboriginal landscape use in the local area.

Orchard Hills PAD 3 exhibits *moderate archaeological research potential*. The PAD area was identified in an open depression landform located at the confluence of Werrington Creek and a drainage line. The landform retained moderate potential for intact archaeological deposit due to its low levels of disturbance. Its close proximity to a watercourse and favourable topographic context would have made it an attractive locale for Aboriginal landscape use. Archaeological deposit associated with the PAD would have the potential to inform on Aboriginal landscape use in the local area.

Orchard Hills PAD 4 exhibits *moderate archaeological research potential*. The PAD was identified on a slope located above a flat leading to Claremont Creek. The area displayed relatively low levels of disturbance. The slope landform retained moderate potential due to its elevated positioning in the landscape. Its favourable topographic context would have made it an attractive locale for Aboriginal landscape use. Archaeological deposit associated with the PAD would have the potential to inform on Aboriginal landscape use in the local area.

Orchard Hills PAD 5 exhibits *moderate archaeological research potential*. The PAD was identified in two areas situated on a slope landform above a dam associated with a drainage line of Werrington Creek. The area displayed relatively low levels of disturbance. The slope landform retained moderate potential due to its elevated positioning in the landscape. Its close proximity to a watercourse and favourable topographic context would have made it an attractive locale for Aboriginal landscape use. Archaeological deposit associated with the PAD would have the potential to inform on Aboriginal landscape use in the local area.

Orchard Hills PAD 6 exhibits *moderate archaeological research potential*. The PAD was identified on either side of Claremont Creek, north of Castle Road on the flat landform. The flat landform retained moderate potential for intact archaeological deposit due to its positioning in the landscape and relatively low levels of visible disturbance. Its close proximity to a watercourse and favourable topographic context would have made it an attractive locale for Aboriginal landscape use. Archaeological deposit associated with the PAD would have the potential to inform on Aboriginal landscape use in the local area.

Orchard Hills PAD 7 exhibits *moderate archaeological research potential*. The PAD was identified on either side of Claremont Creek, south of Castle Road on the flat landform. The flat landform retained moderate potential for intact archaeological deposit due to its positioning in the landscape and relatively low levels of visible disturbance. Its close proximity to a watercourse and favourable topographic context would have made it an attractive locale for Aboriginal landscape use. Archaeological deposit associated with the PAD would have the potential to inform on Aboriginal landscape use in the local area.

8 Preliminary Impact Assessment

Seven newly identified areas of potential archaeological deposit were identified within the rezoning area. No Aboriginal objects or archaeological sites were identified within the rezoning area. DLALC recommended further detailed investigation of identified areas of potential prior to development of the lands.

The location of the identified PAD areas in relation to the indicative master plan for the proposal is shown in Figure 9. The indicative structure plan indicates that four PADs (Orchard Hills PAD 3, Orchard Hills PAD 5, Orchard Hills PAD 6 and Orchard Hills PAD 7) are located in areas designated as public open space. Three PADs (Orchard Hills PAD 1, Orchard Hills PAD 2 and Orchard Hills PAD 4) are located within land that would be developed for residential purposes and associated infrastructure including roads and services.

Based on the indicative master plan design the PAD areas would be impacted by the proposed development (Figure 8). Future detailed design for the project should take the location of the identified sites into consideration and avoid impact where possible.

The preliminary impact assessment for the PADs based on the current indicative master plan design is listed in Table 5 and shown on Figure 9.

Table 5. Impact assessment for identified Aboriginal areas of potential archaeological deposit

PAD Name	AHIMS ID	Impact Assessment
Orchard Hills PAD 1	tbc	Impacted
Orchard Hills PAD2	tbc	Impacted
Orchard Hills PAD 3	tbc	Impacted
Orchard Hills PAD 4	tbc	Impacted
Orchard Hills PAD 5	tbc	Impacted
Orchard Hills PAD 6	tbc	Impacted
Orchard Hills PAD 7	tbc	Impacted

