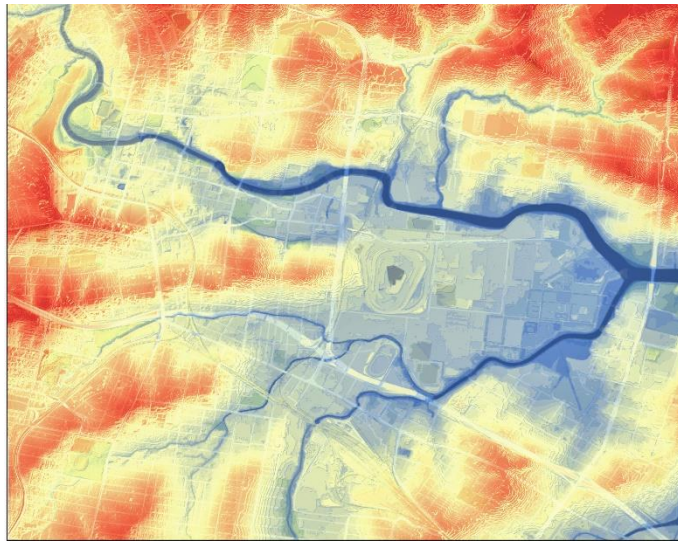


Camellia-Rosehill Integrated Master Plan

Aboriginal Cultural Heritage Assessment



Implementation Report

Report to
Cox Architecture

Dominic Steele Consulting Archaeology
July 2022

Document control

Project Name	Aboriginal Cultural Heritage Assessment. Camellia-Rosehill Integrated Master Plan. Implementation Report
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Terms and abbreviations

Aboriginal Cultural Heritage Assessment	Document to assess Aboriginal cultural values of an area required as part of part of the statutory approval and/or environmental assessment process.
Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010	Guidelines for formal Aboriginal community consultation undertaken as part of an Aboriginal Cultural Heritage Assessment.
Aboriginal Heritage Impact Permit (AHIP)	Statutory instrument that the Director General of the Office of Environment and Heritage (OEH) issues under Section 90 of the National Parks and Wildlife Act 1974 to allow the investigation (when not in accordance with certain guidelines), impact and/or destruction of Aboriginal objects.
Aboriginal object	A statutory term defined under the NPW Act 1974 as 'any deposit, object, or material evidence (not being a handcraft 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'.
Aboriginal Heritage Information Management System (AHIMS)	The Office of Environment & Heritage (OEH) maintains the Aboriginal Heritage Information Management System (AHIMS) which includes information about Aboriginal objects/sites and Places.
Artefact	Any product made by human hands or caused to be made through human actions.
Archaeological Potential	The likelihood of undetected surface and/or subsurface archaeological materials existing at a location.
Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW	Guidelines developed by OEH, outlining the first stage of a two-stage process in determining whether Aboriginal objects and/or areas of archaeological interest are present within a subject area.
National Parks & Wildlife Act 1974	Primary legislation for protection of Aboriginal cultural heritage in NSW. Part 6 of Act outlines protection afforded to and offences relating to disturbance of Aboriginal objects.
Potential Archaeological Deposit (PAD)	Areas assessed as having the potential to contain Aboriginal objects. PADs are commonly identified based on landform types, surface expressions of Aboriginal objects, surrounding archaeological material, disturbance, and a range of other factors. While not defined in the National Parks and Wildlife Act 1974, PADs are considered to retain Aboriginal objects and are therefore protected and managed in accordance with that Act.
Proponent	A corporate entity, Government agency or an individual in the private sector which proposes to undertake a development project.
RAP	Registered Aboriginal Party.

Disclaimer

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Report summary

The New South Wales Department of Planning and Environment (DPE), in collaboration with the City of Parramatta Council (Council), industry, the community and State agencies, is leading the development of the Camellia-Rosehill Place Strategy and Master Plan for the Camellia-Rosehill Precinct. This Aboriginal Cultural Heritage Assessment (ACHA) has been prepared to inform the Master Plan about the Aboriginal cultural heritage values of the place. This assessment has followed the Aboriginal Consultation Requirements for Proponents (DECCW 2010) and has been completed in consultation with Aboriginal community groups to identify and understand the Aboriginal cultural values of the land.

Existing (known) statutory constraints (National Parks and Wildlife Act 1974)

There are two previously recorded Aboriginal archaeological sites listed on the Aboriginal Heritage Information Management System (AHIMS) within the Camellia-Rosehill Precinct. These comprise AHIMS #45-6-2559 that is recorded in the Rosehill Gardens Racecourse carpark on the southern side of Grand Avenue North and AHIMS #45-6-3627 that is recorded within the grounds of the former Parramatta Speedway, now being developed as the Clyde stabling and maintenance facility.

The Precinct is underlain by Quaternary fluvial deposits that are mapped as forming part of a Pleistocene terrace formation (Qpat) that include the Parramatta Sand Body (PSB). There is a possibility of stratigraphically equivalent deposits to the PSB with potential to contain Aboriginal objects occurring beneath fills and surfaces across the Precinct.

Existing conditions and future archaeological constraints presented by fills and contamination

Parts of the Precinct have been historically filled with materials that have been placed over relatively permeable sand and clay fluvial sediments that may be also contaminated. Deep fills and contamination present challenges to the archaeological management of potentially archaeologically sensitive soils that may be present below modern building and infrastructure. Contamination is present and remediation is likely to be required at 1 Grand Avenue and 181 James Ruse Drive sites and both sites are subject to existing Remediation Action Plans.

Future archaeological management of known Aboriginal archaeological sites within the Precinct

Future management of AHIMS #45-6-2559 and AHIMS #45-6-3627 will be consistent with the statutory requirements under the terms of the *National Parks & Wildlife Act 1974* and include research into the archaeological record. It is recommended to undertake for these heritage sites Aboriginal consultation, archaeological test excavation, heritage inductions, and develop unexpected finds and human remains procedures.

Future management of potential Aboriginal archaeological resources within the Precinct

The Camellia-Rosehill Precinct is mapped as being underlain by Quaternary fluvial deposits that form part of a Pleistocene Terrace formation (Qpat). These Qpat Terrace deposits as a formation includes the sand body that is recorded as the PSB to the west of the Precinct, and the Qpat deposits are mapped to continue east of James Ruse Drive and to underlie most of the

Precinct. There is potential for stratigraphically equivalent soil deposits to the PSB with potential to contain Aboriginal objects to occur beneath fills and built surfaces that currently cover the original ground surfaces across the Precinct.

Recommendations

- Future management of AHIMS #45-6-2559 and AHIMS #45-6-3627 should be consistent with the statutory requirements under the terms of the *National Parks & Wildlife Act 1974* (amended).
- AHIMS #45-6-2559 is in the Sydney Turf Club and is under statutory management of an existing NPW Act approval issued to Transport for NSW (TfNSW) and related to the Parramatta Light Rail (PLR). It is recommended that this pre-existing heritage management framework should continue under this approval.
- Where future impacts to AHIMS #45-6-2559 are greater than previously identified and permissible under the existing approvals, TfNSW will require amendment to the mitigation measures in the existing PLR Aboriginal Cultural Heritage Assessment and this change will require further consultation with Aboriginal stakeholders and variation to the existing statutory approval under the NPW Act.
- AHIMS #45-6-3627 is situated within the Clyde stabling and maintenance facility construction site and its future management should continue according to the archaeological strategy established for the site by the ACHA prepared for the Sydney Metro West Stage 1.
- DPE consider the practicability of initiating further investigation of potential subsurface archaeological sensitivity in the Precinct through integration with future contamination and geotechnical borehole investigations that generate data that record the nature and sedimentary composition of soils and sediments making up the stratigraphic profile. The archaeological use of borehole data provides an opportunity to identify where on the land and at what depth subsurface soils with potential Aboriginal archaeological sensitivity may occur that will help the development of building layouts and designs at future Development Application stages.

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1.0 Introduction

1.1 Project description

The *New South Wales Department of Planning and Environment (DPE)*, in collaboration with the *City of Parramatta Council (Council)*, industry, the community and State agencies, is leading the development of the *Camellia-Rosehill Place Strategy and Master Plan for the Camellia–Rosehill Precinct (the ‘Precinct’)*. The Precinct is defined by Parramatta River to the north, Duck River to the east, the M4 Motorway to the south and by James Ruse Drive to the west, all of which form physical boundaries to the Precinct.

Figure 1.1: Location of the Camellia-Rosehill Precinct that is the study area for this report



The Camellia-Rosehill Precinct is presently dominated by industrial activity, with substantial amounts of land also allocated to Rosehill Gardens Racecourse and the stabling yards for Parramatta Light Rail and Sydney Metro. Its industrial legacy means that soils are heavily contaminated across most of the Precinct.

Located in the geographic heart of Sydney, the Precinct has an important strategic role in the Greater Parramatta and Olympic Peninsula (GPOP). Previous investigations have identified that the area should be retained for urban service land with a town centre, but that the costs of infrastructure and remediation should be carefully considered when making future land use decisions.

This Place Strategy and Master Plan has been prepared for the whole Precinct draws on the substantial body of previous investigations, including ongoing collaboration with industry, the community and state agencies. The overarching objective of the Place Strategy is to provide an integrated 20-year vision, which recognises the strategic attributes of the Precinct, guides future land use and infrastructure investment decisions and which can be delivered with the support of State and local agencies.

The DPE has engaged a range of technical services to determine opportunities and challenges at the site. These technical studies have informed the development of the Place Strategy and Master Plan for the Precinct. This Aboriginal Cultural Heritage Assessment and Implementation Report has been prepared as a part of Package C.

An Enquiry by Design (EbD) process was also undertaken to inform the preparation of the Place Strategy. The EbD was an interactive process which explored several Master Plan options for Camellia-Rosehill which could deliver the vision for the Precinct and resulted in a draft Master Plan which was the subject of public consultation as part of the Camellia-Rosehill Directions Paper. The draft place strategy was publicly exhibited on 17 December 2021 until 4 March 2022. The draft master plan was further refined following exhibition of the draft place strategy and consideration of the submissions received. Refer to the DPE's finalisation report for further information.

This Aboriginal cultural heritage assessment of the Precinct has been developed in consultation with Aboriginal community groups and individuals which ran in parallel to the preparation of the place strategy. The objective of this consultation was to identify and understand the Aboriginal cultural values of the land and to promote opportunities they present to understand and integrate Aboriginal cultural thinking and culture into future vision and design for the Precinct.

1.2 Project background

The Camellia-Rosehill Precinct (~321ha) plays a strategic role in the Greater Parramatta and the Olympic Peninsula (GPOP). Camellia was identified by the NSW Government as a priority growth area in 2014, resulting in precinct wide Land Use and Infrastructure Strategy in 2015 and subsequently development of a Town Centre Master Plan in 2018. Work on the Town Centre was paused pending outcomes of Greater Sydney's 2019 Draft Place-based Infrastructure Compact (PIC) Pilot which aimed to ensure infrastructure delivery was matched with growth across the 26 precincts in the GPOP corridor. The PIC recommended that Camellia be used for urban service and industrial land, however, should the Government seek to progress a town centre (in the form of the 2018 plan or a modified form), before any rezoning several issues had to be resolved. It was determined that a coordinated and strategic approach was required and a place strategy be prepared for the whole Precinct drawing on previous work and including ongoing collaboration with industry, the community and state agencies.

1.3 Camellia-Rosehill Draft Master Plan

1.3.1 Camellia-Rosehill Vision

Camellia-Rosehill has an important strategic role as an industry and employment hub within the Greater Parramatta and Olympic Peninsula (GPOP) Economic Corridor. By 2041, the precinct will be enhanced with service and circular economy industries and new recreational and entertainment facilities, all enabled by better transport access via light rail, active transport and road connections.

A well-designed town centre next to the light rail stop will be the focus of community activity.

A new urban services precinct and retention of heavy industrial land will ensure Camellia-Rosehill fulfills its potential to be an employment powerhouse.

New homes and jobs will be close to public transport supported by new quality public spaces including public open spaces, public facilities high quality street infrastructure, and walking and cycling paths.

Key environmental features such as Parramatta River, Duck River and their wetlands will be protected and enhanced. Camellia's rich heritage will be preserved, celebrated and promoted.

Country and culture will be valued and respected with the renewal guided by Aboriginal people.

The precinct will be net zero ready and set a new standard for environmental sustainability with embedded renewable energy networks, integrated remediation and water management strategies, and circular economy industries.

Recycled water will be connected to all residences, businesses and public spaces and will support the integrated network of green infrastructure.

Camellia will be a showcase of recovery and restoration – a place of economic prosperity but also a place where people love to live, work and enjoy.

1.3.2 The Camellia-Rosehill Master Plan

The Master Plan is shown below and forms the basis of the Place Strategy. Key features of the Master plan include:

- Provision for approximately 10,000 dwellings within a Town Centre serviced by light rail
- Provision for approximately 15,400 jobs
- A new primary school and primary and secondary high school
- District open space facilities
- Introduction of a new entertainment precinct and an urban services area
- Initiatives to Care for Country and continued protection of heritage listed sites

- Retention of the existing state heritage sewerage pumping station (SPS) 067 within the town centre
- Measures to mitigate land use conflicts and risks including buffers and setbacks from existing fuel pipelines and between the existing sewerage pumping station and future surrounding residential uses
- Access to the Parramatta River, Duck River, and Duck Creek foreshores and potentially the wetland
- New transport infrastructure including a local road network, potential bus services, additional connections into and out of the precinct, and opportunities to integrate Parramatta Light Rail Stage 2
- An extensive active transport network
- A comprehensive remediation strategy
- A sustainability strategy and integrated water cycle management strategy.

