Statement of Heritage Impact

Greater Parramatta Olympic Peninsula Water Cycle Management Project

Prepared for Sydney Water

December 2025

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Greater Parramatta Olympic Peninsula Water Cycle Management Project

Sydney Water

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December 2025

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Executive Summary

Sydney Water is proposing to build and operate a new water resource recovery facility (WRRF) at Camellia-Rosehill with associated infrastructure to provide wastewater services to the Greater Parramatta and Olympic Peninsula Water Cycle Project (GPOP) growth area (the project).

As a key growth area in Sydney, the population in GPOP is projected to double in size by 2056. An increase of residents and businesses in the area will generate substantial volumes of wastewater requiring treatment. This growth would place pressure on Sydney Water's existing wastewater network which includes the Northern Suburbs Ocean Outfall Sewer (NSOOS). The NSOOS is a critical sewer main which transfers wastewater from a large catchment area to North Head WRRF for treatment. With current growth projections the NSOOS would reach capacity by 2031-32.

The project is needed to provide a water cycle management solution for the GPOP growth corridor that is efficient and cost effective for the community. The proposal avoids duplication of the NSOOS and provides a wastewater solution which is sustainable, resilient and adaptable.

The main elements of the project include:

- a new WRRF at Camellia-Rosehill
- upgrade of the existing pumping station at Camellia (SP0067)
- a new wastewater transfer main from SP0067 to the WRRF
- a new brine pipeline from the WRRF to SP0067 and repurpose an existing pipeline to transfer brine from SP0067 to the NSOOS
- a new river release pipeline and discharge infrastructure to release high quality treated water into Parramatta River.

EMM Consulting Pty Limited (EMM) has been engaged by Sydney Water to prepare a statement of heritage impact (SoHI) to assess the potential impacts to heritage – environmental, defined in section 4 of the *Heritage Act 1977* as places, buildings, works, relics, moveable objects, and precincts of State or local heritage significance. This SoHI forms part of the environment impact statement (EIS) that is required to support planning approval under State Significance Infrastructure (SSI (74258485)) application to the NSW Department of Planning, Housing and Infrastructure (DPHI).

Statutorily listed heritage items were identified in the impact assessment area, including those listed on the State Heritage Register (SHR), the *Parramatta Local Environmental Plan 2023* (PLEP), the *Ryde Local Environmental Plan 2014* (RLEP), the *State Environmental Planning Policy (SEPP) (Precincts—Central River City) 2021* and the Transport for NSW (TfNSW) Section 170 Heritage and Conservation Register. Non-statutory listings on the Register of the National Estate (RNE) are also identified.

The project alignment largely follows existing road reserves where the archaeological potential is low. The alignment will traverse through the curtilage of three heritage listed items; Rydalmere Hospital Precinct (former) (SHR #00749, s170 #5000658 and PLEP #I661), Sewage Pumping Station 67 (SHR #01643, s170 #4571724 and PLEP #I9), and Memorial Park (including obelisk) and remnants of former Meadowbank baths (RLEP #I72).

In the Rydalmere Hospital Precinct, although there is direct interaction with the heritage curtilage of the item, the existing pipeline infrastructure being refurbished is not in proximity to the primary heritage features, and is not in an area of archaeological potential. Therefore, there will be little to no impacts to the site's heritage significance. At the Sewage Pumping Station 67, there will be an overall minor adverse impact to the site. The project will result in permanent changes to the heritage item, however, these impacts are largely limited to areas with tolerance for change and elements of lesser significance. These impacts are offset as the project would facilitate

the continued operation of the site, an integral part of the site's heritage significance. The Memorial Park (including obelisk) and remnants of former Meadowbank baths has the most substantial direct impacts. This includes the potential for the disturbance of archaeological resources associated with the former cottage of F. Whitham, unknown public recreation structures, and the in-River public baths, in addition to vegetation removal. An assessment of the potential significance of the archaeological resources indicates that they are unlikely to yield new or substantial information not available from other sources. As such, they are unlikely to be considered relics under the *Heritage Act 1977* and therefore no adverse archaeological impact is identified in Memorial Park. The removal of vegetation is considered to be minor adverse aesthetic impact that can be mitigated through the implementation of management measures. There will be no direct or indirect impacts to the obelisk, which is the primary feature of heritage significance at this site. However, the 'Ryde Remembers' feature is situated in the impact area, and is likely to have direct minor adverse impacts on it.