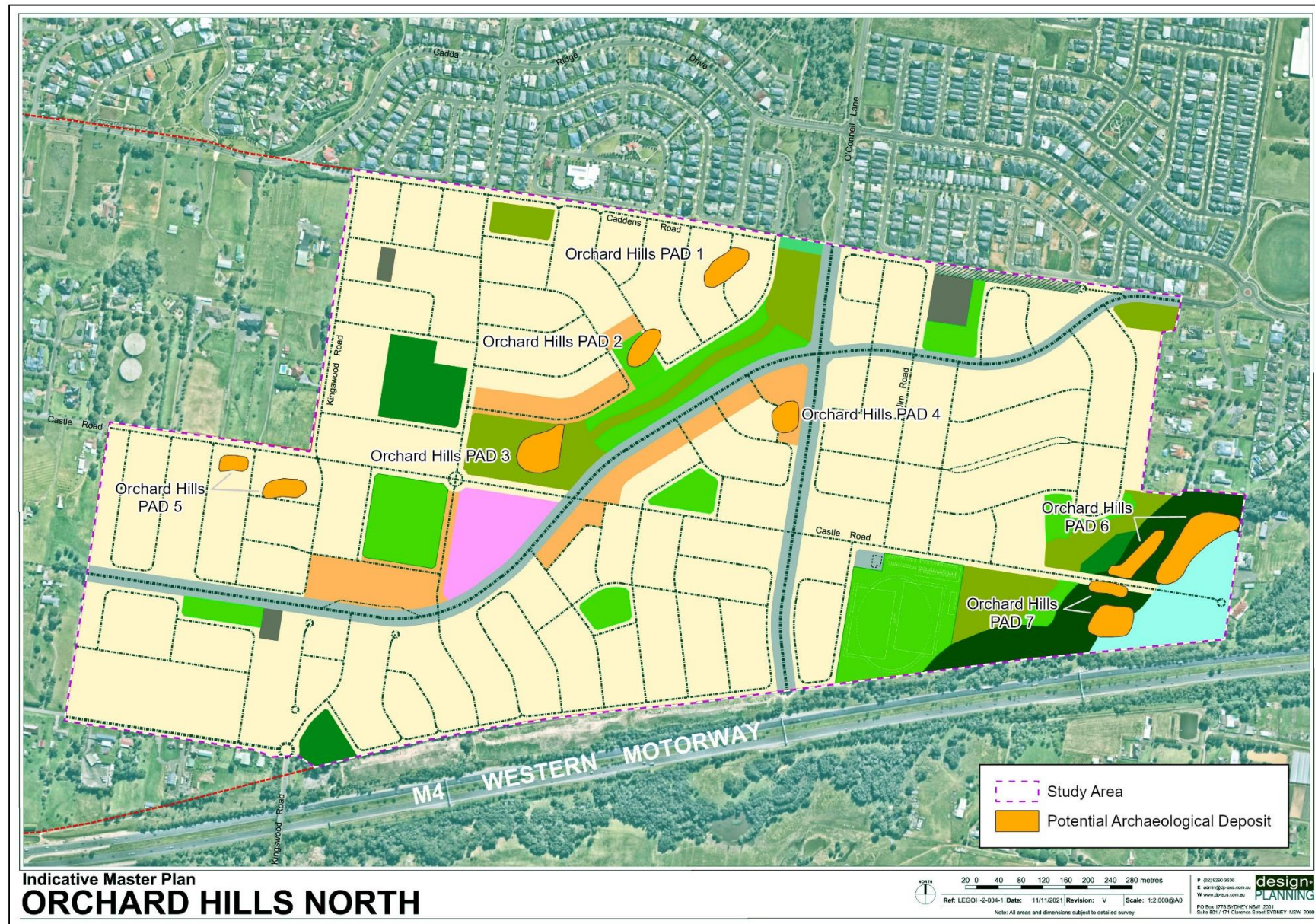


Figure 9. Indicative master plan and PAD areas

9 Legislative Considerations

The *National Parks and Wildlife Act 1974* is the primary statutory control dealing with Aboriginal heritage in New South Wales. Items of Aboriginal heritage (Aboriginal objects) or declared Aboriginal places are protected and regulated under the Act.

An “Aboriginal object” is defined under the Act 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”. As such, Aboriginal objects are confined to physical evidence and are commonly referred to as Aboriginal sites.

Aboriginal objects are protected under section 86 of the Act. It is an offence to harm or desecrate an Aboriginal object, either knowingly [section 86 (1)] or unknowingly [section 86 (2)].

There are offences and penalties relating to harm to, or desecration of, an Aboriginal object or declared Aboriginal place. Harm includes to destroy, deface, damage or move. Penalties are tiered according to offences, which include:

- a person must not harm or desecrate an Aboriginal object that the person knows is an Aboriginal object;
- a person must not harm or desecrate an Aboriginal object (strict liability offence);
- a person must not harm or desecrate an Aboriginal place (strict liability offence);
- failure to notify Office of Environment and Heritage of the location of an Aboriginal object (existing offence and penalty); and
- contravention of any condition of an Aboriginal Heritage Impact Permit.