Figure 1.2: Camellia-Rosehill Master Plan

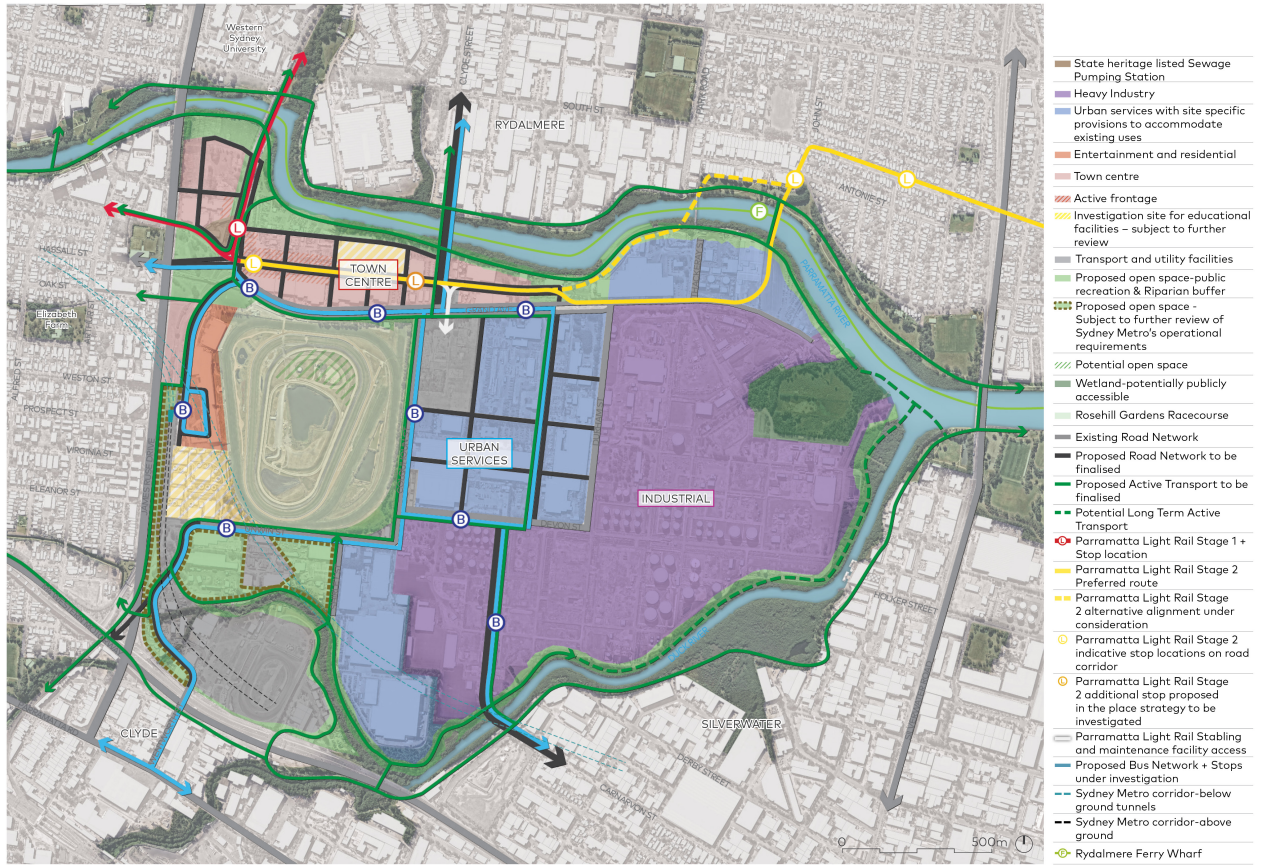


Figure 1.3: Camellia-Rosehill open-space and public recreation

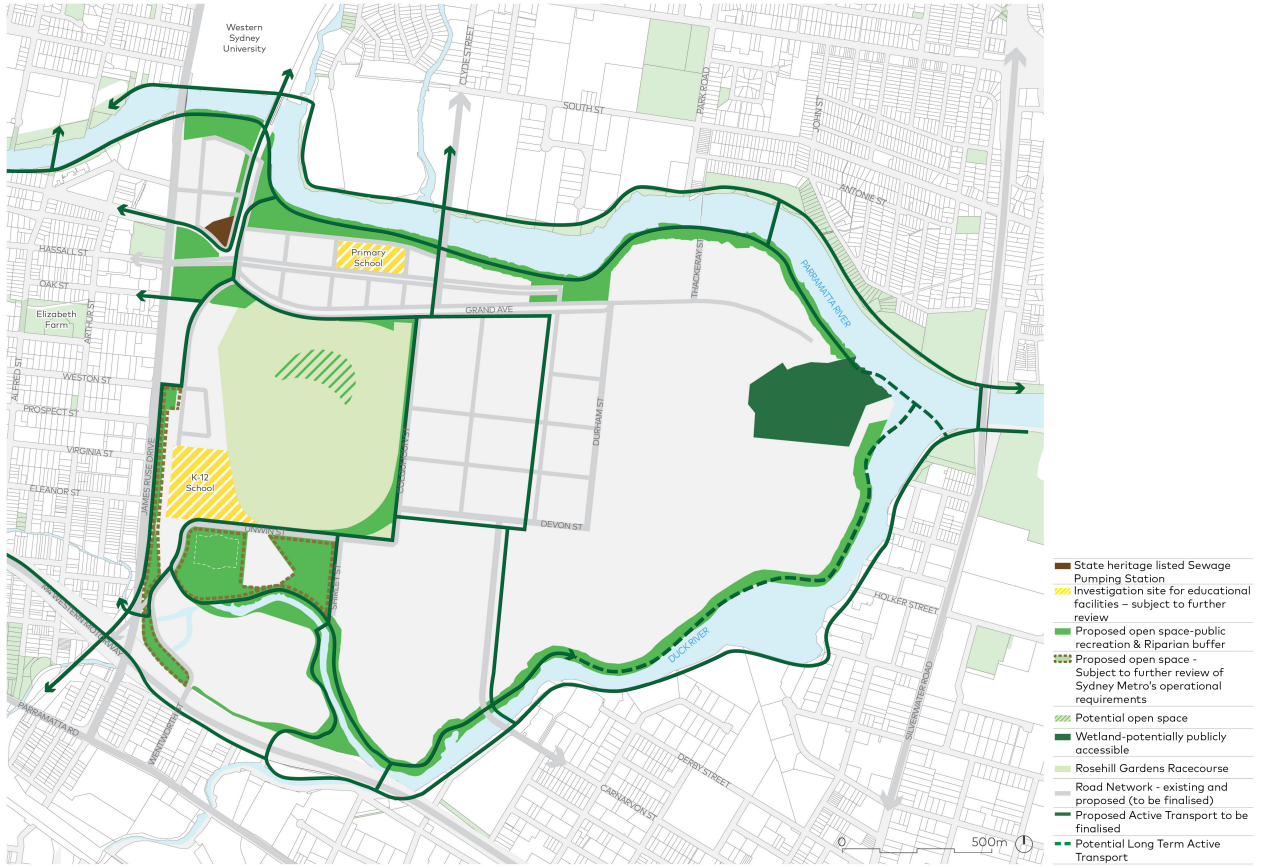


Figure 1.4: Camellia-Rosehill parks and open-spaces

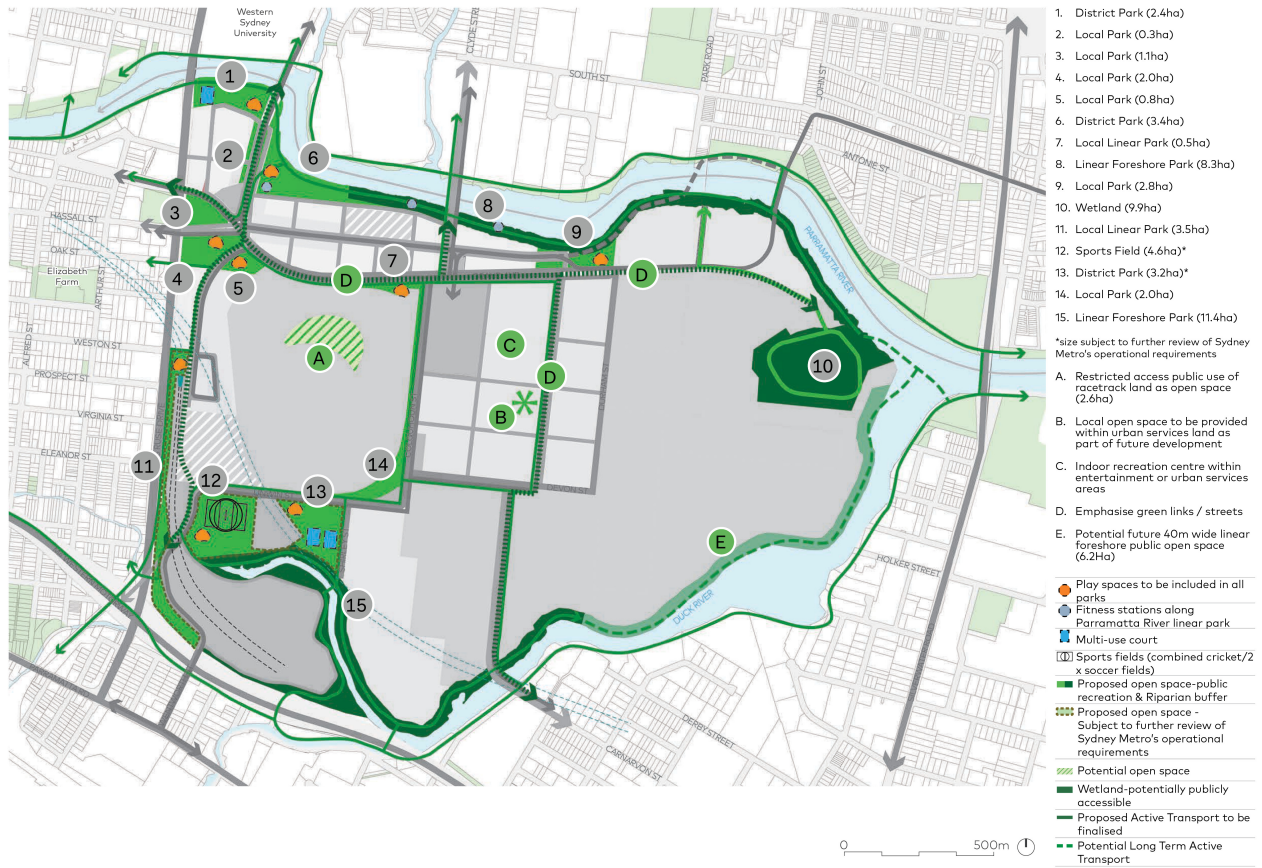
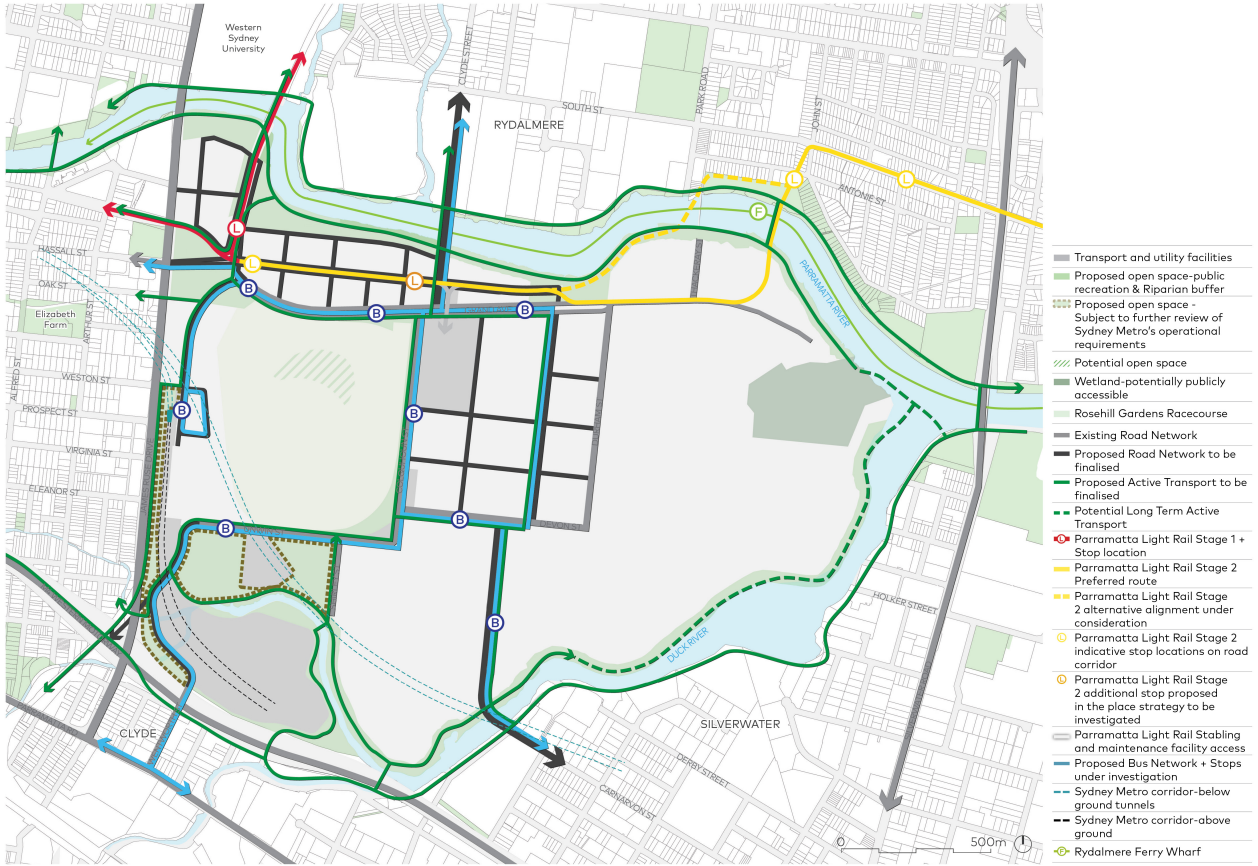


Figure 1.5: Camellia-Rosehill transport initiatives



1.4 Scope and objectives of this Aboriginal cultural heritage assessment

1.4.1 Statutory requirements and cultural obligations

This report acknowledges Aboriginal people are the primary determinants of the cultural significance of their heritage and have a vital role in the decision-making process in matters that may affect their heritage. This Aboriginal cultural heritage assessment of the Camellia-Rosehill Precinct has followed the Aboriginal Consultation Requirements for Proponents (DECCW 2010) and been developed in consultation with Aboriginal community groups and individuals to identify and understand the Aboriginal cultural values of the land and to promote opportunities they present to understand and integrate Aboriginal cultural thinking and culture into future vision and design for the Precinct.

One of the goals of this report have been to assess the statutory and cultural risk that harm to Aboriginal objects protected under the *National Parks and Wildlife Act 1974* (NPW Act) may result from future development and recommend measures to manage the known and potential archaeological resources within the Precinct.

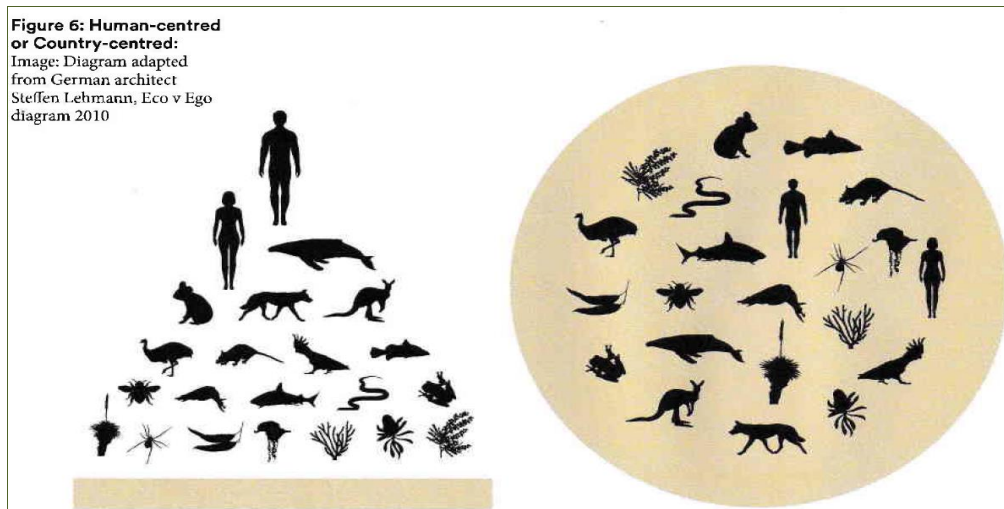
1.4.2 Connecting with Country Draft Framework

The Aboriginal community consultation that has been completed for this report been undertaken within a wider cultural context that is established by the Connecting with Country Draft Framework which is a government initiative that aims to increase awareness and understanding of the value of Aboriginal knowledge in the design and planning of places. The draft framework sets-out commitments and principles and pathways for action that are intended to help design and develop and deliver government built-environment projects across NSW into the future (Government Architects Office of NSW 2020:9).

The Connecting to Country framework takes an Aboriginal perspective to thinking about Country and how to vision the built environment that is created on Country and provides practical ways for government agencies and industry to engage with Aboriginal communities and their culture and heritage. It also addresses the legislative requirements of two key policies of the *NSW Environmental Planning and Assessment Act 1979* (as amended) that are '*to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage)*' (object [f]) and '*promote good design and amenity of the built environment*' (object [g]).

It is intended the Connecting with Country framework will support design and planning industry engagement with Aboriginal communities and enable realisation of projects that protect the health and wellbeing of Country and therefore of Aboriginal communities, embed Aboriginal knowledge into built-environment design and planning, and ensure Aboriginal communities retain intellectual property rights over authorship and definition of cultural knowledge (ibid:17).

Figure 1.6: Thinking differently about Country: Human-centred or Country-centred (Government Architects Office of NSW:2020 Figure 6)



1.5 Statutory heritage context and controls

1.5.1 Commonwealth legislation

Environment Protection and Biodiversity Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework for the protection and management of places of national environmental significance. The heritage lists addressed by the EPBC Act include the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage List (WHL), the National Heritage List (NHL), and the Commonwealth Heritage List (CHL). World Heritage properties in Australia are matters of national environmental significance that are protected and managed under the EPBC Act. The NHL protects places with outstanding value to the nation. The CHL protects items and places owned or managed by Commonwealth agencies. Ministerial approval is required for actions that would have a significant impact on items and places on the WHL, NHL or CHL.

Under Part 9 of the Act, any action that is likely to have a significant impact on a matter of National Environmental Significance (a controlled action under the Act) may only progress with approval of the commonwealth minister.

Any action will also require approval if:

- It is undertaken on Commonwealth land and will have or is likely to have a significant impact.
- It is undertaken outside Commonwealth land and will have or is likely to have a significant impact on the environment on Commonwealth land.
- It is undertaken by the Commonwealth and will have or is likely to have a significant impact.

The Act defines 'environment' as natural and cultural environments and includes consideration of Aboriginal and historic cultural heritage sites and items. Under the Act, protected heritage items are listed on the NHL or CHL. There are no Aboriginal sites or items identified within the study area under this Act.

Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The purpose of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* is to preserve and protect areas and objects in Australia and in Australian waters that are of particular significance to Indigenous people in accordance with their traditions. This Act allows the environment minister to make a declaration protecting significant Indigenous areas or objects, including human remains, from 'threat of injury or desecration'. Emergency declarations can also be made by the Minister where there is a serious and immediate threat. There are no specific areas under the remit of this Act within or near the study area.

Native Title Act 1993

The Commonwealth Government enacted the *Native Title Act 1993* to recognise and protect native title rights in Australia following the decision of the High Court of Australia in *Mabo & Ors v Queensland (No.2)* (1992) 175 CLR 1 ('Mabo'). This Act recognises by Australian law that Aboriginal peoples have rights and interests to land and waters that arise from traditional laws and customs. The Act establishes principles and mechanisms for the preservation of Native Title for Aboriginal people whereby claimants can negotiate about some proposed developments if they have the right to negotiate if the native title claimant application satisfies registration test conditions. Registered native title holders have a right to speak for Country on Indigenous culture and heritage.

Native Title Register Searches for the study area were undertaken using the standard NNTT geospatial search form, identifying the Precinct boundaries with a map, and identifying the land as comprising part of the Parish of St John in the Country of Cumberland (in the modern City of Parramatta). The results report that at the time this search was carried out, there were no relevant entries in the above databases.

1.5.2 State legislation and heritage controls

Aboriginal Land Rights Act 1983

The *Aboriginal Land Rights Act 1983* (ALR 1983) establishes an administrative system of Aboriginal land councils across the state. The Parramatta LGA is covered by the administrative boundaries of the Metropolitan, Deerubbin and Gandangara Local Aboriginal Land Councils. The functions of Local Aboriginal Land Councils in relation to Aboriginal culture and heritage are to (a) to take action to protect the culture and heritage of Aboriginal persons in the Council's area, subject to any other law, and (b) to promote awareness in the community of the culture and heritage of Aboriginal persons in the Council's area. Under the provisions of the Act, a Register of Aboriginal Owners must be maintained by the Registrar, containing the names of Aboriginal people who are '*directly descended from the original Aboriginal inhabitants of the cultural area in which the land is situated*' and who have '*a cultural association with the land that derives from the traditions, observances, customs, beliefs or history*' of the original Aboriginal inhabitants.

National Parks and Wildlife Act 1974

Legislation that provides statutory protection for Aboriginal heritage in NSW are the NPW Act (as amended) and the *National Parks and Wildlife Regulation 2009*. The NPW Act protects Aboriginal objects and Places, and the NPW Regulation provides a framework for undertaking activities and exercising due diligence. Heritage NSW (HNSW) manages the protection of Aboriginal heritage through the provisions of the NPW Act which was amended (*NPW Act Amendment Act*) in 2010.

Part 6 of the NPW Act provides protection for Aboriginal objects and declared Aboriginal Places by establishing offences of harm. Harm is defined as destroying, defacing, damaging, or moving an Aboriginal object from the land. Under Section 86 of the NPW Act, it is an offence to knowingly, or cause or permit harm to an Aboriginal object (or Place) without prior written consent from the Director-General.

Defences to the offence of harm under the NPW Act includes that harm is conducted under the terms of an approved Aboriginal Heritage Impact Permit (AHIP). Section 87 of the NPW Act provides for defences of harm if *due diligence* has determined no Aboriginal object would be harmed, compliance with *regulations* or an approved *code of practice* was followed, and if it is shown as a *low impact act* and/or an (unintended) omission.

Section 5 of the NPW Act defines an Aboriginal object as: *'any deposit, object, or material evidence (not being a handicraft for sale) relating to Indigenous and non-European 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'*.

A declared Aboriginal place is a statutory concept, meaning it is any place (land, landscape, or building etc) that is declared to be an Aboriginal place (under Section 84 of the Act) by the Minister administering the NPW Act because they are of the opinion that the place is or was of special significance with respect to Aboriginal culture.

A declared Aboriginal Place may or may not contain Aboriginal objects. The protection provided to Aboriginal objects and places applies irrespective of the level of their significance or issues of land tenure.

Environmental Planning and Assessment Act (1979)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the main act regulating land use planning and development in NSW. The EP&A Act controls the making of environmental planning instruments comprising State Environment Planning Policies (SEPPs), covering areas of State or regional environmental planning significance; and Local Environmental Plans (LEPs), covering Local Government Areas.

1.5.3 Local controls

Parramatta Local Environmental Plan 2011

Aboriginal heritage is protected in Parramatta under Parramatta Local Environmental Plan (LEP) 2011. The PLEP guides planning decisions in Parramatta LGA and requires Council to consider the impact of development on known and potential Aboriginal archaeological sites or sites of cultural or historical significance to Aboriginal people. The aim of the PLEP in relation to heritage is to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings, views, and archaeological sites. Schedule 5 of the PLEP 2011 lists items of heritage significance within the LGA. There are no Aboriginal archaeological sites or sites of specific cultural or historical significance to Aboriginal people listed on Schedule 5 of the PLEP.

Parramatta Development Control Plan 2011

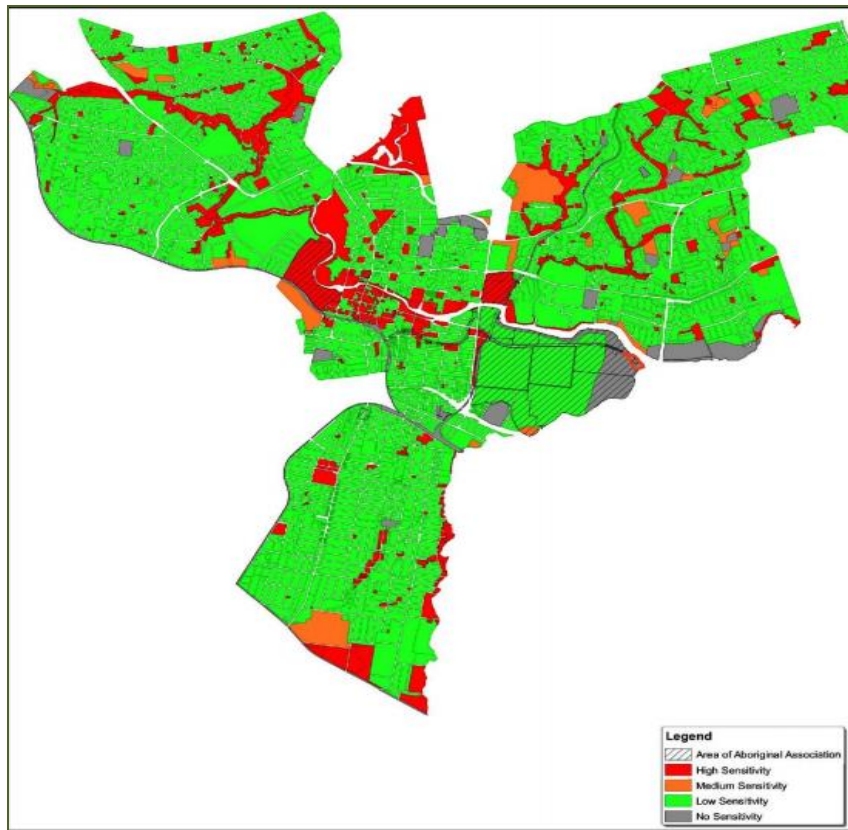
The purpose of Parramatta Development Control Plan (PDCP) 2011 is to supplement the PLEP 2011 and to provide more detailed provisions to guide development. Part 3, Section 3.5.1 of the PDCP contains the general principles and controls that apply to development on and in the vicinity of heritage items and heritage conservation areas identified in the PLEP 2011.

Section 3.5.3 of the PDCP 2011 requires Council to consider the impact of development on known or potential Aboriginal archaeological sites or sites of Aboriginal cultural or historical significance to Aboriginal people in the Parramatta LGA. When development applications are lodged for such sites, the Council must also consider an Aboriginal Heritage Assessment along with advice from the National Parks and Wildlife Service and local Aboriginal communities (Objective 1). The design principles are as follows

- P.1 Before lodging a development application for development that may have an impact on known or potential Aboriginal sites, Council's information on known Aboriginal sites and potential heritage sensitivity should be consulted. Refer to Appendix 11 for the Aboriginal Sensitivity map.
- P.2 For properties identified with No Sensitivity, no Aboriginal Heritage Assessment is required.
- P.3 For properties identified with Low Sensitivity no Aboriginal Heritage Assessment is required unless land is within 100m of a creek or river foreshore and contains uncleared bushland, sandstone outcrops or exposed sandstone platforms.
- P.4 For properties identified as Medium Sensitivity or High Sensitivity an Aboriginal Heritage Assessment is required.
- P.5 For properties within 50m of a known Aboriginal site the National Parks and Wildlife Service Site Register should be consulted to determine whether the Aboriginal site is located on the property. If the known Aboriginal site is located on the property, the development becomes Integrated Development.
- P.6 Properties within an area of Aboriginal social/historical association will require an Aboriginal Heritage Assessment that investigates the impact of a development proposal in relation to the social/historical association.

With reference to the PDCP Aboriginal Sensitivity map below the Camellia-Rosehill Precinct is shown mapped to be an 'Area of Aboriginal Association'.

Figure 1.7: Aboriginal Heritage Sensitivity Map (PDCP 2011: Figure A11.1) – The majority of the Camellia-Rosehill Precinct is mapped to be part of an 'Area of Aboriginal Association'



1.6 Aboriginal community consultation

The Aboriginal community consultation undertaken to identify and understand the Aboriginal cultural heritage values of the Camellia-Rosehill Precinct and to enable the development of this ACHA has followed the procedures required by the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010). This has four main elements that comprise:

- a) getting the word out there to Aboriginal people
- b) providing information to those interested
- c) providing opportunities for the Aboriginal people to provide feedback
- d) seeking, incorporating, and acknowledging shared cultural knowledge from Aboriginal people.

At the initiation of the project (May 2021) an advertisement was placed in the print media by DPE and a list of Aboriginal community groups and individuals, and government agencies to notify of the project and to invite to be involved in the consultation process was sought by DSCA and was provided by Heritage NSW (HNSW).