To manage potential impacts to the heritage listed items, the management measures are proposed in Table 9.1 and Table 9.2 of Section 9.

In summary, there are minor or little to no historical heritage impacts associated with GPOP. With the implementation of the proposed management measures, the project may proceed.

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Definitions and abbreviations

Abbreviation/acronym	Long Form
CEMP	Construction environmental management plan
CHL	Commonwealth Heritage List
CSSI	Critical State Significance Infrastructure
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DCCEEW (NSW)	Department of Climate Change, Energy, the Environment and Water (NSW)
DP	Deposited Plan
DPHI	NSW Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EMM	EMM Consulting Pty Limited
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
GPOP	Greater Parramatta Olympic Peninsula Water Cycle Management Project
ha	Hectares
Heritage Act	NSW *Heritage Act 1977*
ICOMOS	International Council on Monuments and Sites
km	Kilometre(s)
LEP	Local environmental plan
LGA	Local government area
m	metres
ML	Megalitres
MNES	Matters of National Environmental Significance
NHL	National Heritage List
NSW	New South Wales
PLEP	Parramatta Local Environmental Plan
RLEP	Ryde Local Environmental Plan
RNE	Register of the National Estate
RRP	River Release Pipeline
SEARs	Secretary's environmental assessment requirements
SEPP	State Environmental Planning Policy
SHR	State Heritage Register
SoHI	Statement of Heritage Impact
SSD	State significant development

Abbreviation/acronym	Long Form
SSI	State significant infrastructure
TfNSW	Transport for New South Wales
WRRF	Water Resource Recovery Facility
WWII	World War II

1 Introduction

1.1 Overview

Sydney Water is proposing to build and operate a new water resource recovery facility (WRRF) at Camellia-Rosehill. The new WRRF is needed to provide additional wastewater capacity to support growth across the northern suburbs of Sydney, and in the Greater Parramatta and Olympic Peninsula (GPOP) growth corridor. The WRRF and associated infrastructure together form the GPOP Water Cycle Management project (the project).

The additional growth would place pressure on the existing northern suburbs wastewater network, which includes the Northern Suburbs Ocean Outfall Sewer (NSOOS) and the North Head WRRF. These critical assets provide wastewater services to around 1.7 million people, and with current growth projections would reach capacity by 2031.

The GPOP WCM project has been designed to be efficient, sustainable, and cost effective for the community, as well as resilient and adaptable for future water uses.

The main elements of the project include:

- a new WRRF at Camellia-Rosehill to treat wastewater to produce advanced treated water
- upgrades to the existing pumping station at Camellia
- a new wastewater transfer pipeline from Camellia pumping station to the WRRF
- a new and repurposed brine pipeline to transfer brine from the WRRF to the NSOOS
- a new river release pipeline to transfer advanced treated water from the WRRF to a release structure in Parramatta River at Meadowbank.

The location of the main elements of the project is provided in Figure 1.1. Further details of each component of the project are provided in Section 1.3 and Table 1.1.

EMM Consulting Pty Limited (EMM) has been engaged by Sydney Water to prepare a statement of heritage impact (SoHI) to assess the potential impacts to heritage – environmental, defined in section 4 of the *Heritage Act 1977* as places, buildings, works, relics, moveable objects, and precincts of State or local heritage significance. This SoHI forms part of the environment impact statement (EIS) that is required to support planning approval under State Significance Infrastructure (SSI (74258485) application to the NSW Department of Planning, Housing and Infrastructure (DPHI).

1.2 Project terms and definitions

The purpose of these definitions is to set expectations for what each of these terms mean as they are referenced throughout the report. The following definitions were prescribed by Sydney Water.

The term ‘impact assessment area’ will be used as the maximum area that would be impacted by the project and within which there will be flexibility in the planning approvals to have impacts and for the discharge infrastructure. The actual impacts will be in an ‘impact area’ within this impact assessment area. For the WRRF site the impact assessment area and impact area will be the same. For the pipelines, we will likely have a smaller impact area in most instances that we are refining as design progresses. Pipeline impact areas are expected to typically be 10-15 m wide.