Under section 87 (1) it is a defence if “(a) the harm or desecration concerned was authorised by an Aboriginal heritage impact permit, and (b) the conditions to which that Aboriginal heritage impact permit was subject were not contravened”.

Section 87 (2) of the Act provides a defence against prosecution under section 86 (2) if “the defendant exercised due diligence to determine whether the act or omission constituting the alleged offence would harm an Aboriginal object and reasonably determined that no Aboriginal object would be harmed”.

Under section 90 (1) of the Act “the Director-General may issue an Aboriginal heritage impact permit”. The regulation of Aboriginal heritage impact permits is provided in Part 6 Division 2 of the Act, including regulations relating to consultation (section 90N).

An Aboriginal heritage impact permit (AHIP) issued under section 90 (1) of the Act is required for any activity which will harm an Aboriginal object or declared Aboriginal place.

10 Conclusions and recommendations

The proposed residential subdivision and development of lands within the Orchard Hills North rezoning area was assessed under the OEH *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* and the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*. In total, seven areas of Potential Archaeological Deposit (PAD) were identified on archaeologically sensitive landforms within the rezoning area: Orchard Hills PAD 1, Orchard Hills PAD 2, Orchard Hills PAD 3, Orchard Hills PAD 4, Orchard Hills PAD 5, Orchard Hills PAD 6 and Orchard Hills PAD 7. The findings are consistent with the known archaeological record for the locality and wider region.

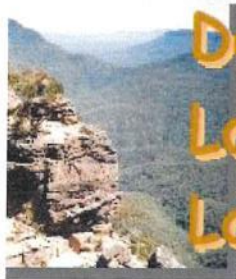
Archaeologically sensitive PAD areas were identified in several landform contexts including slopes, crests, creek flats and along open depressions. All PAD areas displayed low levels of disturbance and apparently stable, intact soil structure. Potential for subsurface archaeological deposit in these areas is considered to be moderate.

According to the indicative master plan, the seven PADs are located within areas to be rezoned for residential subdivision or public open space and would therefore likely be impacted by development activities following rezoning.

Future subdivision and development of the land should avoid impact to identified PADs where possible. If avoidance is not possible, the PADs do not pose a constraint to future rezoning, subdivision or development but they will require a process of further assessment to comply with relevant legislation and associated requirements prior to any impact. This may include a test excavation program undertaken in accordance with the OEH *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*. If Aboriginal objects are identified as a result of test excavation program, an Aboriginal heritage impact permit (AHIP) will be required prior to impact. An Aboriginal heritage impact permit (AHIP) is required for any activity which will harm an Aboriginal object.

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Appendix A DLALC Report

**Deerubbin
Local Aboriginal
Land Council**

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291-295 High Street
PENRITH NSW 2750
PO Box 40
Penrith BC
NSW 2751 AUSTRALIA

ABN: 41 303 129 586
T: (02) 4724 5600
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Kelleher Nightingale Consulting Pty Ltd
Level 10, 25 Bligh Street
SYDNEY NSW 2000

Our Ref: 2910

26 February 2018

SUBJECT: PROTECTION OF ABORIGINAL CULTURAL HERITAGE

Land rezoning Caddens Road and Castle Road
Orchard Hills

Attention: Matthew Kelleher,

A representative of the Deerubbin Local Aboriginal Land Council inspected lands in Caddens Road and Castle Road for the rezoning of Orchard Hills on Tuesday, 12th December 2017. An Aboriginal cultural heritage assessment was undertaken to evaluate the likely impact that future developments has on the cultural heritage of the land.

Although no Aboriginal cultural materials, in the form of stone artefacts, for example were found during the assessment, because of poor ground surface visibility. This area has potential to contain sub surface stone tools near the waterways across this landscape.

Deerubbin Local Aboriginal Land Council therefore, recommends further investigations be undertaken with testing before any future development.

Yours Faithfully,

(Steven Randall
Aboriginal Cultural Heritage Officer)

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

Appendix B AHIMS Search Results



Office of
Environment
& Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 1729