The following six government agencies were also notified of the project at this time):

- Department of Premier and Cabinet (Heritage NSW)
- Office of the Registrar, *Aboriginal Land Rights Act 1983*
- National Native Title Tribunal
- Native Title Services Corp
- Parramatta City Council Aboriginal Advisory Committee
- Holroyd City Council Advisory Committee

The following three Local Aboriginal Land Councils were notified at this time:

- Deerubbin Local Aboriginal Land Council (DLALC)
- Gandangara Local Aboriginal Land Council (GLALC)
- Metropolitan Local Aboriginal Land Council (MLALC)

The land at Camellia-Rosehill is situated within the administration boundaries of the DLALC. Expressions of interest were received from the DLALC and GLALC. No response was received from the MLALC.

DSCA wrote to each of the Aboriginal community groups and individuals on the stakeholder consultation list provided by HNSW at the beginning of May 2021 and invited expressions of interest from these groups about being involved in the project consultation and helping prepare the ACHA.

Expressions of interest in being involved were received from fifteen (15) Aboriginal organisations and individuals. These Registered Aboriginal Parties (RAP's) comprised the following:

- A1 Indigenous Services
- Aragung Aboriginal Cultural Heritage Sites Assessments
- Butucarbin Aboriginal Corporation
- Clive Freeman
- Corroboree Aboriginal Corporation
- Darug Custodian Aboriginal Corporation
- Didge Ngunawal Clan
- Ginninderra Aboriginal Corporation
- Gulaga Aboriginal Corporation
- Gunjeewong Aboriginal Corporation
- Kamilaroi Yankuntjatjara Working Group

- Muragadi Heritage Indigenous Corporation
- Murra Bidgee Mullangari Aboriginal Corporation
- Widescope Indigenous Group
- Yulay Cultural Services

Each of the Project RAPs were thanked for their expressions of interest and each subsequently invited by DPE to attend a project briefing meeting that was subsequently held at the Mantra in Parramatta on 18 May 2021.

This meeting gave DPE an opportunity to meet the community groups and to present the government vision for the project and for Cox Architecture to illustrate and explain potential architectural and urban design concepts. Hector Abrahams Architects and Oculus (landscape) gave a post-1788 land use history of the site and provided early twentieth century photos that showed aspects of what the country looked like before it was fully built over and covered to the extent it is today by light and heavy industrial buildings and infrastructure. The low-lying nature and flood-prone character of parts of the land, and the nature and extent of historical filling on the site was also discussed along with the nature and extent of subsurface soil contamination present in locations across the Precinct as a legacy of this industrial land-use.

The Fulcrum Agency explained the role and goals of the Connecting with Country framework for the project and within this context DSCA gave an archaeological and environmental history overview of the Precinct and (from a scientific perspective) discussed where the Aboriginal archaeological sites and deposits on the Parramatta Sand Body (PSB) located to the west of the study area fitted into this story of long-term landscape and cultural change. The known (AHIMS) sites and 'Potential Archaeological Deposits' (PAD's) recorded within the Precinct were also discussed along with a suggested approach that could help identify where there may be buried soils and sediments with potential to contain Aboriginal objects on the site and could be used to assist in the ongoing and future planning and management of the risk of potential Aboriginal archaeological impacts resulting from the future development of the land.

This background briefing provided context for discussion about where the ACHA could inform the development of the Master Plan and facilitated topics for discussion with the RAPs. One issue discussed revolved around the observation that very few AHIMS-listed archaeological sites were recorded within the Precinct unlike other parts of the City of Parramatta to the west where AHIMS recordings are frequent and as a result we had a limited archaeological understanding about the lands contained within the Precinct.

The reason for this disparity was discussed and observed to be because very few previous archaeological surveys had been undertaken in the Precinct and no subsurface archaeological investigations (test excavation or salvage digs) had been conducted within the study area unlike on the Parramatta River foreshore to the west where the archaeological record associated with the PSB has been widely investigated and was thereby better understood.

The minutes of this meeting were sent to each of the Project RAPs and the three Aboriginal Land Councils to ensure they captured the key points from these discussions.

Table 1.1: Project start-up meeting minutes – Key discussion points and action

Key discussion points	Actions
<ul style="list-style-type: none"> • Acknowledge and value cultural knowledge • Protection of cultural knowledge (Intellectual Property) and appropriate protocols • Payment for meeting time and expenses • Quarantine portion of project budget to cover cultural expertise & design of economic development opportunities • Economic opportunities within new development • Appropriate training and capacity building ahead of projects so people are job ready • Housing considerations to include Aboriginal people • Contracting arrangements for major construction projects should include requirements to expend percentage of project budget on Aboriginal participation • Treat Aboriginal people as landowners and therefore entitled to draw an income from the land as other landowners will • Eel story, 40yr journey from Vanuatu along ocean currents, through rivers and over mountains to Coorong and out to sea to complete the loop • Cultural presence is important at meetings even if cultural knowledge is not dispensed 	<ul style="list-style-type: none"> • Agreed to investigate IP protections and agreements • Agreed to advocate for payment of cultural advisors • Agreed to continue RAP engagement as project develops

Following the completion of a draft baseline archaeological report for the Precinct, the project RAPS were each asked at the end of July about their interest and availability to meet individually via Zoom with DSCA and The Fulcrum Agency and be updated on how the Master Planning for the Precinct was developing. These meetings were also intended to continue and explore in further discussions with The Fulcrum Agency the Connecting with Country framework and DSCA about future archaeological management opportunities and constraints.

Some of the archaeological heritage issues flagged for discussion included the future management of existing (AHIMS) archaeological heritage sites on the land and the types of archaeological options currently available to enable investigation into where buried soils with potential to contain Aboriginal objects and archaeological deposits (comprising PADs) may occur subsurface across the Precinct.

Constraints included the presence of buildings and hard surfaces over the whole Precinct, a site-wide presence of variable but considerable depths of fill over natural soil and sediment profiles, and widespread subsurface contamination of fills and natural soils and sediments.

A proposed approach to better understand where and at what depth PADs may occur across the Precinct was to use geotechnical bore-log data and other subsurface data that would be generated and become available as future environmental (contamination, groundwater and geotechnical) studies of the place were completed and to use the data to create subsurface stratigraphic crops-sections and indicative mapping of fills vs PADs.

DSCA and The Fulcrum Agency held a series of meetings over early August to the beginning of September 2021 with the Aboriginal community groups below. Images used to context discussions about the archaeological and landscape heritage values of the Precinct and the future archaeological management of the resources.

After the completion of each meeting, The Fulcrum Agency compiled notes from the discussions and then confirmed the accuracy of these notes with each group and asked for permission to use the ‘Key Messages’ they provided in our reports.

A final Draft version of this report was provided to each of the project RAPs at the completion of the one-on-one meetings and the table below summarises the key messages received from the discussions held with each group and from comments received on the findings and conclusions and recommendations presented in this is report.

Table 1.2: Key Messages received during consultation meetings held with the Aboriginal community

Organization	Key Messages
Deerubbin Local Aboriginal Land Council	<p>Deerubbin Local Aboriginal Land Council were unavailable to participate in a zoom meeting but have reviewed this ACHA and report:</p> <ul style="list-style-type: none"> • <i>‘Deerubbin Local Aboriginal Land Council supports the future Aboriginal Cultural Heritage undertakings in the recommendations in the above-mentioned Integrated Master Plan for Camellia-Rosehill in the draft report’.</i>
Gandangara Local Aboriginal Land Council	<p><u>Development Frameworks:</u></p> <ul style="list-style-type: none"> • <i>Implement an Aboriginal Advisory Group to oversee project development.</i> <p><u>Response to Country:</u></p> <ul style="list-style-type: none"> • <i>Prioritise environmental restoration and Caring for Country</i> • <i>Flood management through natural processes</i> • <i>Access to river frontages – walking Country</i> <p><u>Tangible Benefits:</u></p> <ul style="list-style-type: none"> • <i>Employment and training opportunities for Aboriginal people</i> • <i>Housing for Aboriginal people</i> • <i>Social infrastructure to support health and well-being of Aboriginal people</i> <p><u>Celebrating Culture:</u></p> <ul style="list-style-type: none"> • <i>Language use within the precinct</i> • <i>Public art by Aboriginal artists</i> • <i>Spaces for song, dance, and performance</i> • <i>Cultural centre</i> • <i>Protect cultural heritage</i>

Organization	Key Messages
<p>Aragung Aboriginal Cultural Heritage Sites Assessments</p>	<p><u>Response to Country:</u></p> <ul style="list-style-type: none"> • <i>Restoration of habitat and song lines of knowledge.</i> • <i>Rivers are important places for meetings and ceremonies, trade, and barter.</i> • <i>Include an understanding of seasons in landscape treatments.</i> <p><u>Tangible Benefits:</u></p> <ul style="list-style-type: none"> • <i>Share the benefits of housing.</i> • <i>Share the benefits of skills development and job creation.</i> <p><u>Celebrating Culture:</u></p> <ul style="list-style-type: none"> • <i>Acknowledge this is Aboriginal land.</i> • <i>Protect and interpret archaeological evidence to reinforce Aboriginal connection to Country and for reconciliation efforts.</i>
<p>Butucarbin Aboriginal Corporation</p>	<p><u>Development Frameworks:</u></p> <ul style="list-style-type: none"> • <i>Develop and implement a strong and clear Employment Framework for Aboriginal training and jobs across the life cycle of the project (planning, construction, operation).</i> • <i>Develop and implement a strong and clear Governance Framework that includes Aboriginal representatives in advisory roles with decision-making capacity across the life cycle of the project.</i> <p><u>Response to Country:</u></p> <ul style="list-style-type: none"> • <i>Restore the river shoreline and ensure easy access.</i> <p><u>Tangible Benefits:</u></p> <ul style="list-style-type: none"> • <i>Provide employment opportunities across all areas of industry.</i> • <i>Engage with local Aboriginal enterprises (e.g., weavers, bush tucker, construction) to prepare for and embed job opportunities in the development of the precinct.</i> <p><u>Celebrating Culture:</u></p> <ul style="list-style-type: none"> • <i>Protect important tangible cultural objects.</i> • <i>This organisation provides strong advice about the current state of Aboriginal consultation in the archaeological heritage management industry and suggests a solution. Butucarbin support the way the consultation was approached for this study and its archaeological heritage management recommendations.</i>

Organization	Key Messages
<p>Corroboree Aboriginal Corporation</p>	<p><u>Response to Country:</u></p> <ul style="list-style-type: none"> • <i>Restoration of habitat and clean-up of contamination.</i> • <i>Flood management through understanding of seasons and natural processes.</i> <p><u>Tangible Benefits:</u></p> <ul style="list-style-type: none"> • <i>Opportunities for apprenticeships and training for Aboriginal people within local industries.</i> • <i>Opportunities for Aboriginal enterprises in tours, garden cultivation and maintenance, public art.</i> <p><u>Celebrating Culture:</u></p> <ul style="list-style-type: none"> • <i>Facilitate use and teaching of language.</i> • <i>Tell the story of Aboriginal history through signage and art.</i> • <i>Provide spaces for cultural dance and performance, meeting and gathering, and public events.</i> <p><u>Comment on ACHA + draft connecting with country framework</u></p> <ul style="list-style-type: none"> • <i>Corroboree support findings and conclusions of ACHA and proposed future archaeological management method to identify potential archaeological deposit.</i> • <i>This organisation would like the opportunity in the future to visit the land (because most is currently not accessible)</i> • <i>Corroboree appreciate inclusion in discussions from outset, feel accepted as part of process, and playing an active role in decision making about their cultural heritage,</i> • <i>Corroboree support DPE consultation precedent with this project and 'appreciate that the connecting to county logic has permeated in preparing an ACHA' and believe this is the way to go forward in the future.</i>
<p>Darug Custodian Aboriginal Corporation</p>	<p><u>Response to Country:</u></p> <ul style="list-style-type: none"> • <i>Restore the river shoreline and natural ecology.</i> • <i>Ensure easy access to river frontages and wetlands.</i> • <i>Engage with Elders to tell stories of Country.</i> <p><u>Celebrating Culture:</u></p> <ul style="list-style-type: none"> • <i>Protect important tangible cultural objects.</i> • <i>Use art & signage along river foreshore for cultural education about Country.</i> • <i>Use Darug language in public parks and at river crossings.</i> • <i>Tell the story of Country linking Parramatta to Sydney.</i> <p><u>Comment on ACHA + draft connecting with country framework</u></p> <ul style="list-style-type: none"> • <i>This group supports the recommendations in the ACHA.</i> • <i>This organisation found the consultation to be enlightening to have their views and opinions incorporated into the Master Plan thinking.</i> • <i>This group support using Connection to Country as a basis for consultation</i> • <i>– 'Doing the consultation this way will help protect areas from harm and to be used for the future generations, while letting the project be designed to integrate this'.</i>

Organization	Key Messages
Didge Ngunawal Clan	<p><u>Development Frameworks:</u></p> <ul style="list-style-type: none"> Continue to engage with Aboriginal communities as the project develops. <p><u>Response to Country:</u></p> <ul style="list-style-type: none"> Consider the importance of the water cycle and access to the river. Consider flood mitigation strategies that prevent contaminated water from entering the river. <p><u>Tangible Benefits:</u></p> <ul style="list-style-type: none"> Provide housing for Aboriginal people. Provide employment opportunities within existing and proposed industries. Education for young Aboriginal kids to understand the place and culture. <p><u>Celebrating Culture:</u></p> <ul style="list-style-type: none"> Protect and interpret important tangible cultural objects. <p><u>Comment on ACHA + draft connecting with country framework</u></p> <ul style="list-style-type: none"> Didge Ngunawal Clan support the proposed use of borehole data and the stratigraphic approach to the Precinct’s future archaeological management.
Gunjeewong Aboriginal Corporation	<p><u>Comment on ACHA + draft connecting with country framework</u></p> <ul style="list-style-type: none"> Gunjeewong This group supports this ACHA and the archaeological recommendations it presents This group supports the use of the connecting with country framework in this project.
Kamilaroi Yankuntjatjara Working Group	<p><u>Development Frameworks:</u></p> <ul style="list-style-type: none"> Ensure Aboriginal people are included in the decision making across the life cycle of the project. <p><u>Response to Country:</u></p> <ul style="list-style-type: none"> Acknowledge the importance of waterways, creeks, rivers as essential to health and well-being. Ensure access to river frontages and wetlands. Restore landscape and plant species. <p><u>Tangible Benefits:</u></p> <ul style="list-style-type: none"> Share the tangible benefits of affordable housing and employment. <p><u>Celebrating Culture:</u></p> <ul style="list-style-type: none"> Preserve, protect, and interpret cultural heritage. Develop interpretive material using the range of technologies to tell the stories of the place, both European and Aboriginal. Include a cultural centre within the precinct. <p><u>Comment on ACHA + draft connecting with country framework</u></p> <ul style="list-style-type: none"> Kamilaroi Yankuntjatjara Working Group support the ACHA and recommendations it presents This group supports the use of the connecting with county framework in this project

Organization	Key Messages
<p>Murra Bidgee Mullangari Aboriginal Corporation</p>	<p><u>Development Frameworks:</u></p> <ul style="list-style-type: none"> • <i>Ensure Aboriginal people are included in the decision making across the life cycle of the project.</i> <p><u>Response to Country:</u></p> <ul style="list-style-type: none"> • <i>Access to Country for young people to understand history and culture.</i> <p><u>Tangible Benefits:</u></p> <ul style="list-style-type: none"> • <i>Share the benefits of affordable housing.</i> • <i>Share the benefits of training and jobs creation.</i> • <i>Protect cultural artefacts.</i> <p><u>Celebrating Culture:</u></p> <ul style="list-style-type: none"> • <i>Include public art by Aboriginal artists within the precinct.</i> • <i>Develop and support a Cultural Centre that tells the stories of Aboriginal people.</i> <p><u>Comment on ACHA + draft connecting with country framework</u></p> <ul style="list-style-type: none"> • <i>Murrabidgee Mullangari endorse the recommendations set out in the ACHA and the archaeological management strategy proposed.</i> • <i>This organisation supports the approach of consultation in the Connecting to Country framework that has allowed them to voice their views and opinions on country and advocate this sort of consultation for their youth.</i>
<p>Muragadi Heritage Indigenous Corporation</p>	<p><u>Development Frameworks:</u></p> <ul style="list-style-type: none"> • <i>Ensure Aboriginal people are included in the decision making across the life cycle of the project.</i> <p><u>Response to Country:</u></p> <ul style="list-style-type: none"> • <i>Tell the stories of the area as a culturally important meeting and marketplace.</i> <p><u>Tangible Benefits:</u></p> <ul style="list-style-type: none"> • <i>Share the benefits of affordable housing.</i> • <i>Share the benefits of job creation.</i> <p><u>Celebrating Culture:</u></p> <ul style="list-style-type: none"> • <i>Protect cultural sites.</i> • <i>Develop 'story boards' to tell the stories of Aboriginal people and how they lived</i> <p><u>Comment on ACHA + draft connecting with country framework</u></p> <ul style="list-style-type: none"> • <i>Muragadi Heritage Indigenous Corporation support the findings and conclusions of this ACHA, and the proposed archaeological management strategy proposed.</i> • <i>Muragadi found the connecting to country discussions positive and that their views are being respected.</i>

Organization	Key Messages
Ginninderra Aboriginal Corporation	<p data-bbox="715 338 1214 365"><u>Comment on ACHA + draft connecting with country framework</u></p> <ul data-bbox="715 371 1214 577" style="list-style-type: none"> <li data-bbox="715 371 1214 461">• <i>Ginninderra Aboriginal Corporation were not available for a zoom meeting but have reviewed this ACHA and agree with the recommendations it presents</i> <li data-bbox="715 468 1214 577">• <i>This organisation agrees with sentiments of other RAPs concerning key messages from connecting to country discussions concerning Development Framework, Response to Country, tangible Benefits, and Celebrating Culture.</i>

1.7 Authorship

This report has been written by Dominic Steele. Jakub Czastka has provided background information used for discussion in Section 2.0. Bryce Sherborne-Higgins has prepared the Quaternary mapping and DEM images, and Alandra Tasire completed the AHIMS searches and mapping for this report.

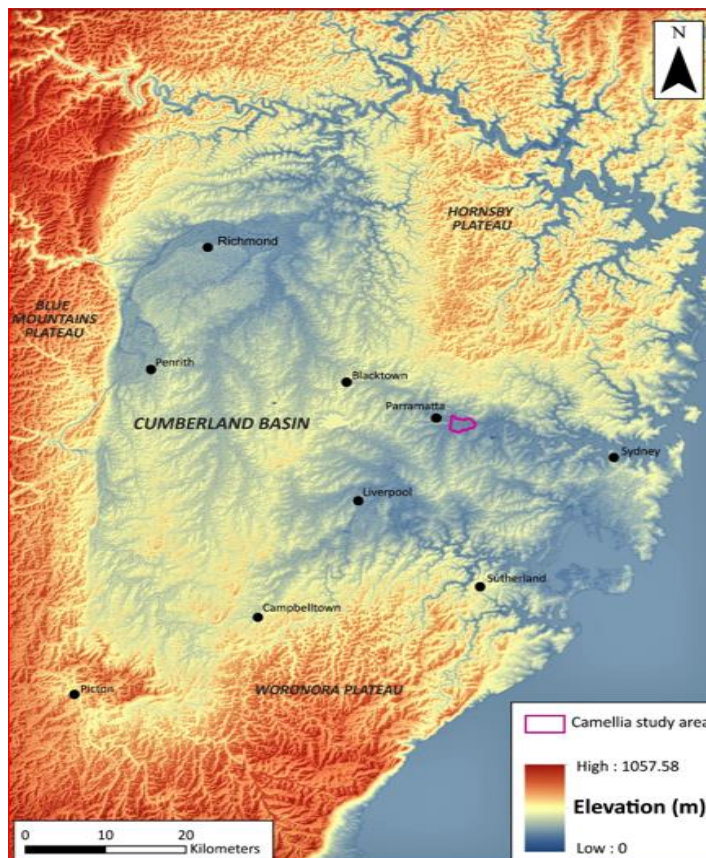
2.0 Landscape evolution and existing condition of the Place

2.1 Quaternary landscape setting of Parramatta

2.1.1 Quaternary sea-level changes and infilling of the Parramatta River Valley

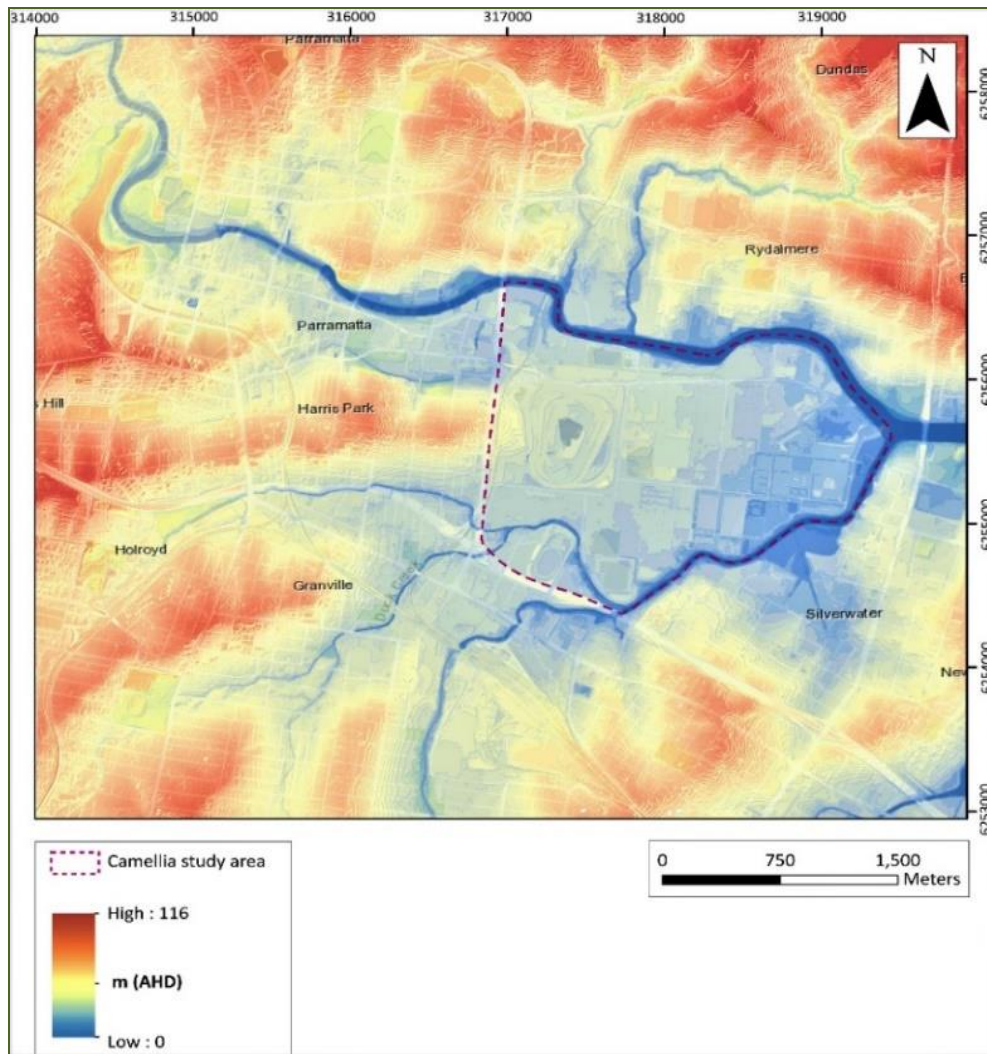
The Camellia-Rosehill Precinct forms part of an old and evolved landscape and the current industrial land use has been created on the surface of an ancient flood plain with deep subsurface Quaternary-period fluvial sediments that infill the lower part of the Parramatta River valley that is underlain and formed on Ashfield Shale over Hawkesbury Sandstone bedrock. The Quaternary period is the most recent period of geologic timescale and is subdivided into the Pleistocene (2.8 million to 12 000 years ago) and Holocene (12 000 years ago to present). The origins and ages of the valley infill sediments are linked to the rise and fall of relative sea-level that resulted from the expansion and melt of global ice sheets that occurred frequently during this period. Most surficial Quaternary deposits are inferred to date from the late Quaternary period (last 125 000 years) and to be associated with periods of higher than present sea-levels that are recorded to have occurred during the early Late Pleistocene and the mid-Holocene to the present (Troedson et al 2015).