The project includes three pipelines with a combined length of approximately 15 km, as well as the WRRF located on Lot 1 DP 1300589, covering an area of about 21.41 hectares. The pipelines intersect or run adjacent to a total of 156 landholdings, traversing several significant infrastructures and natural features in the region (Figure 1.1).

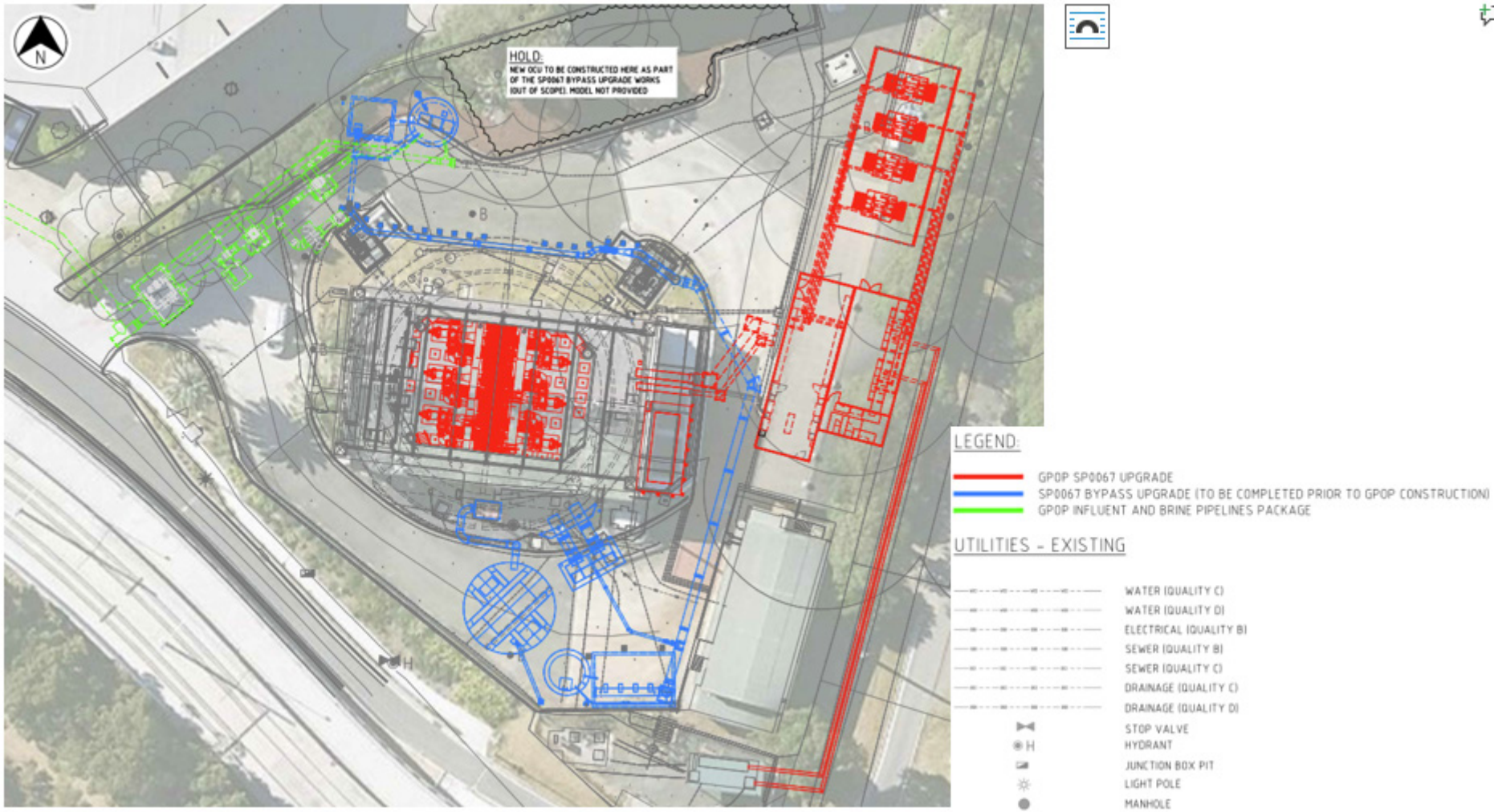
1.3 Project description

Further details of each component of the project are provided in Table 1.1

Table 1.1 Project description

Project Component	Detailed Description
WRRF	The WRRF would have capacity to treat 70 megalitres per day (ML/d). The WRRF would produce advance treated water to minimise impacts on receiving waterways. The reverse osmosis (RO) treatment process within the WRRF would generate brine as a by-product. The main components of the WRRF include: • inlet works • primary, secondary and tertiary wastewater treatment process units • advanced treatment processes involving reverse osmosis • disinfection systems • biosolids handling facilities • odour control facilities. The WRRF would require a range of process infrastructure such as tanks, bioreactors and digestors. The operation of the WRRF would also require ancillary facilities such as an administration building and associated car park, chemical storage and stormwater infrastructure.
Camellia pumping station upgrades	The existing Camellia pumping station would be upgraded to divert wastewater to the WRRF. Upgrades would include the installation of new pumps to deliver wastewater flows to the new WRRF while remaining pumps would pump excess existing flows and brine produced by the WRRF to the NSOOS via existing pressure mains. New connections would be installed to divert the wastewater into the transfer pipeline. The existing site sheds would be replaced with a new electrical switch room along the eastern boundary of the site. (See Plate 1.1).
Transfer pipeline	The transfer pipeline is about 2.2 km in length and would transfer wastewater from the Camellia pumping station to the WRRF.
Brine pipeline	The brine pipeline is about 5.2 km in length and would transfer brine from the WRRF to the NSOOS for treatment and offshore discharge at North Head WRRF. A new pipeline would be constructed between the WRRF and Camellia pumping station, along the same alignment as the transfer pipeline. Between the Camellia pumping station and the NSOOS the brine pipeline would repurpose an existing pipeline.
River release pipeline and release structure	The river release pipeline is about 7.6 km in length commencing at the WRRF and within the suburbs of Silverwater, Newington, Sydney Olympic Park and Meadowbank. The river release pipeline would discharge advanced treated water into the Parramatta River at Meadowbank. Above ground infrastructure includes two concrete bridge-style aerial crossings over minor waterways in Meadowbank Park, and an approximately 8 metre high barometric loop located near the existing toilet block in Memorial Park. The river release structure involves eight smaller pipelines that extend out underneath the sandstone sea wall and along the riverbed of the Parramatta River. The pipelines would vary in length, with the longest extending about 130m. Diffusers would release water to enable mixing.