Client Service ID : 323044

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-5-3393	Claremont Meadows South West 1 (CMSW 1)	GDA	56	291100	6259720	Open site	Valid	Artefact :-		99122,103732
	Contact	Recorders	ERM Australia Pty Ltd- Sydney CBD							
45-5-3394	Claremont Meadows South West 2 (CMSW 2)	GDA	56	291130	6259790	Open site	Valid	Artefact :-	2899,3219	99122
	Contact	Recorders	ERM Australia Pty Ltd- Sydney CBD							
45-5-3395	Claremont Meadows South West 3 (CMSW 3)	GDA	56	291100	6259720	Open site	Valid	Artefact :-	2876	99122,103732
	Contact	Recorders	ERM Australia Pty Ltd- Sydney CBD							
45-5-3396	Claremont Meadows South West 4 (CMSW 4)	GDA	56	291207	6259737	Open site	Valid	Artefact :-	2899,3219	99122,103732
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd,ERM Australia Pty Ltd- Sydney CBD, Miss.K							
45-5-3397	Claremont Meadows South West 5 (CMSW 5)	GDA	56	291080	6259500	Open site	Valid	Artefact :-	2899,3219	99122,103732
	Contact	Recorders	ERM Australia Pty Ltd- Sydney CBD							
45-5-3398	Claremont Meadows South West 6 (CMSW 6)	GDA	56	291080	6259498	Open site	Valid	Artefact :-	2876	99122
	Contact	Recorders	ERM Australia Pty Ltd- Sydney CBD							
45-5-3572	CRA1	GDA	56	290616	6260686	Open site	Destroye d	Artefact :-	3023,3274	
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd,ERM Australia Pty Ltd- Sydney CBD, Miss.K							
45-5-3573	CRA2	GDA	56	290679	6260251	Open site	Destroye d	Artefact :-	3023,3274	
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd,ERM Australia Pty Ltd- Sydney CBD, Miss.K							
45-5-3574	CRA3-6	GDA	56	289610	6260568	Open site	Valid	Artefact :-	3023,3274	
	Contact	Recorders	ERM Australia Pty Ltd- Sydney CBD							
45-5-3575	CRA7+8	GDA	56	289596	6260401	Open site	Valid	Artefact :-	3023,3274	
	Contact	Recorders	ERM Australia Pty Ltd- Sydney CBD							
45-5-4572	M4-16 Kingswood Road	GDA	56	289002	6259324	Open site	Destroye d	Artefact :-	4001	
	Contact	Recorders	Helen Brayshaw,Kelleher Nightingale Consulting Pty Ltd, Miss.Kristen Taylor							
45-5-4573	M4-17A Northern Road East	GDA	56	288360	6259155	Open site	Destroye d	Artefact :-	4001	
	Contact	Recorders	Helen Brayshaw,Kelleher Nightingale Consulting Pty Ltd, Miss.Kristen Taylor							
45-5-4574	M4-17B Northern Road East	GDA	56	288260	6259140	Open site	Destroye d	Artefact :-	4001	
	Contact	Recorders	Helen Brayshaw,Kelleher Nightingale Consulting Pty Ltd, Miss.Kristen Taylor							
45-5-4575	M4-14C Claremont Creek	GDA	56	291151	6259659	Open site	Destroye d	Artefact :-	4001	
	Contact	Recorders	Helen Brayshaw,Kelleher Nightingale Consulting Pty Ltd, Miss.Kristen Taylor							
45-5-4576	M4-15 Claremont Creek	GDA	56	290518	6259496	Open site	Destroye d	Artefact :-	4001	
	Contact	Recorders	Helen Brayshaw,Kelleher Nightingale Consulting Pty Ltd, Miss.Kristen Taylor							
45-5-4578	M4- 14A Claremont Creek	GDA	56	290740	6259618	Open site	Destroye d	Artefact :-	4001	
	Contact	Recorders	Helen Brayshaw,Kelleher Nightingale Consulting Pty Ltd, Miss.Kristen Taylor							
45-5-4579	M4-14B Claremont Creek	GDA	56	290919	6259635	Open site	Destroye d	Artefact :-	4001	
	Contact	Recorders	Helen Brayshaw,Kelleher Nightingale Consulting Pty Ltd, Miss.Kristen Taylor							

Report generated by AHIMS Web Service on 19/01/2018 for Madeline Harding for the following area at Datum :GDA, Zone : 56, Eastings : 288139 - 291246, Northings : 6258872 - 6260945 with a Buffer of 0 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 18

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Page 1 of 2



Office of
Environment
& Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 1729

Client Service ID : 323044

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-5-4901	Caddens artefact reburial site	GDA	56	289936	6260751	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>	GML Heritage Pty Ltd + Context ,Ms.Shezani Nasoordeen					<u>Permits</u>		

Report generated by AHIMS Web Service on 19/01/2018 for Madeline Harding for the following area at Datum :GDA, Zone : 56, Eastings : 288139 - 291246, Northings : 6258872 - 6260945 with a Buffer of 0 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 18

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Page 2 of 2



Kelleher
Nightingale Consulting Pty Ltd