Figure 2.1: Landscape setting of the Camellia-Rosehill lands located towards the tidal reaches of the Parramatta River and positioned at and forming the eastern edge of the Cumberland Plain (Sherborne-Higgins 2021)



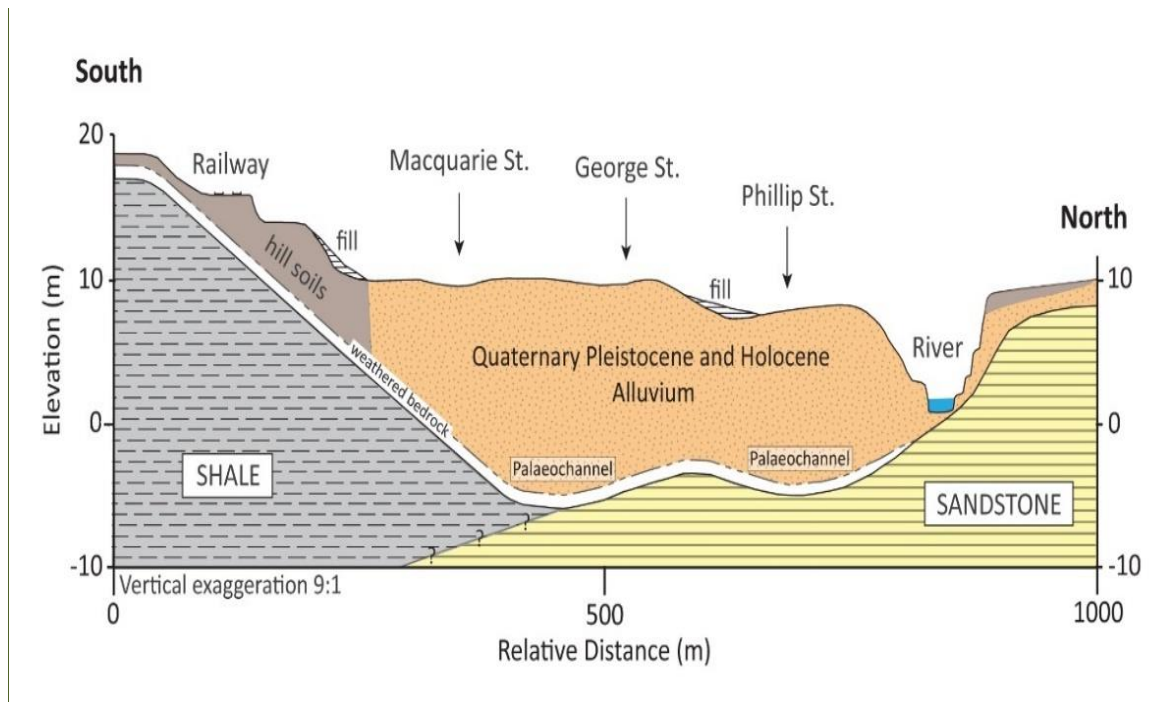
Sea-levels that reached about +4-6m higher than today are reported around 125,000 years ago and during the mid-Holocene to the present when sea-levels exceeded present levels by 1-1.5m (Sloss et al 2007, Lewis et al 2013). Remains of Holocene-period River terraces that formed after about 6,500 years ago occur up to 2m in elevation on both sides of the modern Parramatta River and higher terraces above 5-6m sea-level are believed likely to have formed during the Last Interglacial (Casey & Macphail 2008).

Figure 2.2: Digital elevation model for the Camellia-Rosehill lands (Sherborne-Higgins 2021)



The indicative geological landscape cross-section below (north - south and from Rosehill Station to Lennox Bridge) shows the surface elevation of the alluvial terraces and depth to underlying bedrock. Lawrie (1982) report the bedrock beneath the alluvial sediments has been gouged out in two places to a depth below current sea-levels that reflect older alignments of the river. The stratigraphic relationship between the alluvial clays and residual shale subsoil's below them is however unclear.

Figure 2.3: Surface elevation of Quaternary alluvial sediments and bedrock along cross-section between Lennox Bridge and Parramatta Railway Station (Modified from Lawrie [May 1982] Soils: Archaeological Studies at Parramatta. Soil Science Conference, Canberra)



The Quaternary alluvium represents several episodes of deposition and reflect alluvial, fluvial, and estuarine depositional environments that are each separated by phases of erosion and/or non-deposition. Evidence for this comes from the geomorphology of the valley where at least two river terraces are recognised above the modern Parramatta River floodplain (Gale 2017:3). A sand deposit known as the Parramatta Sand Body (PSB) that forms part of the upper near-surface Quaternary alluvial sediment sequence is currently mapped to extend between Parramatta Park in the west to about James Ruse Drive in the east and contains a significant Aboriginal archaeological record. Aboriginal cultural materials within the PSB have been dated to over 35,000 BP and dates for the top of alluvial sediments below the level of Aboriginal occupation at the western end of the PSB indicate they are about 64,000 years old (GML 2018) and comparable dates at the eastern end of the PSB (140 Macquarie Street) are c.50-58,000 years old.

2.1.2 Quaternary mapping of the Camellia-Rosehill Precinct and the Parramatta Sand Body

The PSB was archaeologically identified and found to contain Aboriginal objects during historical archaeological investigations on the corner of George and Charles Street in 2002. Prior to this the PSB was an unrecognised soil landscape unit incorrectly mapped as disturbed terrain on the Birrong Soil Landscape (Michell 2008). It was initially proposed (McDonald 2005a:7) that sand body on the southern bank of the Parramatta River extended west from beyond The Crescent in Parramatta Park, south to Clay Cliff Creek, and east to the confluence of Clay Cliff Creek and Parramatta River near James Ruse Drive.

Figure 2.4: Existing mapping of the PSB is based on older generation geology and soil maps (image drawn from Artefact Heritage 2020)

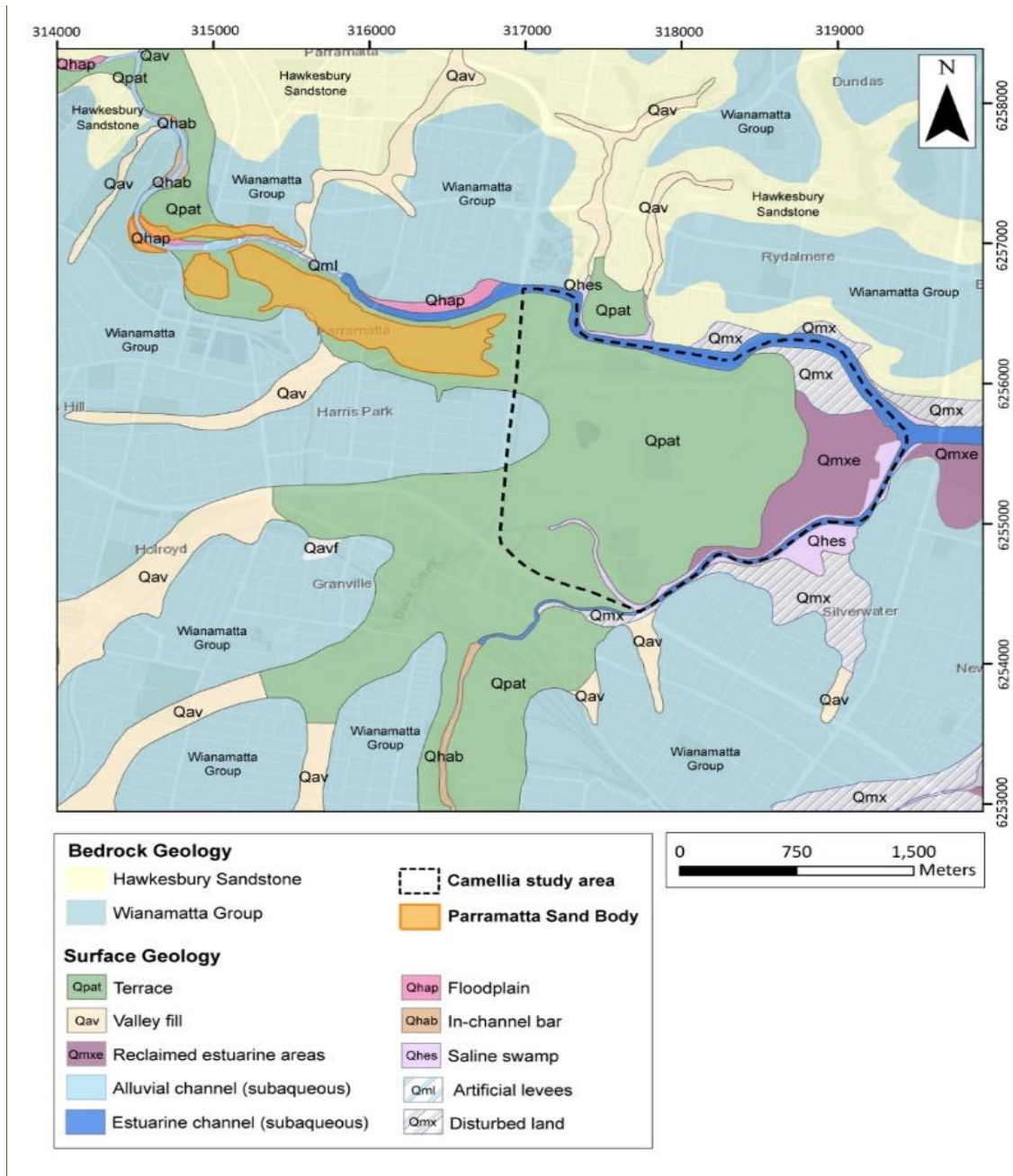


Parramatta City Council (2008) and the former Department of Planning (2011) commissioned studies to define the extent of the sand body in the eastern portion of the Parramatta CBD between the Parramatta River and Clay Cliff Creek. This included the analysis of geomorphology via hand-auger sampling in Robin Thomas Reserve, James Ruse Reserve, and Hambledon Cottage Reserve and of the 28 hand auger holes tested, six located sand and four encountered marginal sand (Artefact Heritage 2020).

The results of this work (Michell 2008, 2011) were used to create the PSB distribution maps such as shown below used in the listing of the PSB on the SHR and have been used to guide archaeological investigations in Parramatta for a decade.

With regards to the eastern distribution of the PSB, Mitchell (2009, 2011) reported that moving east the sandy terrace declined to 2m-5m above the river along Grand Avenue and this general decline downstream was consistent with the gradient of the modern river. At the eastern extremity of the sand body known at that time, the presence of sand was confirmed in auger holes in Tramway Avenue and the intersection of George Street and Arthur Street, and it was proposed that beyond Arthur Street the sand body interfingered with clay sediments on a terrace formed along Clay Cliff Creek.

Figure 2.5: 2015 Quaternary mapping for the Camellia-Rosehill Precinct showing the widespread distribution of Pleistocene Terrace deposits (Qpat) and the relationship to the 2009 mapped distribution of the PSB (Troedson et al 2015)

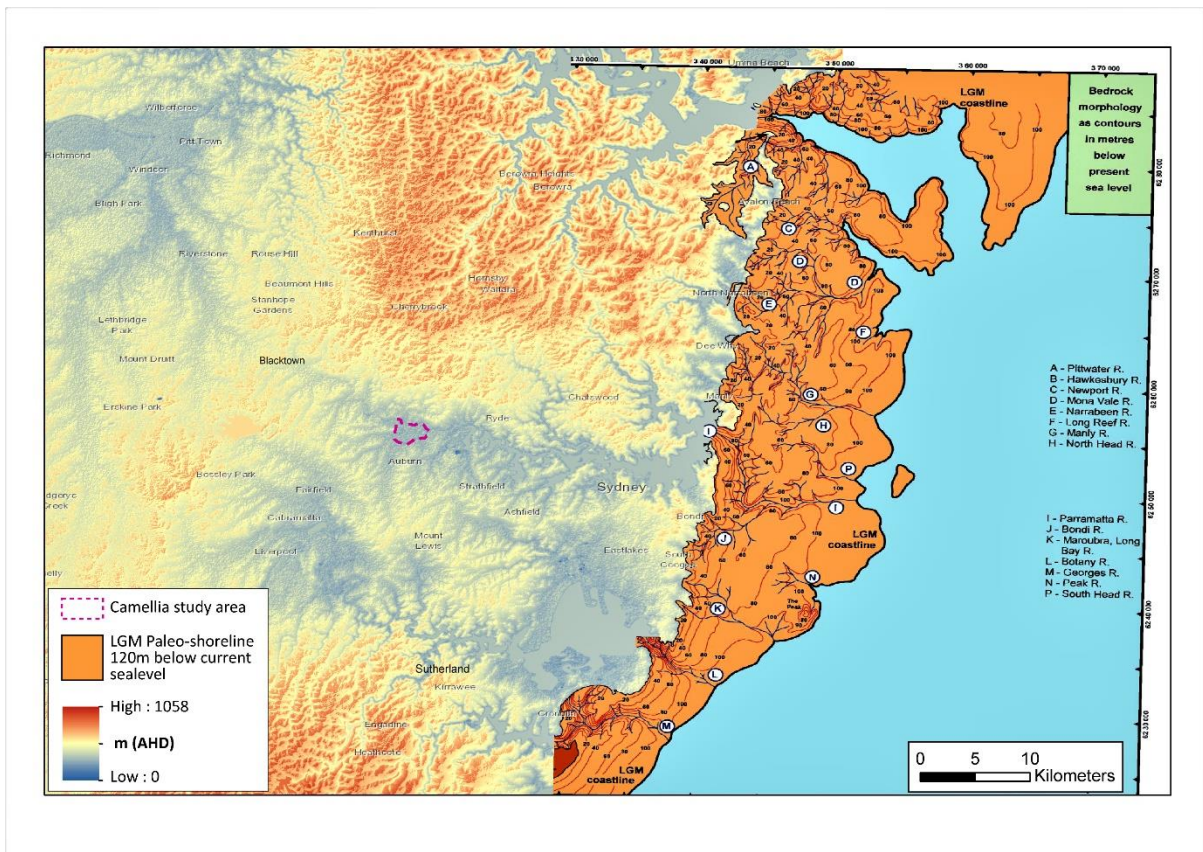


This geological mapping of surficial coastal Quaternary geology uses the Coastal Quaternary geology classification system and is underpinned by well-established research findings on the nature and evolution of NSW coastal Quaternary deposits. Troedson and Deyssing (2015) describe the mapping is based on geological interpretation of LiDAR digital elevation model (DEM) and DEM derived imagery, soils data, and geological records from the NSW water bores database.

2.2 Changes to country brought about by sea-level changes

Archaeological evidence shows Aboriginal people were living in Parramatta during the Last Glacial Maximum and about 20,000 years ago, sea-level was about -120m lower than it is at present. As a result, the now submerged offshore coastal shelf was above sea-level and the Sydney coastline was located about 25km further to the east than it is today. Parramatta was therefore more distant from the coast that today and was situated within an inland valley drained by a freshwater stream. This watercourse ran down through the valley to the east and crossed the ‘bottom’ of the future Sydney Harbour and continued out through the rocky headlands before snaking across the now submerged coastal shelf to reach the LGM shoreline.

Figure 2.6: Bedrock geomorphology of the shelf at the time of the Last Glacial Maximum (ca 20 ka) showing the paleo-shoreline at -120m below the present sea-level and the drainage features that were active at that time (Source: Albani et al 2015: Figure 3 pp 685)



As global climate conditions changed from the LGM, rising sea-levels that resulted from the melting ice sheets flooded across the terrain of the continental shelf and eventually the sea reached and then inundated Port Jackson and the rising water progressively moved up and ‘drowned’ the Parramatta River valley. Sea-levels reached their present elevations around 7,000 years ago but this was not before sea-levels had first exceeded modern levels by between +1-2m. The higher than modern sea-levels also appear to have remained in place for an extended period before they oscillated, with often rapid ‘meltwater pulses’ and fell back to present positions

about c.2,000 BP. During the intervening 5,000 years there were shorter-lived oscillations that created higher sea levels than experienced today and two are recorded during two intervals beginning around 4,800 BP and 3,000 BP respectively (Lewis et al 2012).

Post-glacial sea-level rise will have had a massive impact on the lives of Aboriginal people living in both coastal areas and within hinterland-inland valleys within reach of the rising water. Nunn and Reid (2016:41) speculate that generation after generation of Aboriginal people around the Australian continent are likely to have had to continuously re-negotiate and realign land tenure and share arrangements with neighbours and ultimately make stay and go decisions about '*lowland clan estates*'. This line of thinking will also have applied to the Aboriginal communities living in Parramatta.

2.3 Changes to landscape and shifting ecological zones

It is probable that one ongoing effect that rising (and dropping) sea-levels is likely to have had on the lives of Aboriginal communities living in the valley was the constant shifting of the relative landscape positions of freshwater, estuarine and saltwater ecological zones because these determined the location and availability and distribution of resources people used at various times in the past.

As a result of rising sea-level, Parramatta's freshwater river valley environments progressively gave way over time to estuarine environments featuring a complexity of sub-tidal, intertidal, and supratidal environments with ecosystems ranging from saltwater-freshwater wetlands to savanna grasslands and woodlands. The changes in the landscape position of these environmental zones and development time for new ecological zones to transition from or to replace those effected by rising sea-levels with comparable carrying capacity suggests the position and nature of Aboriginal land use will have continuously changed as environmental conditions changed in the lead up to and following stabilisation of sea-levels about 2,000 years ago.

2.4 Current conditions

2.4.1 Landforms, topography, and drainage

The Precinct is bounded by Parramatta River to the north, Duck River to the east, the M4 (Parramatta Road) to the south and James Ruse Drive to the west. The Precinct comprises low-lying land that slopes down from the west to the east from a high point of about 12m AHD adjacent to Rosehill Railway Station after which the land falls to about 7m AHD at Rosehill Gardens Racecourse and then drops again to approximately 3m AHD near the confluence of the Parramatta and Duck Rivers. The northern and southern boundaries of the Precinct that adjoin the rivers are also low points and the northern half of site drains to the Parramatta River and the southern half of the study area drains to Duck River. The southwest corner of the study area is also drained by Duck Creek (a tributary of Duck River) and a small section of A'Beckett's Creek which drains into Duck Creek.

2.4.2 Geology and soils mapping

The land to the east of Rosehill Gardens Racecourse is mapped by the Sydney 9130 100:000 Geological Sheet as comprising human-made fills of dredged estuarine sand and mud and demolition/Industrial/Household waste materials. These fills overlie Quaternary-period sediments. The western third of the study area is mapped as comprising Quaternary fluvial deposits associated with the drowned valley estuary of the Parramatta River (that is discussed within an Aboriginal cultural heritage context in following sections) that consist of silty to peaty quartz sand, silt, and clay, with common shell layers. These include Pleistocene deposits related to and deriving from the complex depositional history of the various environments captured by this river landscape setting that include wetland fringes, the upper reaches of the tidal and estuarine influence, and the freshwater aquatic systems further upstream (Troedson and Deyssing 2015). These Quaternary deposits include basal Pleistocene (early mid Quaternary) stiff clay and sandy clay with minor sand, shell, and peat layers and their eroded surfaces is commonly deeply weathered. The Quaternary sediments are underlain by Ashfield Shale of the Middle Triassic Wianamatta Group.