Land ownership and location	The WRRF would be located on Sydney Water owned property at the intersection of Colquhoun and Devon Street, Rosehill (Lot 1, Deposited Plan 1308385). The WRRF site comprises an area of 21.41 hectares (ha) (see Figure 1.1) and is located within the City of Parramatta Local Government Area (LGA). Upgrades to the existing sewage pumping station at Camellia are also located on Sydney Water property within the City of Parramatta LGA. Pipeline alignments are generally within the road corridor, Council or Crown land or Sydney Water easements, except for the transfer and brine pipelines beneath Rosehill Gardens Racecourse.

Project Component	Detailed Description
Construction activities	Key activities for construction of the WRRF will include: • site establishment • delivery of materials • earthworks • civil works • structure construction • installation of mechanical and electrical plant and equipment • landscaping and rehabilitation • commissioning. The new sections of pipelines from the WRRF to Camellia pumping station and the river release location, would be constructed using a combination of trenching and horizontal directional drilling techniques. Between Camellia pumping station and the NSOOS, the existing rising main would be relined and repurposed to form part of the brine pipeline. The upgrade of Camellia pumping station would include augmentation of underground infrastructure, installation of pumps, and upgrade of power supply.
Construction program	Construction of the project would commence in 2028 with a duration of around 36 months. Operation is planned to commence in 2031.



Source: Adapted from Jacobs Group, Greater Parramatta Olympic Peninsula SP0067 Camellia Pumping Station Site Layout Plan, Drawing No. IA319500-SP067-C-90-DRG-02

Plate 1.1 Plan of the proposed works occurring at the Pumping Station 67

1.4 Impact area

The impact area is located in the City of Parramatta and Ryde LGA, New South Wales (NSW). Historically, the impact area falls in the parishes of St John and Field of Mars, county of Cumberland. The project comprises three pipeline sections with a total length of approximately 15 km and the WRRF site. The majority of the land within the impact area are major public roads and rail lines as well as Sydney Water owned land. It involves three primary pipeline alignments: the wastewater transfer pipeline, the brine pipeline and the river release pipeline. This indicative alignment traverses through a mix of residential areas, commercial zones, and industrial estates:

- The SP0067 transfer main will be twin pipes about 2.2 km long. From SP0067, the pipeline will be located under the Rosehill Gardens Racecourse until it reaches the WRRF.