There are two exceptions to this broad mapping. The first comprises the wetland zone at the confluence of Parramatta River and Duck Creek and is mapped as coastal swamp with the soils comprising deep Organic Acid Peats, Peaty Podzols and Humus Podzols overlying pale Siliceous Sands. The second is for the soil in the vicinity of Rosehill Railway Station that is mapped as comprising the Glenorie Soil Landscape that consists of Yellow Podzolic Soils subject to high soil erosion hazard, and localised impermeable high plastic subsoil.

2.4.3 Hydrogeology

Golder and Associates (June 2021:8-9) describe the Camellia-Rosehill Peninsula as an elevated terrace of alluvial materials exposed during the recession of sea level in the early Pleistocene, and that the eastern part of the peninsula was previously an area of tidal flats and swamps between the Parramatta River and Duck River. Groundwater levels in fill and Quaternary sediments range from 7m AHD below Rosehill Gardens Racecourse in the west to a tidal mean of 0m AHD beneath the mudflats fringing the northern, eastern, and southern sides of the Peninsula.

In summary in the low-lying areas underlain by significant thickness of estuarine deposits and manufactured fill the groundwater table likely to be within 3-5m of the ground surface. The pre remediation groundwater levels on the Parramatta Light Rail Stabling and Maintenance (PLR SaM) site were found to have a range from 3.5m AHD and 6.5m AHD (Golder and Associates 2021:9)

2.4.4 Landfilling and reclamation

There are no precise maps of the extent of filling but there is sufficient information to indicate fill depths are variable but likely to be greater in depth in the northern, southern, and eastern margins of the study area. Golder and Associates (2021) report the following locations where fill depths have been recorded:

- 4-8 Grand Avenue: fill up to 2.6m (impacted with hexavalent chromium).
- 11A Grand Avenue: 2.0m of fill over natural sequence of clays, silts, and sands.
- 14 Grand Avenue: 2.0m average of fill over natural soils.
- 16 and 37 Grand Avenue: fill present - depth not specified (hexavalent chromium at 37 Grand Avenue).
- Grand Avenue along c.1.3 km length of median strip from 5 Grand Avenue to 10/10A Grand Avenue; Test pitting at 22 locations identified fill at each to depths of 0.3m and 0.5m (Asbestos in six).
- Thackeray Street; fill material beneath road pavement to depths of 0.9m to 2.7m.
- Along Grand Avenue east of Thackeray Street; fill beneath road pavement from 1.0m to 2.3m.

2.4.5 Contamination

Parts of the Precinct have low gradients that have been historically filled with materials that have been placed over sand and clay sediments that sit over relatively impermeable shale and sandstone bedrock. The fills when combined with shallow groundwater conditions create environments where contaminants may migrate down and laterally through permeable zones (Golder Associates 2021). The extent of Acid Sulphate Soils across the study area is mapped on PLEP 2011 and asbestos wastes from the James Hardie operations have resulted in potentially large-scale contamination in and within the vicinity of the former manufacturing site.

Golder and Associates (2021) report that contamination remediation is likely for the proposed residential areas at the 181 James Ruse Drive and 1 Grand Avenue sites and the proposed open space/public recreational area located south of the PLR Stabling and Maintenance (SaM) site, and several open space areas located in the foreshore setback areas. Asbestos wastes from the James Hardie manufacturing have resulted in large scale asbestos contamination at 181 James Ruse Drive and 1 Grand Avenue sites and on the former quarries backfilled with asbestos waste on the north side of Devon Street. It is noted the sites at 181 James Ruse Drive and 1 Grand are subject to existing Remediation Action Plans.

2.4.6 Land-use and historic impacts

The land has an industrial history dating back to the 1880s and uses have included for oil refining and storage, for facilities manufacturing asbestos products, for plants for solid and liquid waste storage, and for recycling and treatment operations. The 1930 image below shows the extent of development within the study area by this time with the eastern portion of the land shown as low-lying terrain ('swamp land').

Figure 2.7: The study area in 1930 (Golder Associates 2015a)

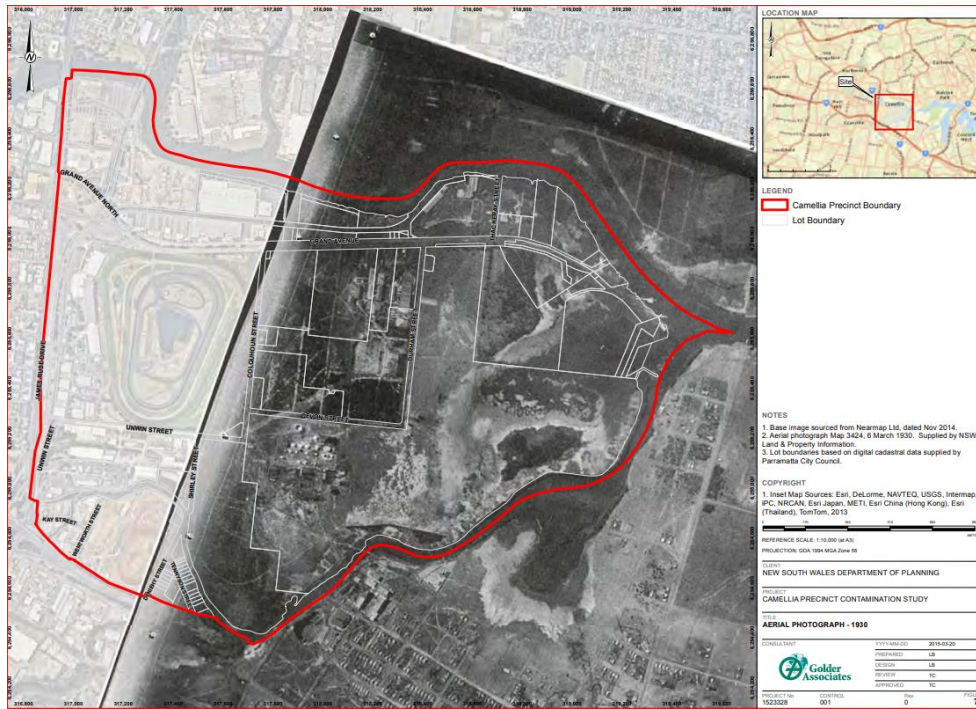


Figure 2.8: These images (1932) show the Australian Cream of Tartar Co Ltd and site of later Rosehill Racecourse and the natural of the ground surfaces exposed and those filled and built over (Mitchell Library, State Library of New South Wales)



2.5 Considerations arising for future subsurface archaeological management

The PSB is listed on the SHR and is mapped to extend from the west in Parramatta Park to around James Ruse Drive in the east. The Camellia-Rosehill Precinct is mapped with Quaternary fluvial deposits that may include deposits that are stratigraphically equivalent and represent an archaeological continuation of the PSB. Quaternary mapping shows the Precinct as forming part of a Pleistocene terrace formation (Qpat) that has the same mapping designation as that used for the PSB. This Quaternary mapping became available in 2015 and post-dates when the PSB mapping was originally undertaken within the CBD in 2008 and uses more detailed and

accurate datasets than were previously available. The eastern 'end' of the PSB as it is shown on the 2009 mapping reflects the scope of that study that only extended to cover as far east as Clay Cliff Creek (see Michell 2008) and importantly there have been no Aboriginal archaeological or geomorphological investigations undertaken within the Precinct to date that help refine the issue of whether the PSB and/or equivalent potential archaeological deposits occur within the Camellia-Rosehill Precinct.

The eastern third of the study area, along with parts of the northern and southern margins are located below the 1:100-year flood level and comprise land that has been historically reclaimed with fill materials used to raise the level of the ground. Significant areas of the study area have been potentially filled or otherwise contaminated with asbestos and chrome waste deposits related to historic manufacturing activities and the eastern third of the land is also mapped as having a high probability of occurrence of acid sulphate soils.

Issues for consideration for future archaeological management based on this understanding of the existing conditions of the land are:

- Future land-use may result in potential subsurface archaeological impact and archaeological impact mitigation options in the form of test and salvage excavation may be not possible or be constrained by the potential contamination of subsurface soils and sediments across the study area.
- Future changes in land-use that will result from the implementation of the Master Plan will trigger the requirement for detailed assessment and comprehensive management of potential contamination.
- An approach to enable management of potential subsurface Aboriginal archaeological impact risk can be integrated with future on-site contamination and geotechnical borehole investigations that record presence and depth of surface and subsurface fills and nature and sedimentary composition of in situ soils and sediments making up the stratigraphic profile.
- This data can be used to identify and map the occurrence and depth of fill deposits, the locations, and depths of below-ground disturbances, and to distinguish between soil profiles likely to reflect old ground surfaces and with potential to contain Aboriginal objects and deposits and sediments with low or no archaeological sensitivity.
- This information can also be used to identify where and how deep future building excavations could proceed to archaeologically 'safe' depths with no or low risk of impact to Aboriginal objects (in highly disturbed areas and where activities affect only fill), where redesign may be required if significant subsurface PAD is identified via geoarchaeological interpretation of bore log data and possibly verified through testing, or where unavoidable impacts from future design may require archaeological mitigation through archaeological investigation. Appropriate archaeological management measures for future implementation would be guided by the findings of future contamination risk assessments.

- The archaeological use of borehole data provides an opportunity to identify where on the land and at what depth subsurface soils with potential Aboriginal archaeological sensitivity may occur that will help the development of building layouts and designs at future Development Application stages.

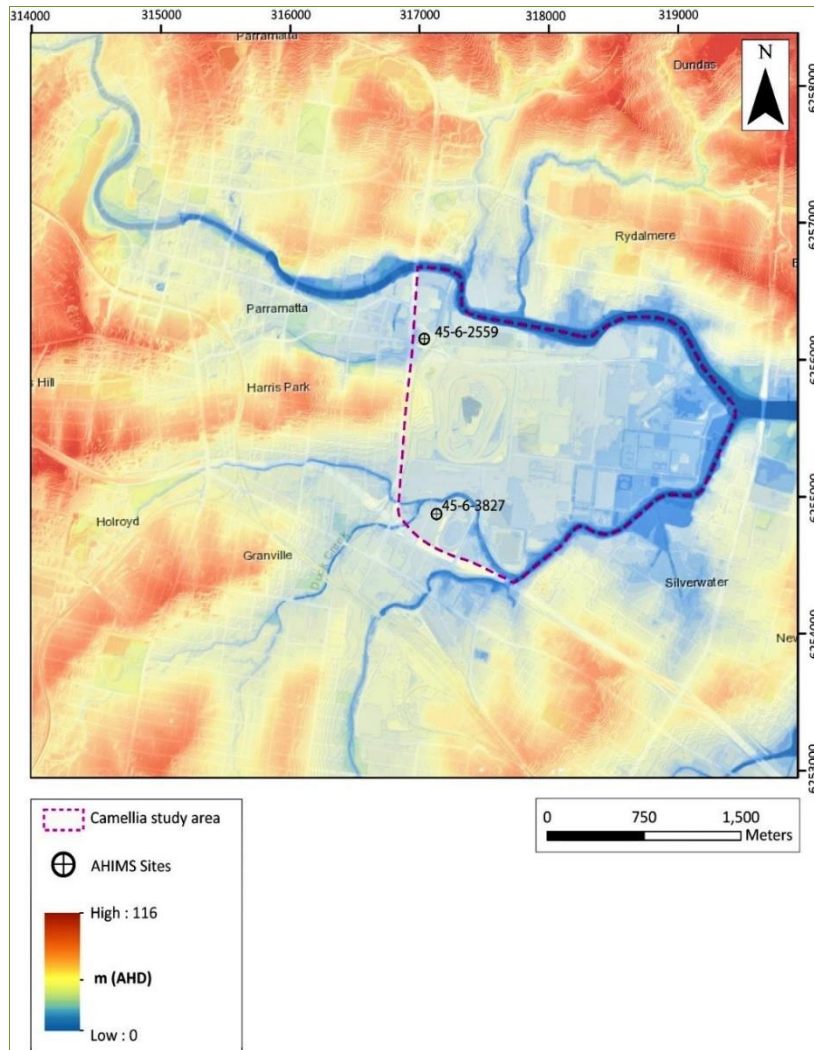
3.0 Aboriginal archaeological heritage context

3.1 Database searches (AHIMS) and known information sources

3.1.1 AHIMS site searches

The Aboriginal Heritage Information Management System (AHIMS) is a database that is currently operated by Heritage NSW (Department of Premier and Cabinet) and 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 NPQ Act) in New South Wales. Searches of AHIMS for this study show that only two AHIMS sites have previously been recorded within the Precinct. The majority of previously recorded AHIMS sites are located to the west of the Precinct, and on the southern sides of Parramatta River from about Clay Cliff Creek west to Parramatta Park.

Figure 3.1: Two previously recorded AHIMS sites occur in the Camellia-Rosehill Precinct



The first Aboriginal archaeological site known to exist within the Precinct is located within Sydney Turf Club Carpark (AHIMS 45-6-2559) that is situated on the southern side of Grand Avenue North and about 60m to the east of its intersection with James Ruse Drive. The archaeological site is an artefact scatter originally recorded on raised flat ground adjacent to the former channel of a tributary of Clay Cliff Creek. The original recording described silcrete, chert, mudstone/tuff and quartz stone artefacts eroding out of a soil surface. The site was relocated from an older recording during work for the Parramatta Light Rail project in 2017 (KNC 2017). The site was assessed to be representative of its class and its scientific value was assessed to be moderate. Partial salvage was recommended for the portion that would be impacted by the light rail works. The status of this site is being investigated.

The second site (AHIMS #45-6-3627) within the study area is a Potential Archaeological Deposit (PAD) that is recorded within the grounds of Sydney Speedway (Valvoline Raceway – western portion of Lot 4 DP 1116474) that now forms part of the Sydney Metro’s Clyde Maintenance and Stabling Facility. The future archaeological management of the site is outlined in the ACHA that has been prepared for the Sydney Metro West Stage 1 (Artefact Heritage 2020).

3.1.2 Other heritage registers and databases

Additional heritage registers and lists searched for known Aboriginal heritage in the vicinity of the study area have included:

- City of Parramatta Council Local Environmental Plan 2011
- (NSW) State Heritage Register and (NSW) State Heritage Inventory
- Commonwealth Heritage List
- National Heritage List
- Australian Heritage Places Inventory
- Register of the National Estate (non-statutory)

These searches show one registered heritage item with high Aboriginal cultural heritage significance is present within the vicinity of western boundary of the study area. This is known as an ‘Ancient Aboriginal and Early Colonial Landscape’ and is listed on the NSW State Heritage Register (SHR Item 01863). The curtilage of this Item (bounded by George Street, Hassall Street, and Harris Street) contains a section of the Parramatta Sand Body (PSB), and the location was also the site of a military barracks that was established about 1790. The Statement of Significance for this item includes reference to the PSB:

Archaeological investigation of the sand body has uncovered a substantial archaeological record that has contributed to our understanding of pre-colonial Aboriginal occupation of the Parramatta area and more broadly, the Cumberland Plain. The antiquity of some of this archaeological record and evidence of change over time is significant to Australian archaeology. For the local Aboriginal people whose ancestors lived on

and used the sand body for many thousands of years before the arrival of non-Aboriginal people, the sand body has special significance. The sand body is a tangible link with their cultural past.

Robin Thomas Reserve forms the southern portion of SHR Item 01863 and is also listed on Schedule 5 of PLEP 2011 (Robin Thomas Reserve archaeological site – Item A2). AHIMS registered site(s) #45-6-3157/#45-6-3158 encompasses the curtilages of SHR Item 01863 and the Robin Thomas Reserve archaeological site.

3.2 Previous archaeological investigations in the City of Parramatta

3.2.1 Key PSB archaeological sites and findings

Archaeological investigations of the PSB undertaken within Parramatta Park in 2016 shed light on the formation of the PSB (GML Heritage July 2018:i-ii) describe:

The excavation resulted in the recovery of limited amount of highly significant Aboriginal archaeological evidence. A total of 39 items demonstrating Aboriginal use of the area were retrieved from the excavation. Eight stone artefacts were recovered; one item was deep within the archaeological trench. An Aboriginal ochre cooking pit was identified, as well as 30 pieces of ochre – 22 red pieces and eight yellow pieces.

The geomorphology results were surprising and present significant new information on how and when the sand sheet formed. We used the optically stimulated luminescence dating technique, which dates the last time that the quartz in the sands was exposed to light. We understand now that between 58,000 and 40,000 years ago a large flood event brought massive quantities of sandy clay down the Parramatta River valley. Sandy clay was deposited on the northern and southern banks of the river. Our dates for this event correspond with previous investigations, which had indicated the sandy clay was deposited between 58,000 and 50,000 years ago.

Our research provides direct evidence that Aboriginal people started living adjacent to the river, on the Parramatta sand body, around 40,000 to 35,000 years ago. When they started to live on the sandy clay, the wind slowly eroded the sand (it became windblown aeolian sand). The sand was then through time redeposited over the sites and places inhabited by Aboriginal people, gradually burying the materials items they had created. The outcome of this process is the buried sites we find across Parramatta on the sand today.

Amongst the first archaeological investigations of the PSB undertaken in the City of Parramatta during the early to mid-2000s was conducted at 109-113 George Street (JMCHM Pty Ltd). Testing (2003) followed by salvage excavation (2005) at RTA-G1 revealed evidence for multiple phases of prehistoric Aboriginal occupation from the Late Pleistocene (c.30,000 BP) to about 3,500 BP with the most recent occupation evidence (last 2-3,000 years) lost from historic land-use impacts. The investigations recovered 4,775 artefacts with an average density of 38 artefacts per sqm. Most (82%) was knapping debitage and most artefacts (75%) were found in the upper 40cm of deposit. Lower density material (16%) occurred between 40cm and 60cm in depth, while 8% was between 60cm and 80cm depth. Very few stone items were found below 80 cm depth. Glossy heat-altered silcrete was found concentrated in the top 10cm-20cm of deposit and associated with small, backed artefacts. Silicified tuff

in the earlier assemblages at the site was distinct from more recent silcrete Bondaian assemblages. A sparse distribution of patinated silicified tuff was also found between 60cm and 80cm depth.

Formal artefact types included backed artefacts, three (ground stone) hatchet heads in a discrete cluster, anvils, two serrate retouched tools, an ironstone core, and clusters of manuport stones (heat retainers). This evidence demonstrated a range of activities were carried out and represented domestic occupation debris accumulated over an extended period. The radiocarbon dates revealed occupation extended from the late Pleistocene through to the mid-Holocene. The oldest date (c.30,000 BP) more than doubled the previously accepted period for Aboriginal occupation of the Sydney region.

Excavation at CG1 (corner of Charles and George Streets) involved the investigation of more than 210 sqm of the site that was hand excavated, whilst another 250 sqm were mechanically screened and over 6,500 Aboriginal objects were recovered with a density of 24 artefacts per sqm (JMCHM Pty Ltd 2005a:26). Excavation revealed living floors containing artefacts and hearth arrangements, and the assemblage was co-dominated by silicified tuff and silcrete although examples of artefacts sourced from chert, quartz, and banded tuff. Rare artefact types included axes, hammerstones, anvils, and grindstone fragments. A perforated shark tooth was also recorded (thought to have been a hair ornament as noted in early European historical sources in the Sydney area) and residue analysis of ground-stone artefacts suggested some had been used for the preparation of starchy plant material, during food preparation.

Salvage excavation within a land parcel at 101-110A George Street and 2-10 Union Street revealed further evidence of early occupation of this area that represented a continuation of the archaeological site identified at CG1 and RTA-G1. This site revealed <10,000 artefacts within a c.30,000 sqm area (JMCHM Pty 2005b). This assemblage was co-dominated by silicified tuff and silcrete. There was unmistakable evidence for changes in the preference for certain stone raw materials and some stone tool reduction strategies over time, and of considerable antiquity in the earlier deposits.

3.3 Previous archaeological investigations within and in proximity of the Precinct

3.3.1 Parramatta Light Rail

The Aboriginal cultural heritage assessment (KNC 2017) prepared to inform the EIS for the Parramatta Light Rail project identified three previously recorded Aboriginal archaeological sites, seven Potential Archaeological Deposits (PADs), and the presence of the PSB within the project area. Testing subsequently undertaken (Code of Practice) using a combination of hand-excavated test squares and push-tubed core boreholes aimed to determine whether locations contained subsurface PSB deposit or other intact soil matrices and identified intact sands containing artefacts below modern disturbance in places but at variable depths.

Most of the study area contained little to no potential for subsurface archaeology due to disturbance from building construction, installation of above and below ground utilities, landscaping and bulk earthworks and low-lying areas along the banks of Parramatta River and major creeks were assessed likely to be disturbed by high energy flooding events.

It was assessed that the elevation of the area above Parramatta River would have limited the impact of flooding on the subsurface deposit while the proximity of the area to the resources along and within the river and creek would have made the location attractive to Aboriginal people in the past. The area was assessed as having potential for subsurface archaeological deposit due to its elevated location on the Parramatta Sand Body, low level of disturbance and proximity to the resources of the Parramatta River and Clay Cliff Creek.

Figure 3.4: The PADs shown below that are located to the west of James Ruse Drive and outside of the study area were tested in 2017 as part of the Parramatta Light Rail project. Test excavation of the previously recorded site at the Sydney Turf Club was 'not required as the surface manifestations of the site were sufficient to characterise its nature and extent' (KNC 2017: Figure 8)



Test excavation at PLR PAD 5 comprised a single test excavation square (TS3) and an independent borehole sampled to the east of the test square (BH12) (Figure 12). No Aboriginal objects were recovered from test excavation at PLR PAD 5. Portions of intact sandy deposit associated with the PSB were present at PLR PAD 6 below modern disturbance. These natural sands (present only at TS1) did not contain Aboriginal objects and were not considered to be archaeologically sensitive. The upper level of the sand at TS1 had been subject to disturbance and other areas of the PAD had been stripped of natural soils and replaced with fill materials as evidenced by TS2 and BH13.

Sydney Turf Club Carpark was proposed to be test excavated (and potentially salvaged) prior to construction impact related to the PLR.

3.3.2 Robin Thomas Reserve and Harris Street

The PSB is listed on the State Heritage Register and SHR Item #01863 features a section of the PSB within a curtilage bounded by George Street, east by 153 George Street and 42 Hassall Street, west by Harris Street, and south by Lot 7 DP 720779. Robin Thomas Reserve (RTR) forms the southern portion of SHR Item #01863 and is also listed on Schedule 5 of PLEP 2011 as an archaeological site of local significance (RTR archaeological site - Item A2). Two Aboriginal archaeological sites (AHIMS #45-6-3157/#45-6-3158) discussed below encompass the curtilages of SHR Item #01863 and the Robin Thomas Reserve archaeological site.

AHIMS #45-6-3157/#45-6-3158 (Harris Street footpath/Robin Thomas Reserve) was registered on AHIMS as an Aboriginal Resource and Gathering site located on the crest of a low flat PSB terrace overlooking the southern bank of Parramatta River. The listing notes the location would have been an attractive location for Aboriginal people because it had access to two permanent water sources (Parramatta River and Clay Cliff Creek) and their forest, riverine and estuarine food, and raw material resources. In 2013 Comber Consultants (2014:37) undertook excavations (nine 1m x 1m test squares) for services in the footpath of Harris Street and recovered fifty-nine artefacts (silcrete, chert, quartz, and quartzite) including several pieces of worked glass.

The site was and test excavated in 2017 to investigate the impact of the Parramatta Light Rail construction along the western edge of Robin Thomas Reserve. The testing comprised four test squares (TS7-TS10) aligned along the western edge of the grassed reserve, and this revealed intact subsurface deposit in three of the four squares below a variably thick layer of disturbance. Squares TS7, TS9 and TS10 contained deep sand deposits associated with the PSB to a depth of at least 1m. At TS7, this was shallow with compact orange-brown sands encountered between 18-20cm depth. At TS9, red/orange-brown sands were encountered at 35-37cm depth. At TS10 sands were present from 26cm and undisturbed apart from a single brick fragment. A total of nine artefacts were recovered and the majority (n=8) came from TS10 and were recovered from spit 6 (50-60cm depth, n=5) and spit 7 (60-70cm depth, n=3). One further artefact was found at TS7 in spit 5 (40-50cm depth), and all artefacts were from the intact natural sand deposits (Kelleher Nightingale Consulting (2017:47).

3.3.3 189-191 Macquarie Street

Archaeological test excavation at 189-191 Macquarie Street (AHMS Pty Ltd 2013) found the PSB extended into the northern part of the site where the deposits were shallow and contained no Aboriginal objects. Previous archaeological investigations in the vicinity had indicated past Aboriginal occupation and use of this river terrace landform appeared focussed on the higher ground and where the PSB extended into the Macquarie Street site it appeared to have been a low-lying edge of the landform and was considered unlikely to have been the preferred location of past Aboriginal camping. The southern part of the Macquarie Street site extended into a landform that was interpreted as a former levee of Clay Cliff Creek and where excavated it was found to have deep deposits (about 60 cm) and to contain a low density of Aboriginal objects (4-7/m²) that may have derived

from Aboriginal occupation in the late Pleistocene period. The levee was considered likely to have been a favoured occupation location, with a focus on the high ground, and the lower ground within the site appears to have been a more marginal occupation location.

3.3.4 Parramatta Skate Park

Archaeological testing at James Ruse Reserve in 2004 (AHMS Pty Ltd 2004) to inform plans to enlarge the skate facilities found an absence of sand grains in the soils that if present would have derived from the sandstone country that dominates the river upstream (and which contributes to the sandy composition of the PSB closer to the river) and this absence suggested the influence of the river was minor in the formation of the very fine-grained alluvial soils recorded. The site lies at a slightly lower elevation than the sand levee of the PSB and is likely to have been subject to low velocity flood flows that deposited fine grained sediment. The stratigraphy comprised 20cm modified/introduced loam topsoil over brown clayey silt (20-50cm) gradually transitioning into light brown clay with iron manganese staining that developed with depth (to about 850mm). Plastic silty clay was identified below this to a depth of 1.2m. In summary (ibid:29):

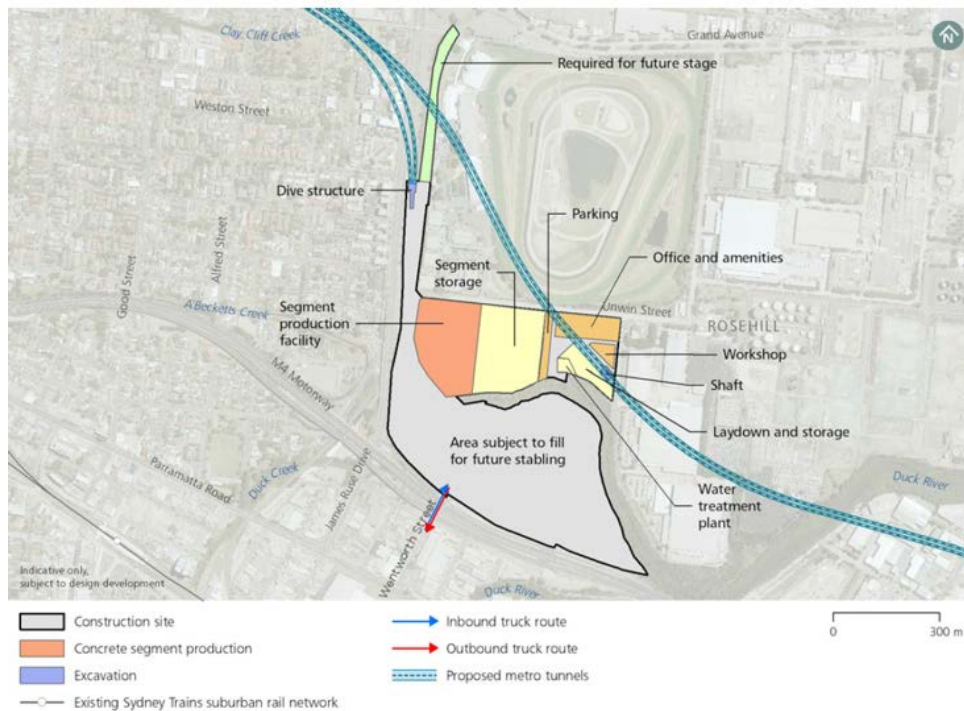
- The soil profiles were different from the PSB soils recorded on the higher ground closer to the river.
- A low-density of Aboriginal stone artefacts was found (thirteen) and none were in situ.
- No artefacts were found lower than 0.85m below current ground surfaces which marked the interface with the impermeable plastic clays.
- The low-density distribution of stone artefacts within the disturbed soils was unremarkable in size and nature and to comprise items of silcrete 'waste flake' with little research value.

It was proposed the area may have been a swamp oak environment prior to European settlement and not a highly favourable campsite for occupation for extended periods that would have created substantial archaeological signatures. It was concluded (ibid:44) that unlike the PSB archaeological contexts on higher ground closer to the river that attracted repeated Aboriginal visitation and use in the past, the Skate Park was located on an alluvial flood plain of a creek and back of the river with low archaeological research potential.

3.3.5 Clyde stabling and maintenance facility construction site

This land was assessed as part of the Aboriginal Cultural Heritage Assessment prepared for the Sydney Metro West Stage 1 (Artefact Heritage 2020). It is situated across flat terrain bisected by Duck Creek and A'Becketts Creek. The underlying geology is mapped as Quaternary alluvium and soil landscape maps suggests the area is disturbed from infilling of former estuarine land. Review of information on the historical distribution of former mudflats, saltmarsh and estuarine landscapes did not identify extensive areas of estuarine land within the site which suggested the modification of this landform by reclamation may not have been substantial (ibid:62-64).

Figure 3.5: Clyde stabling and maintenance facility construction site (Artefact Heritage Pty Ltd 2020:17)



The Clyde stabling and maintenance facility construction site comprises of mixed industrial and urban services uses and small portions have not been subject to substantial disturbance and these areas of potentially less disturbance include the grassed area within the western portion of the Sydney Speedway. Artefact Heritage (ibid) report geotechnical investigation undertaken in Shirley Street located to the north of the Clyde stabling and maintenance facility construction site within a landscaped area identified 0.9 metres of fill over what is described as a silty clay alluvium context. Alluvial silty clay and clays extended to a depth of 13m.

There were no recorded Aboriginal archaeological sites recorded on the Clyde stabling and maintenance facility construction site before this study commenced.

Artefact Heritage (ibid) report the natural landform context of the Clyde stabling and maintenance facility construction site would have been considered archaeologically sensitive based primarily on the proximity of the site to Duck and A'Becketts Creeks. However, extensive landform modification is likely to have limited potential across most of the construction site, including the modified portions of the Sydney Speedway and surrounding industrial lands. A small portion of the Sydney Speedway has been identified as relatively intact based on a lack of historical development. Artefact Heritage (ibid) also report it is likely this portion of the Sydney Speedway has been filled and that Aboriginal objects related to intact or redeposited soils may be present. In this area archaeological potential was identified as low-moderate. The remainder of the site was assessed to have been disturbed and the archaeological potential was assessed to be low:

There is low-moderate potential that an intact former ground surface context is located within a portion of the Clyde stabling and maintenance facility construction site. The archaeological deposit may consist of an intact former ground surface located in close proximity to a significant local watercourse, Duck Creek. Aboriginal sites may be associated with this area of archaeological potential. The works at Clyde stabling and maintenance facility construction site are likely to impact areas of low-moderate archaeological potential and moderate archaeological significance. Works may therefore impact Aboriginal objects (Artefact Heritage 2020: 10.13).

Artefact Heritage recorded the western part of Lot 4 in DP 1116474 as comprising a Potential Archaeological Deposit (Clyde PASD 01 - AHIMS #45-6-3627) in September 2021. This site is situated within the Clyde stabling and maintenance facility construction site is assessed to have low-moderate archaeological significance and future works may impact Aboriginal objects (ibid:106).

The future archaeological management of the site is detailed in the ACHA that has been prepared for the Sydney Metro West Stage 1 (Artefact Heritage 2020) and summarised in the Sydney Metro West Environmental Impact Statement (March 2022: Chapter 17: Sections 17.8.3-4). The EIS reports that direct archaeological impacts for the Clyde stabling and maintenance facility will be in accordance with condition of approval D21 for the previous Sydney Metro West planning application, where Aboriginal archaeological test excavation will be undertaken prior to the commencement of work under the previous Sydney Metro West planning application to determine the presence and/or nature of archaeological deposits within the construction sites. No identified Aboriginal sites, objects and/or site-specific cultural heritage values would be indirectly impacted during construction of this proposal at the Clyde stabling and maintenance facility and Rosehill services facility construction sites.

3.3.6 2 Kay Street Clyde

This was a combined Aboriginal and non-Aboriginal heritage impact assessment (DSCA 2019) and was for a small (0.65 ha) land parcel located at 2 Kay Street in Clyde that is situated on an alluvial floodplain with A'Beckett's Creek defining the northern site boundary and Duck Creek the eastern site boundary. The assessment addressed the SEARS Issued (SEAR No. 1290) issued for the proposal and included Aboriginal community consultation following the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010).

Geoarchaeological interpretation of the site's alluvial deposits developed from soil descriptions recorded by geotechnical bore-log summaries suggested there were deposits that were a continuation of the PSB but there was insufficient evidence to confirm this, and these deposits were buried beneath modern fills. The assessment established existing fill would remain in place after ground slabs had been removed, and underlying alluvial sands would not be exposed. Drilling for piers would have a minor impact. Capping fills and soils to be affected by the pier drilling have contaminants that were potentially harmful, and the proposal would not remove or significantly alter these materials that were to be left in place once the ground slabs have been removed.

It was not considered a safe or environmentally appropriate archaeological management measure to excavate and remove quantities of fill with contaminants that were to be otherwise retained and left in situ with minimal alteration to expose alluvial sands sealed below the fill to archaeologically test whether deposits contain Aboriginal objects.

It was assessed that the subsurface alluvial profile at the site would remain unaffected by the proposal excluding the partial subsurface impacts that would occur during the drilling work for the building piers to elevate the building on suspended slabs set on piers. This low-impact construction design would preserve the bulk of the alluvial soil profile beneath the fill and would be a positive proxy conservation outcome on this basis of the consultation that was undertaken with the Aboriginal community organisations for the project.

3.3.7 1 Grand Avenue Camellia

A combined Aboriginal and non-Aboriginal heritage assessment (DSCA 2010) was prepared in 2010 to inform a proposal for the construction of a waste treatment facility at 1 Grand Avenue in Camellia. The study area was Lot 1 in DP 226202, Lot 1 in DP 579735, and Part Lot 2 in DP 579735. The Aboriginal assessment was completed using the requirements of the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (Department of Environment and Climate) that were still in effect and used in-transition to the current Consultation Requirements for Proponents (DECCW April 2010).

In addition to the DLALC, expressions of interest in being involved in the consultation were received from Darug Custodian Aboriginal Corporation, Darug Tribal Aboriginal Corporation, Darug Aboriginal Cultural Heritage Assessments, Darug Land Observations and Yarrowalk. The DLALC were unavailable to inspect the land at the time the archaeological inspection was completed. The Land Council was provided a copy of the draft report summarised below for comment but did not provide a cultural statement for inclusion into the final heritage report. Likewise, each of the RAPs were invited to inspect the land and to provide cultural heritage statements for the project, but none of these groups responded to these invitations.

The potential Aboriginal archaeological and cultural heritage sensitivity of the land as it was understood in 2010 was based on the following:

- The Planning Certificate issued for the site (September 2009) under Section 149 of the EP&A Act (No 2009/4887) identified the land to be potentially of low sensitivity due to previous disturbance and capping but was also an area of potential '*Aboriginal association*',
- No previously documented (AHIMS) Aboriginal archaeological sites or objects were known to occur within the boundaries of the subject site.
- It was unclear whether deposits associated with the PSB occurred beneath the sealed footprint of the land. No geotechnical data was available for this study.

- The land had high Aboriginal cultural heritage sensitivity but was also highly disturbed, contaminated, and covered with deep fills that were capped with slabs.

Consulting Earth Scientists Pty Limited (CES 2012) reported on Ground Penetrating Survey (GPR) of the site in 2012 to provide data on where voids exist below the concrete caps and geotechnical recommendations and preliminary earth fill platform design for the proposed development. CES used data from a 2007 geotechnical investigation at the site to develop a geotechnical model. The 2007 geotechnical study was not made available for the preparation of the heritage assessment, but the summary below of the subsurface conditions and inferred geotechnical mode (CES 2010: Table 1) were used to evaluate the depths of fill on the site, the type of soils below the fills (residual or transported), the depth of the subsurface soil profile down to bedrock, and the impacts that would result from the shallow nature of the development works proposed. Fill depths of up to 1.9m were recorded over an Alluvial profile that was described to comprise *'interbedded Clay, Silty Clay, sandy Clay, Clayey Silt, Sand, and clayey sand: red, brown, orange and grey, with some indurated ironstone bands, stiff consistency or medium dense relative density.'* This alluvial profile was described to be between 8m and 18m thick and to overly sandstone bedrock.

The risk the proposal would result in adverse impacts to Aboriginal objects was assessed to be low because the proposed works would extend to minimal depths below the existing capping surfaces that seal the site and would not have a significant impact on potentially intact deposits with the potential to contain Aboriginal objects. There was insufficient data available at the time to establish if the deep alluvial profiles recorded at 1 Grand Avenue represented the PSB or stratigraphically equivalent deposits to the PSB, and the site was not recorded as a potential archaeological site by this study.

Figure 3.8: Geotechnical investigations were undertaken in 2012 that provided an inferred geotechnical model of the 1 Grand Avenue site (Consulting Earth Sciences 2012)



Golder and Associates (2021) report that contamination remediation is required for this site due to the presence of asbestos wastes and the land is subject to existing Remediation Action Plan.

3.3.8 Viva Energy

AECOM (2020) prepared an Aboriginal heritage assessment for the Viva Energy Clyde Western Area Remediation Project (SSD-9302) that involved remediation of contaminated soils associated with former refinery activities to facilitate future use options for the land. The stratigraphy at the site was described as reclaimed silt, clay, and gravel fill (one to three metres in depth) over estuarine sediments of silty clay (to a depth of four metres) and beneath were up to 20m of alluvial sediments. The land was assessed to be heavily disturbed through phases of reclamation, construction, and industry. The site was assessed as having little archaeological potential and no further investigation was recommended.

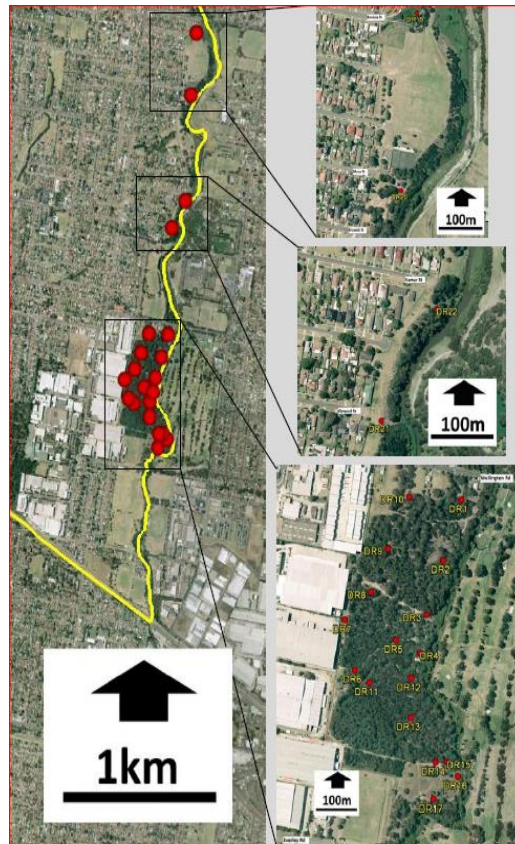
3.3.9 Clyde Terminal

Aecom (2013) prepared an ACHA for the Clyde Terminal conversion (SSD-5147). No Aboriginal archaeological sites were identified by background research or by field inspection completed with project RAPs. The site was assessed to be entirely disturbed and retain no archaeological potential and no impacts to identified Aboriginal cultural heritage values of the project area were anticipated. No further heritage investigation was considered warranted.

3.3.10 Duck River Aboriginal Site Protection Study

This study (Mary Dallas Consulting Archaeologists [MDCA] 2014) was prepared for Parramatta City Council and provided advice about Aboriginal site management with Council reserves along the section of Duck River contained within the Parramatta LGA. Consultation was undertaken with Gandangara Local Aboriginal Land Council (GLALC) who's administrative boundaries include the locations of all the Aboriginal sites reviewed by the study. At the time of the field survey (2014), the GLALC were unavailable and the GLALC engaged the *Tharawal Local Aboriginal Land Council* (TLALC) to participate in the site inspections and to attend and participate in management discussions with Council.

Figure 3.9: 'Location of site investigated (LGA boundary shown in yellow)' (MDCA 2014a: Figure 1)



MDCA reports that the first recording of an Aboriginal site on Duck River was made in 1989 that recorded Duck River 1 (AHIMS #45-6-2098) at the northern end of Wategora Reserve in South Granville. An amateur recorder subsequently examined this reserve and others along Duck River in the early 1990s and recorded many other sites. This amateur recorder visited many of the recorded sites on several occasions, collected artefacts (without NPW Act approval), and some have been deposited with the Australian Museum. These museum artefacts were examined, and it was resolved that approximately 1,018 stone artefacts had been removed from the at least 19 of the 21 Aboriginal sites recorded on Duck River. Most of these (17 out of 21) are located within Wategora Reserve. Over 1,000 artefacts had been located within this reserve and it represents regionally rare collections of Aboriginal heritage sites along a highly developed river.

3.4 Summary of existing (known) statutory constraints (NPW Act 1974)

There are two previously recorded Aboriginal archaeological sites listed on the Aboriginal Heritage Information Management System (AHIMS) within the Camellia-Rosehill Precinct. These comprise AHIMS #45-6-2559 that is recorded in the Rosehill Gardens Racecourse carpark on the southern side of Grand Avenue North and AHIMS

#45-6-3627 that is recorded within the grounds of the former Parramatta Speedway, now being developed as the Clyde stabling and maintenance facility.

The Camellia-Rosehill Precinct is underlain by Quaternary fluvial deposits mapped as forming part of a Pleistocene terrace formation (Qpat) that include the PSB and there is a possibility stratigraphically equivalent deposits to the PSB with potential to contain Aboriginal objects and archaeological deposits occur beneath fills and hard surfaces that currently cover the Precinct. The Quaternary mapping referred to in this report became available in 2015 and after the PSB mapping was originally undertaken (from 2008-2009) and which only extended as far east as Clay Cliff Creek. Additionally, there have been no archaeological or geomorphological investigations undertaken within the lands contained within the Precinct to investigate the issue of whether or the PSB and/or equivalent potential archaeological deposits occur within the Camellia-Rosehill Precinct.

4.0 Aboriginal historical heritage context

4.1 First British descriptions of Aboriginal Parramatta

The Parramatta River landscape in the vicinity of the Camellia-Rosehill study area was first seen by the British at the beginning of February during an exploration that reached the tidal flats near to the entrance to today's Homebush Bay where the British found assembled a large and armed Aboriginal group as described by Hunter (in Flynn 1997:17):

'we were a little surprised to find the natives here in greater numbers than we had ever seen them before in any other place.....they appeared very hostile, a great many armed men appeared upon the shore wherever we approached it, and, in a threatening manner, seemed to insist upon our not presuming to land. During the whole time we were near them, they hailed each other through the woods, until their numbers were so much increased, that I did not judge it prudent to attempt making any acquaintance with them.'

A second exploration in mid-February landed at the beginning of the 'Flats' (Rhodes Point) where the party landed and explored the Concord area for 2-3 miles inland. The trees were spaced a considerable distance apart and the grass was long and there was no underwood (ibid 82-83). The next day (ibid:83-84) Bradley describes the exploration party took their smallest boat over the Flats and followed 'a Creek' [Parramatta River] some distance to the west when it branched away to the northwest [Parramatta River] and southwest [Duck River] and they followed the latter for miles before progress was stopped by a 'bridge of trees' fallen from both sides of the river.

The third exploration party (April 22-27) was to pass through the future site of Rose Hill and to proceed west. During the trip they came across a few 'mean' Aboriginal huts that were located next to water holes and lagoons on the western outskirts of the future township, and they saw fleeting glimpses of Aboriginal social activity in progress at Eastern Creek, but they made no direct contact with local Aboriginal groups in Parramatta or on the way west or on their return.

The landing site was at the confluence of the Parramatta and Duck Rivers. White (1788:128ff) describes the party proceeded for a mile or two through country that was well covered with enormous trees and free from underwood until they reached a thicket of brushwood they could not easily pass, and they returned to from where they had set out from. On 23 April having got around the thicket which had 'harassed' them the previous day they soon fell in with a 'hitherto unperceived branch of Port Jackson harbour' [Parramatta River] where the banks were grassed with tolerably rich, and chest-height grass interspersed with a plant that closely resembled indigo. McClymont (2004:43) suggests by skirting to the north of the thicket, the party emerged on the Parramatta Riverbank around two miles from their previous camp site that would be at a point just west of today's Thackeray Street. The party then followed the Parramatta River west for a few miles, where the same tall grassland again prevailed, until they came to a fresh-water stream that emptied into the river. The party

camped here overnight (and ate soup made from a white cockatoo and two crows White had shot on the way). This overnight campsite was on Clay Cliff Creek and was in the vicinity of where today's River Road West crosses the watercourse to the west of James Ruse Drive (see McClymont 2004:42).

On the 24 April, the group walked along the southern bank of the Parramatta River where there were immense trees spaced at a considerable distance from each other, and where the land was flat and low but well covered with long grass and shrubs as previously seen. This was in the vicinity of today's Queens Wharf and west towards the vicinity of the foot of today's Smith Street where White records here the tide stopped flowing and further progress for boats was stopped by a flat space of large broad stones over which a fresh-water stream ran. On the freshwater and saltwater sections of the river they saw many ducks and teal (three of which they shot in the day along with two crows and parrots). Proceeding upstream, through today's Parramatta Park, and camped overnight 'near the head of the stream' (today's confluence of Toongabbie and Darling Mills Creek).

White describes that the next day (after having sowed some seeds) the party proceeded west for three or four miles '*where we met with a mean hut belonging to some of the natives but could not perceive the smallest trace of their having been there lately. Close to this hut we saw a kangaroo, which had come to drink at an adjacent pool of stagnated water, but we could not get within shot of it. A little farther on we fell in with three huts, as deserted as the former, and a swamp, not unlike the American rice grounds.*' The party continued for about two more miles and then camped overnight. The country here clearer of underwood than that which the party had passed during the day.

The exploration party is likely to have walked upstream from Parramatta Park and turned west and travelled along Toongabbie Creek. From the overnight camp, they would have followed Blacktown Creek westwards to where the creek branches and today is a small lake (the site of the 'swamp' and Aboriginal huts) and then proceeded by compass over undulating higher ground along the line of present-day Bungarribee Road. Lieutenant Newton Fowell (Sirius) records that on their return (quoted in Flynn 1995:21) the land '*was all the Way like a Park with Trees about 20 yards Distance from each other – the Country in General quite a Plain – the Grass about 3 feet high & paths all the Way that Natives had made*'.

Elsewhere around the harbour the British 'often fell in' with 'native paths' that formed networks leading along rivers, and between woods and through grasslands connecting important places in the Aboriginal geography of the time. It made the colonists travel through the often-unfamiliar country easier as recognised by Hunter (2005 [1793]) who noted '*these paths rendered our march, not only on account of pointing to us the most easy and accessible parts of the hills and woods, but, in point of direction, the shortest which could be found, if we had even been better acquainted with this tract*'.

Additional observations of Aboriginal Parramatta in early 1788 are recorded by George Worgan (surgeon on the Sirius) who and described in May 1788:

I have had a most delightful Excursion to Day with Captn Hunter and Lt. Bradley, We went in a Boat about 12 Miles up the Harbour. For 3 or 4 Miles the Harbour forms a narrow arm, which at high Water, has the appearance of a River, the sides of this Arm are formed by gentle Slopes, which are green to the Water's Edge. The Trees are small and grow almost in regular Rows, so that, together with the Evenness of the Land for a considerable Extent, it resembles a Beautiful Park. We landed quite up at the Head of this Branch where a fresh Water River runs into it, but which, at this time was dry in many places. We walked about two Miles up the Country in the Direction of this River; the Ground ran in easy ascents and Descents, the Soil was extremely rich, and produced luxuriant Grass.

We now and then, in our Walk, met with Clusters of a very delicate looking Tree, the Trunks of some of Them were 12. 14. 20 Inches round, covered with a green Bark, the leaves of a peculiarly beautiful Verdure and growing like the Fern, but more delicate. Having extended our Excursion as far as we wished, we returned to the Place where we landed and after regaling Ourselves with a cold Kangaroo Pie and a Plum Pudding, a Bottle of Wine &c, all which Comforts we brought from the Ship with Us, We returned on Board.

Worgan provides further details about the nature of the country and its park-like appearance and the evidence for fire in the landscape (quoted in Gammage 2011:44-45):

In our Excursions inland....we have met with great Extent of Park-like country and Trees of a moderate Size and at a moderate Distance from each other, the Soil, apparently, fitted to produce of any kind of Grain, and clothed with extraordinary luxuriant Grass. It is something singular, that all, of this kind of Trees, and many others, appear to have been partly burnt, the Bark of them being like Charcoal.

4.2 A culturally managed landscape at Aboriginal Parramatta

The earliest historical records describe the rocky shoreline and woodlands on the southern side of Parramatta River from the harbour to past Balmain began to flatten and ease into more open country from around Drummoyne and continued to do so westward. The country at Rose Hill and westward to Eastern Creek was seen to be open grassland with widely spaced trees and shrubs free of underwood that was consistently described as resembling 'park-like country.' These descriptions also suggest that the landscapes described were constructed and maintained rather than natural. Hunter (2005) alludes to this when describing the land at the head of the harbour: 'there is a very considerable extent of tolerable land, and which may be cultivated without waiting for its being cleared of wood; for the trees stand very wide of each other, and have no underwood: in short, the woods on the spot I am speaking of resemble a deer park, as much as if they had been intended for such a purpose'.

The open and lightly wooded grassland is believed to have been shaped and maintained by Aboriginal people over an extended period who managed the landscape and its ecological communities using fire (see Fletcher et

al 2020; Gammage 2013; 2014; Hunter 2017; Mooney et al 2012). Fires of varying intensities were used to create mosaic grassland and wood land and river ecological communities that contained and attracted different animals and promoted different plants.

When the British arrived in Port Jackson, they were according to Hunter (ibid) perplexed as to why the country looked the way it did where *'two-thirds of the trees in the woods were very much scorched with fire, some were burnt quite black, up to the very top.'* The colonists frequently saw large fires and *'firing of the country, which the natives constantly do when the weather is dry'* and the results of this burning that often occurred in windy weather that helped spread the fires over several miles of country. It was soon concluded that the firing was for the purpose of *'disturbing such animals as may be within reach of the conflagration'* and thereby providing the opportunity for people to catch these animals, and to also *'clear that part of the country through which they have frequent occasion to travel'* of brush or underwood to create and maintain the network of paths that connected the important places in the Aboriginal Parramatta landscape.

Aboriginal land management practices including fire management is believed reflected by increasing charcoal percentages that occur in sediments and soils during the LGM and Holocene (see Hunter 2017; Fletcher et al 2020; Mooney et al 2012) and there is evidence Aboriginal land management was based on mosaic patterns according to cultural divisions of landforms, geology, and ecology (Mooney et al 2012; Bowman et al 2012).

4.3 British occupation of Rosehill

By November 1788 surveyors and a party of marines had been to the Crescent in Parramatta Park to mark out the ground for a 'redoubt' and convicts sent who *'understood the business of cultivation'*. By July 1789, a *'small redoubt was thrown up, and a captain's detachment posted in it, to protect the convicts who were employed to cultivate the ground'* (Tench 1979:136). The (first) barrack, and store, and convict huts enclosed within the redoubt were located on the south bank of the river nearby to a timber bridge crossing at the end of Bridge Street. Collins (1798:46) reported that *'some ground had been opened on the other side of the stream of water which ran into the creek.....in which the produce of the ground he (Henry Dodd) was then filling with wheat and barley was to be deposited.'*

During this period, areas were cleared and cultivated south to today's Great Western Highway, past Northmead to the north, and to the east the Government Farm stretched as far as present-day Charles Street. The main street at Rose Hill (High Street, later George Street) was laid out on an east-west axis from Government House to the first wharf. This broadly followed a part of a track 'blazed' by Phillip's' earlier exploration party to assist following explorations journeying from Sydney Cove to find Rose Hill.

Tench (1979:246) described the alignment of the road from starting near the Landing Place to the Governor's house was a mile long and in many places was *'carried over gullies of considerable depth, which have been filled*

up with trunks of trees, covered with earth' that describes the originally undulating nature of the terrain and location of drainage along this stretch of the river. By September 1790 *'twenty-seven huts were in great forwardness at the end of the month'* (ibid:113), and by November 1790 thirty-two houses were completed (Tench 1979:195). By December 1791 one hundred were finished. The first wharf at the *'Landing Place'* (Queens Wharf area) was also completed (September 1790) and site for the storehouse and the new barracks chosen (August 1790).

4.4 Colonial agricultural land-use and impact to Aboriginal people and Country

4.4.1 The first farms and agricultural methods

The first colonial farms were clustered around the headwaters of Parramatta River and nearby Toongabbie Creek. The farming methods were crude. They involved cutting-down trees 2-3 feet above ground, at first leaving the lower trunk and stumps in the ground, then clearing and burning the treefalls and grassy under-stories. The ashes were worked into the soil (spades and hoes) and then hand-sowing and weeding and cropping followed. What appeared initially productive soil soon became nutrient-poor and agriculturally unproductive. The soil at Toongabbie had been in constant cultivation for a decade when in 1801 it was described as *'entirely worn out'* (HRA 4:660) and highlighted the wastefulness of early clearance and cultivation practices.

4.4.2 Impacts to country

The original open eucalypt woodland, in which trees were widely spaced and ground between grass-covered, was *'forest land'* dominated by Grey Box, Ironbark and Forest Red Gum but it was the grass that was the discriminating factor for the settlers and not the trees. The grass cover was not continuous but grew in isolated tufts. Tench (1979:164) described *'the grass.... does not overspread the land in a continued sward, but arises in small detached tufts, growing every way about three inches apart, the intermediate space being bare.'* This is describing indigenous grasses such as Kangaroo Grass. These native grasses became referred to as *'oat grass'* and were considered the most valuable fodder grass and which had *'nearly disappeared'* from districts long subjected to grazing by the 1820s (Perry 1957:28). During the Macquarie period convicts were employed in cutting native grasses *'on the banks of the Parramatta River, or the tracts of unoccupied land adjoining'* (Bigge 1822). Robert Dawson (1830:408) noted that *'the stables in Sydney are supplied chiefly with a species of coarse grass from the shady dells and low grounds about the harbour, and from the banks of the creek which runs from Sydney to Parramatta: this is sold in small bundles at an excessive price by boatmen, who make a livelihood by the employment....'* By the mid-century, couch grass spreading and taking the place *'of the old bush grasses'* (SMH 3/3/1858:8) because it could withstand sheep grazing.

The impact of sheep and cattle on the country at Aboriginal Parramatta and elsewhere across the Cumberland Plain was very rapid following the introduction and increase of sheep numbers in particularly from the mid-

1790s. The tussocky native grassland was very susceptible to overgrazing by livestock and Gale (2003) records that the soils that supported them changed from being spongy and structured to being compacted and exposed to erosion within a few years.

The way the colonists had used the land for agricultural purposes had not changed much in the thirty years that had elapsed when Atkinson (1826:89ff) commented in the 1820s that the settlers had *'fell into system of cutting the trees about a yard from the ground and having burnt off the tree foliage broke up and cropped the land without regard to the stumps'*. He estimated three-quarters of the cultivated lands in the colony by this time had stumps of the Cumberland Plain Woodland remaining in the ground (ibid:41). Kass (2005:37) also notes dense scrub and re-growth often emerged if the cleared land was left for some time. As cattle and plough numbers multiplied, and with increased convict labour, the land was increasingly cleared *'in a better manner'* (ibid:41). The most effective (but also most expensive) method was to grub the trees up by the roots or stump-fall the trees and then burn out the stumps and was followed widely on the Cumberland Plain and helped in *'eradicating the old stumps remaining in lands that had been cleared some years'* (ibid:86).

This land-use also all but destroyed what are today rare 'swampy meadows' formations - also more commonly known as a 'chain-of-ponds' - that were once typical of the smaller creeks confined to narrow valley flats as well as the headwaters of the larger river systems (see Eyles 1977; Mactaggart et al 2007). Swampy meadows were formerly present on floodplains vegetated with grasses, rushes and sedges and sometimes interspersed with irregularly spaced, disconnected ponds. Aboriginal Parramatta will have featured flats and floodplains with irregularly spaced ponds with no obvious or entrenched creek channel, and either a continuous or interspersed by wetlands depending on perched water tables and seasonal hydrology.

As a direct result of how the land was treated there was a rapid invasion and spread of 'opportunistic' agricultural weeds throughout the cleared lands in and around Parramatta. Vast amounts of soil and sediment mobilised after the landscape began to be cleared was lost through soil erosion into the river and creek systems and this degraded and then destroyed freshwater lagoons with delicate ecologies that featured on the river terraces at Parramatta in 1788 (as evidenced by archaeological and environmental investigations of the PSB in the City).

It is not easy to gauge the effect of settlement and colonial hunting on the animal communities of Aboriginal Parramatta, but it was likely to have been rapid and widespread in nature and the competition significant. Bradley (1969) reports the first kangaroo that was shot after arrival in the country was in the second week of February. At the end of May a kangaroo was killed that was found to have a spear broken in him giving *'proof that the natives seek other food besides fish.'*

4.5 Elizabeth Farm

It is likely that the land taken in by what was to become Elizabeth Farm contained a diversity of food and resource ecologies and many long-used campsites and other social places that were important to Aboriginal people when John Macarthur received his first grant of one hundred acres at Rosehill in 1793. This landscape will likely have contained a complex mosaic of shaped and maintained savanna grasslands, woodlands, and saltwater-freshwater wetlands. Fabric of the country provided the raw materials used for the first Elizabeth Farm buildings including hand-moulded bricks that were made from clay sourced from nearby Clay Cliff Creek and the roof was formed of pit-sawn timber baulks with shingles made from swamp oaks.

Fowlie (1919:7) recalls that the bricks were made from a clay pit to the east of the house, near where Camellia Station stands (*'this part of Macarthur's Estate was called Redbank'*) and that lime was made from shells procured from the *'great kitchen middens found along the riverbanks at the time'* that were processed a little to the east of the clay-pit (site of the Australian Kerosene and Oil Company).

Bennett (2014:68) reports several historically known Aboriginal people visited and camped on Elizabeth Farm including Tedbury (Pemulwuy's son) and two young men called Harry and Bill. Citing Joy Hughes' transcription of William Macarthur's reminiscences concerning Aboriginal people (ML MSS A2935 - unfortunately, parts of the document are water-damaged and illegible) Bennett (ibid:68, 72) describes the tale of Harry and Bill who were frequent visitors to Elizabeth Farm in the early nineteenth century. Harry and Bill were two youth of the same age, related to each other and inseparable companions. But unfortunately, they both became attached to the same girl and Harry (who was of more gentle disposition) was favoured by the girl. Bill in an evil temper speared Harry whilst he was asleep. Harry survived, but his people were highly incensed and according to customs Bill would have to face spears thrown at him from several Aboriginal men in ritual punishment including from Cogy who was from the Cowpastures. Bill was speared by Cogy and he died in an Elizabeth Farm outhouse and was buried nearby (but it is uncertain if this was within the grounds of Elizabeth Farm).

4.6 Conflict and reconciliation

The Parramatta-Toongabbie-Prospect areas saw the initial brunt of frontier conflicts following the British taking of Aboriginal Parramatta and initial hostilities peaked with the Battle of Parramatta in 1797 when a party led by Bidjigal warrior Pemulwuy attacked the military barracks. In March 1797, Pemulwuy and his people had raided the government farm at Toongabbie and a vigilante group of armed settlers and soldiers had met and chased about 100 hostile Aboriginal people to the outskirts of the town. The armed Aboriginal group massed on the northern side of the river, around the Government farms, and then crossed the river and marched in ranks down George (High) Street to attack the military barracks (located in Robin Thomas reserve). At least five Aboriginal people and as many as fifty were killed. Pemulwuy was shot several times and taken to the hospital before escaping wounded and in irons. Pemulwuy was killed in 1802.

Renewed conflicts in 1805 led Governor King to reimpose the bans that prohibited Aboriginal people approaching settler dwellings in the ‘*out-settlements*’ that included the Parramatta and Hawkesbury districts. Aboriginal people living in the Prospect area reached out to Samuel Marsden and wanted to talk with a view of opening the way to reconciliation. In July 1805, the Sydney Gazette wrote:

‘having generally expressed a desire to come in, and many being on the road from Hawkesbury and other quarters to meet the Governor at Parramatta, no molestation whatever is to be offered them in any part of the colony – unless any of them should renew their late Acts, which is not probable, as a reconciliation will take place with the natives generally.’

4.7 Parramatta Native Institution

The Institution opened in January 1815. It was in the middle of town and was intended to operate as a ‘boarding school’ for Aboriginal children. Both sexes would receive religious instruction whilst being taught to read and write. The boys were to be taught manual labour and agriculture methods and the girls how to sew, knit and spin. The plan was for when the children who had been admitted to the place had matured, they would be paired off, married, and settled on farms as couples (Brook 1996:7). Three weeks prior to the official opening, over sixty Aboriginal people had attended a Conference, or Congress organised by Macquarie and held at the Market Place in Parramatta. In March, Macquarie reported that only two months after the (official) establishment of the Institution six children had already been taken away by their parents (HRA VIII:467).

In 1816, Nurragingy (Creek Jemmy) ‘*chief of South Creek*’ and Mary-Mary ‘*chief of the Mulgoa clan*’ with about fifty men, women and children visited Macquarie and were given breakfast and dinner in Parramatta Park, and a previously hostile man Narrang Jack gave himself up. In April Macquarie orders the capture of twelve Aboriginal boys and six girls between four and six years of age for the Institute. He instructed that ‘*fine healthy good-looking children*’ are to be delivered to Shelley (HRA IX:858). In February 1817 there are twenty children at the Native School, but December Native Conference was not held because of a severe drought. At the annual feast in 1818, Macquarie rewarded ‘*Cogie as Chief of the George’s River Tribe and to Norwong as Chief of the Botany Tribe and the Order of Merit to Tindall of the Cow Pastures and Pulpin of the Hawkesbury Tribe*’ (Macquarie Journal, 1 January 1818).

In 1819 almost 300 Aborigines attended the feast with some coming from beyond the Blue Mountains and ‘*other tribes from the North and South who had travelled a distance of upwards of 100 miles*’ (SG, 2 January 1819). In February, twenty Aboriginal children had competed in the New South Wales Anniversary Schools Examination with a hundred white children and a ‘*black girl of fourteen years of age, between three and four years at the school, bore away the prize*’ (SG, 17 February 1819). This is believed to have been Maria Lock

4.8 Aboriginal people and places in 1820s

The 1828 Census (Sainty and Johnson 1985) records for the area between Parramatta and the Blue Mountains that Aboriginal people were living at Parramatta, Richmond, Mulgoa, Burragorang, Cowpastures, Nepean, and the First Branch (McDonald River). The 'Parramatta Tribe' consisted of 49 members (21 men, 13 women and 15 children). Blanket returns from the Parramatta District from between 1834 and 1843 however make no mention of a Parramatta Tribe. The returns do indicate various groups in the district and attending Parramatta for the distribution of blankets including those 'tribes' from Duck River, Kissing Point (Ryde), Breakfast Creek (Quakers Hill), and Eastern and South Creeks. On the Hawkesbury River, Aboriginal people are recorded 'residing' at Mullet (Dangar) Island, Mangrove Creek, Brisbane Water, Broken Bay, Erina, and Narara. Also recorded are seventy-three Aboriginal people at Windsor ('Richmond tribe') and one hundred and fourteen people under the grouping of Portland Head (Sainty and Johnson 1985:15).

4.9 Aboriginal people in 1830s and 1840s

Governor Darling initiated an annual distribution of blankets and cheap 'slop' clothing to Aboriginal people in 1826. To account for the cost of doing this, the colonial administrators created what are called today 'Blanket lists' that included an Aboriginal individual's English and Native name, probable age, number of wives, children, tribe, and district of usual resort. The first general distribution of blankets was in 1827. Governor Gipps abolished the policy and the practice in 1844. Governor Fitzroy responded to appeals and restored the annual distribution in 1848 (Smithson 1992). From this time, blankets were distributed to Aboriginal people by police at local police stations or at town courthouses. This was the case at Windsor for example (see below) where blankets were (or were supposed) to be issued on the Queen's birthday and the tradition of Aboriginal people and gathering for 'blanket day' persisted into the late nineteenth century.

The Returns from Parramatta in the 1830s and 1840s indicate despite Bourke's intention to keep Aboriginal people in their districts, Parramatta remained a meeting place to which wide ranging groups of people came to receive blankets and slop clothing. The returns from the 1830s show groups visiting Parramatta to collect blankets from Duck River, Prospect, Eastern Creek, Kissing Point and Breakfast Creek. By 1842, groups from all over greater Sydney are represented. Thomas Fowlie (1919) recalls Aboriginal people had a camping place near the junction of what is now Union Street and Dog-Trap-road (Woodville Street) that continued to be used over the years when Aboriginal people travelled to Parramatta to receive blankets and *'those coming from the south chose this spot and those from the west camping near where Camellia Station now stands'*

5.0 Cultural heritage values and significance

5.1 Heritage assessment criteria

The *Burra Charter* defines cultural significance as ‘*aesthetic, historic, scientific, or social value for past, present, or future generations*’ (Article 1.1). Significance may derive from fabric of an item or place, association with other items or places, or the research potential of an item or place. Linking this assessment process with historical or archaeological context is achieved via the use of seven significance evaluation criteria whereby a site, place or item can be evaluated in the context of State or Local historical themes. Non-Aboriginal historical archaeological sites are routinely evaluated according to these criteria. These criteria do not easily apply to Aboriginal cultural heritage. Nevertheless, they are used here, along with the broad definitional headings advocated by Pearson and Sullivan (1995:7) that recognise the value of Aboriginal heritage and knowledge to specific community groups such as Aboriginal communities, to scientists and other information gatherers, and to the public.

- Criterion (a) – an item is important in the course, or pattern, of NSW’s cultural or natural history (or the cultural or natural history of the local area).
- Criterion (b) – an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW’s cultural or natural history (or the cultural or natural history of the local area).
- Criterion (c) – an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).
- Criterion (d) – an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural, or spiritual reasons.
- Criterion (e) – an item has potential to yield information that will contribute to an understanding of NSW’s cultural or natural history (or the cultural or natural history of the local area).
- Criterion (f) – an item possesses uncommon, rare, or endangered aspects of NSW’s cultural or natural history (or the cultural or natural history of the local area).
- Criterion (g) – an item is important in demonstrating the principal characteristics of a class of NSW’s cultural or natural places, or cultural or natural environments.

5.2 Assessing Aboriginal cultural heritage significance

The assessment of scientific significance of the potential Aboriginal archaeological resources contained within the Camellia-Rosehill study area below follows current guidelines (NPWS 1997:5-11) with the additional criteria derived from the *Burra Charter*. OEH guidelines for the assessment of significance of Aboriginal sites, objects and places identify two types of significance criteria: *cultural significance* and *archaeological significance*.

Cultural significance concerns the values of a site to a community group. Aboriginal Archaeological heritage sites, objects, and some landscapes are all often important for varied reasons or have become important to Aboriginal people over time. Its importance involves both people's historical links to 'country' in general, and attachments to specific areas, as well as an overall concern of many Aboriginal people for the continued protection of the land and its cultural heritage sites.

The Camellia-Rosehill RAP's have talked about the high Aboriginal cultural values of the land contained within the study area, the importance of the known Aboriginal heritage sites within it, and the significance of soils that may be associated with the PSB that may potentially occur within the study area. *Scientific significance* in archaeological contexts is usually assessed using criteria that aim to evaluate a given site's contents, state of preservation (integrity), representativeness or rarity, and research potential.

- *Archaeological research potential* incorporates values of intactness (whether it has stratigraphic integrity or is disturbed), the association of the site to other sites in the local or regional (or State) context, and sometimes also how the site may fit into a datable chronology if one exists, when considering how the site may contribute to our further understanding of past Aboriginal life. This area of assessment is consistent with *Criterion 'e'* of the *Heritage Branch* guidelines (see below).
- *Representativeness* is a term to convey the idea that most Aboriginal archaeological sites are representative of a particular 'type' or sub-type/class which for example would apply to a rock shelter with art as distinct from an open campsite with stone artefacts. A key issue is whether sites should be conserved to ensure a representative sample of the archaeological record is retained for future generations. This general area of assessment is consistent with *Criterion 'a'* of the *Heritage Branch* guidelines (see below).
- *Rarity* can apply to a unique or uncommon archaeological site itself or elements of its component parts (archaeological rare finds or contexts) and this area of assessment is consistent with *Criterion 'a'* of the *Heritage Branch* guidelines (see below).

5.3 Assessment of significance against criteria

Criterion (a) – an item is important in the course, or pattern, of NSW's cultural or natural history

The Parramatta River and Duck River landscape at Camellia-Rosehill formed part of the traditional territory of the Burramattagal and Watégora people. The land was reconnoitred by the British first in early February and then again in April 1788 during two of the first explorations that were led by Governor Phillip to ascertain what lay at the 'head of the harbour'. These explorations led directly to the discovery of needed agricultural land at Rose Hill (Parramatta) and the rapid displacement of the Aboriginal owners of the country.

The Camellia-Rosehill study area forms part of a wider cultural heritage landscape at Parramatta that is important during NSW's cultural history.

Criterion (b) – an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history

The landscape at Camellia-Rosehill has a strong early nineteenth Aboriginal history and there is also a potential for prehistoric archaeological evidence to occur within the study area that documents a long Aboriginal history of occupation and use of the place.

Criterion (c) – an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW

The Camellia-Rosehill landscape is occupied by industrial built fabric and there is insufficient data to evaluate whether the potential archaeological resources of the study area may fulfill this criterion.

Criterion (d) – an item has strong or special association with a particular community or cultural group in NSW (or the local area)

Aboriginal community consultation that has been undertaken for this report illustrates that the site embodies a range of Aboriginal cultural heritage values that are important to contemporary Aboriginal communities that include its potential archaeological, historical, and environmental historical records.

Criterion (e) – an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history

The alluvial soils and sediments at the site may contain important environmental evidence and encode a natural history record that may extend back thousands of years. Combined with possible archaeological evidence that may also be present (PSB or otherwise), the site has the potential to yield information that will contribute to an understanding of the cultural and natural history of Parramatta.

Criterion (f) – an item possesses uncommon, rare, or endangered aspects of NSW's cultural or natural history

The subsurface profiles of the study area may contain cultural materials and environmental evidence that is uncommon that can provide information about aspects of NSW's cultural and natural history that is not available from any other source. The site has potential conservation values for this reason.

Criterion (g) – an item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments.

The site may contain natural and cultural (archaeological) deposits that may potentially be of significance under this criterion by their ability to further demonstrate the principal characteristics of a class of NSW's cultural and natural places (i.e., long-term Aboriginal use of the Parramatta River valley).

5.4 Evaluation

The Precinct formed part of the traditional territory of the Burramattagal and Wategora people and is situated within a sensitive Aboriginal archaeological landform context.

There are two known (AHIMS) Aboriginal archaeological sites recorded in the Precinct and the Precinct may also contain buried subsurface soil profiles with potential to contain Aboriginal objects and archaeological deposits that may be of scientific value and of cultural importance to contemporary Aboriginal communities.

The first of the two AHIMS Aboriginal archaeological sites recorded in the Precinct (AHIMS #45-6-2559) has been assessed by the PLR ACHA (KNC 2017:58) as moderate. It is understood this site is under statutory management of an existing NPW Act approval issued to TfNSW and related to the PLR.

The second AHIMS Aboriginal archaeological sites recorded in the Precinct (AHIMS #45-6-3627) has been assessed as retaining low-moderate archaeological potential and moderate archaeological significance and the future archaeological management of the site is outlined in the ACHA that has been prepared for the Sydney Metro West Stage 1 (Artefact Heritage 2020).

The future identification and management of potentially archaeologically sensitive soil and sediment profiles has challenges. Large parts of the Precinct have deep alluvial stratigraphic profiles that are likely to be contaminated and which will require remediation (as is the case at 181 James Ruse Drive and 1 Grand Avenue). Natural soils are also generally covered by hard surfaces and buried beneath considerable depths of fill, and the presence of subsurface archaeological deposit has not been confirmed.

6.0 Future management of archaeological values

6.1 Known Aboriginal archaeological heritage sites within the study area

There are two known (AHIMS) Aboriginal archaeological sites located within the Camellia-Rosehill study area.

The first site (AHIMS #45-6-2559) is in the Sydney Turf Club carpark, and it is understood to be under statutory management of an existing NPW Act approval issued to TfNSW.

The second site is a Potential Archaeological Deposit (AHIMS #45-6-3627) recorded within the Clyde stabling and maintenance facility construction site and the future archaeological management of the site as outlined in the ACHA that has been prepared for the Sydney Metro West Stage 1 (Artefact Heritage 2020).

6.2 Potential Aboriginal archaeological heritage resources within the Precinct

Quaternary mapping for the Camellia-Rosehill land shows that the Precinct is underlain with Quaternary-period fluvial sediments that form part of a large Pleistocene terrace formation (Qpat). Current mapping of the occurrence of the PSB at the western end conforms to the Qpat mapping but at the eastern end, and towards the study area, the mapping of the PSB does not conform to the Qpat mapping, and the PSB is shown ending at Clay Cliff Creek whilst the Qpat terrace formation is mapped to underlie most of the Precinct.

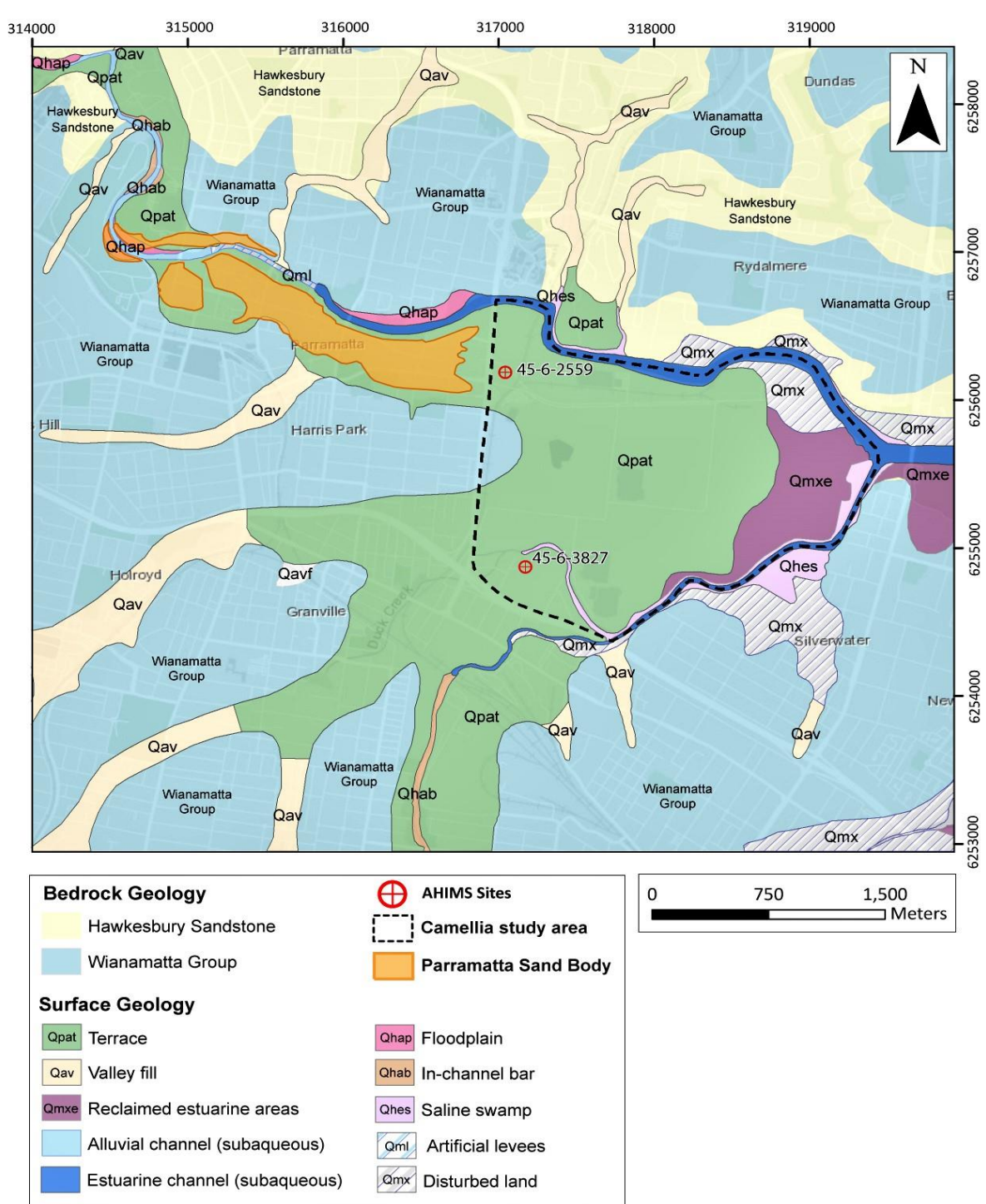
The (2015) Quaternary mapping post-dates (and uses more modern datasets) the original mapping of the PSB that was tasked with tracing the sand body only as far as Clay Cliff Creek and there have also been no previous archaeological or geomorphological investigations undertaken within the Camellia-Precinct. There is potential thereby for the Precinct to include buried deposits that represent stratigraphic and archaeological equivalent deposits to the PSB.

6.3 Managing future archaeological impact risk

An approach managing potential subsurface Aboriginal archaeological risk for the Camellia-Rosehill Precinct is presented in the following section. The method can be integrated with future contamination risk assessment studies by using geotechnical and contamination borehole data that is generated to identify where and at what depth subsurface soils and sediments with potential archaeological sensitivity may occur and where disturbed ground or deposits with low archaeological potential may occur.

This will assist in the development of building layouts and designs at future Development Application stages that will identify subsurface areas with deposits (or disturbance) with no archaeological constraints and will also enable deposits with identified scientific and cultural value to be avoided by design.

Figure 6.1: AHIMS sites recorded within the Camellia-Rosehill Precinct



7.0 Future archaeological management strategy

7.1 Known Aboriginal archaeological heritage sites within the Precinct

7.1.1 AHIMS #45-6-2559

The cultural and scientific significance of this archaeological site was assessed during the preparation of an ACHA for the PLR (KNC 2017).

7.1.2 AHIMS #45-6-3627

This site is located in the Clyde stabling and maintenance facility construction site and its future management is outlined in the ACHA prepared for the Sydney Metro West Stage 1 (Artefact Heritage 2020).

7.1.3 Parramatta Sand Body and Pleistocene Terrace (Qpat) potential archaeological deposits

The Camellia-Rosehill Precinct is mapped as being underlain by Quaternal fluvial deposits that form part of a Pleistocene Terrace formation (Qpat). These Qpat Terrace deposits as a formation includes the sand body that is recorded as the PSB to the west of the Precinct, and the Qpat deposits are mapped to continue east of James Ruse Drive and to underlie most of the Precinct. Thereby, there is potential for stratigraphically equivalent soil deposits to the PSB with potential to contain Aboriginal objects to occur beneath fills and built surfaces that currently cover the original ground surfaces across the Precinct.

A stratigraphic approach for the identification of subsurface soils and sediments with potential archaeological sensitivity described below is recommended to be used in future planning for the Precinct to identify if the PSB or equivalent deposits with potential Aboriginal cultural and archaeological sensitivity are present within the Precinct to allow for early identification and effective management of this potentially significant archaeological and cultural heritage resource.

7.2 Managing the potential Aboriginal archaeological resources within the Precinct

7.2.1 Existing conditions and future constraints presented by fills and contamination

The Camellia-Rosehill Precinct has a long history of industrial use and today most of the land is covered by multi-phase buildings and hard surfaces with little natural ground exposed. Parts of the Precinct have low gradients and shallow groundwater conditions and have been historically filled with materials that have been placed over relatively permeable sand and clay fluvial sediments that may be contaminated.

Asbestos and other harmful waste products from the former James Hardie manufacturing operations for example have resulted in large-scale contamination in and within the vicinity of the former manufacturing site. Golder and Associates (2021) report that large scale asbestos contamination is present, and that remediation is

likely to be required to enable future residential development at the 1 Grand Avenue and 181 James Ruse Drive sites and that both sites are also subject to existing Remediation Action Plans.

7.2.2 Recommended approach to managing potential archaeological constraints

The recommend a stratigraphic approach be used for the identification of potential subsurface archaeological sensitivity by using geotechnical and contamination subsurface borehole data. These record the type and depth of fills and the occurrence of in situ soils and sediments making up the stratigraphic profile below the Precinct. These below-ground deposits (potentially comprising a mix of fills, non-cultural soils and sediments, and potential archaeological deposits) can be identified through interpretation of bore-log data and mapped to create stratigraphic profile cross-sections, and these data sets can be manipulated and modelled indicatively in three-dimensions using GIS.

The approach enables mapping of fill depths, the identification of disturbances, and the ability to distinguish between soils and sediments with potential to contain Aboriginal objects and natural sediments and deposits with low or no Aboriginal archaeological sensitivity without resorting to archaeological test excavation as the first option to gather the same information.

Bore-log data can be used to identify where and how deep future building excavations could proceed with no or minimal risk of impact to Aboriginal objects, such as would be the case in highly disturbed areas and where activities would be confined to only affecting fills and can also be used to identify early in planning where project redesign may be required if significant subsurface PAD is identified.

Future environmental risk assessment of potential contamination will be undertaken on an individual land-parcel basis. Pre-existing subsurface data for individual lots and new data generated by future borehole investigation will provide information from which subsurface stratigraphic models can be developed (subject to availability and quality of subsurface data) once collected is converted into excel spreadsheets that are digitized into GIS layers.

The stratigraphic models prepared for individual land-parcels for example would describe the nature, extent and potential archaeological sensitivity of subsurface soils, sediments and manufactured deposits and would distinguish between potential archaeological deposits and natural sediments with no constraints. Subsurface cross-sections and three-dimensional mapping would inform future design concepts in each locality and allow for archaeologically sensitive deposits to be avoided by design and preserved in situ.

8.0 Recommendations

8.1 Basis for recommendations

The following recommendations are based on the recognition of the statutory protection provided to Aboriginal objects under the *National Parks and Wildlife Act 1974* (NPW Act), the findings that are presented in this report, and the views and advice that has been provided by the Aboriginal community organisations and individuals that have been consulted with for the development of this Aboriginal cultural heritage assessment for the Camellia-Rosehill Precinct.

8.2 Recommendations

It is recommended that:

- Future management of AHIMS #45-6-2559 and AHIMS #45-6-3627 should be consistent with the statutory requirements under the terms of the *National Parks & Wildlife Act 1974* (amended).
- AHIMS #45-6-2559 is in the Sydney Turf Club and is under statutory management of an existing NPW Act approval issued to Transport for NSW (TfNSW) and related to the Parramatta Light Rail (PLR). It is recommended that this pre-existing heritage management framework should continue under this approval.
- Where future impacts to AHIMS #45-6-2559 are greater than previously identified and permissible under the existing approvals, TfNSW will require amendment to the mitigation measures in the existing PLR Aboriginal Cultural Heritage Assessment and this change will require further consultation with Aboriginal stakeholders and variation to the existing statutory approval under the NPW Act.
- AHIMS #45-6-3627 is situated within the Clyde stabling and maintenance facility construction site and its future management should continue according to the archaeological strategy established for the site by the ACHA prepared for the Sydney Metro West Stage 1.
- DPE consider the practicability of initiating further investigation of potential subsurface archaeological sensitivity in the Precinct through integration with future contamination and geotechnical borehole investigations that generate data that record the nature and sedimentary composition of soils and sediments making up the stratigraphic profile. The archaeological use of borehole data provides an opportunity to identify where on the land and at what depth subsurface soils with potential Aboriginal archaeological sensitivity may occur that will help the development of building layouts and designs at future Development Application stages.

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10.0 Appendices

Appendix A

Government agency correspondence

Appendix B

Aboriginal community consultation schedule

Appendix C

Aboriginal community consultation correspondence

Appendix D

Aboriginal Heritage Information Management System (AHIMS) data

Please Note:

Appendices A-D have not been included in this report because they contain sensitive personal and cultural information.

Appendix A

Government agency correspondence

Appendix B

Aboriginal community consultation schedule

Appendix C

Aboriginal community consultation agenda and consultation material

Appendix D

Aboriginal Heritage Information Management System (AHIMS) data