- The brine pipeline will be about 5.2 km long. From the WRRF, the pipeline will traverse through the Camellia-Rosehill precinct, under the Rosehill Gardens Racecourse, until it reaches SP0067. From there, the pipeline will continue north via a repurposed existing pipeline that connects SP0067 to the Northern Suburbs Ocean Outfall Sewer (NSOOS).

- The river release pipeline will be about 7.6 km. From the WRRF, the pipeline will cross under Duck River, follow Carnarvon Street, Voss Street, Fariola Street, Avenue of Oceania and cross Holker busway. From a parking lot within Sydney Olympic Park, the pipeline will be underbored under Hill Road and Parramatta River until it reaches the Meadowbank Park. In Meadowbank Park No.9, this pipeline will resurface, and be installed with open trench methods to the east and into Meadow Cresent, until it is north of the Meadowbank Memorial Park at a barometric loop that is also being installed as part of this project. From here, the open trench method of pipeline installation will move south and follow the reclaimed parking lot off Bowden Street, west of the John Whitton Bridge. After this car park, the river release pipeline will be inserted into the bed of the Parramatta River.

The landscape within the impact area spans a dynamic mix of land uses, reflecting the varied zoning and development patterns within the Parramatta and Ryde LGAs. The area includes public recreation spaces, residential neighbourhoods, commercial zones, education and transport infrastructure, and industrial estates. The pipelines cross essential infrastructure and natural features, such as the Parramatta River and Duck River, underscoring their critical role in the region's water management infrastructure.

The pipelines will be predominantly below ground. However, there will be some above ground components including maintenance holes, valve pits and covers, scour chambers, ventilation structures, energy dissipation structures, headwalls, concrete aerial crossings, and a barometric loop. Depending on how design and hydraulic assessments progress, other above ground structures may be required.

KEY

- Impact assessment area
- Impact area
- WRRF
- River release pipeline- HDD (Trenchless)
- River release pipeline- Open trench
- Brine pipeline
- Transfer pipeline- HDD (Trenchless)
- Transfer pipeline- Open trench

Existing environment

- Train station
- Rail line
- Major road
- Named watercourse
- Named waterbody
- NPWS reserve

Source: EMM (2025); DCSSS (2024); GA (2009); MetroMap (2025); DPE (2024); Jacobs (2025)

0 0.5 1 km

GDA2020 MGA Zone 56

N

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Overview of the project

Sydney Water GPOP
Statement of Heritage Impact
Figure 1.1

EMM
creating opportunities

1.5 Purpose of this report

This SoHI supports the EIS for the project. It documents the historical development of the impact area, initiatives built into the project design to avoid impacts to historical heritage values, and the management of those values into the future.

The specific objectives of this assessment are to:

- address the Secretary's Environmental Assessment Requirements (SEARs) for the project, issued on 24 September 2024
- describe the existing environment including currently identified heritage items, and the built and natural landscape
- understand the historical development of the impact area, what the drivers were and more recent changes
- achieve an understanding of surviving and potential heritage values, including built, archaeological, and significant landscapes
- assess the impact of the project on all listed and unlisted heritage values
- identify historical heritage constraints in the impact area and impacts arising from the project
- provide management measures to reduce the impacts from the project on historical heritage values wherever possible
- consider compensatory measures that are appropriate for the project, where impacts are unavoidable.

This SoHI has been prepared in accordance with the legislative requirements set out in Chapter 2.

1.6 Authorship and acknowledgements

The report was prepared by Adrian Caridi, Archaeologist. The historical summary in this report (Section 5) was prepared by Amelia O'Donnell, Historian. The figures were created by Fidelma Gurnett and Eva Harling. Quality assurance and technical review was provided by Dr Susan Lampard – Senior Associate Archaeologist.

2 Statutory framework

2.1 Legislation

In NSW, archaeological sites (both heritage items and archaeological relics) assessed to be of local or State significance are protected by two main pieces of legislation: the *Environmental Planning and Assessment Act, 1979* (EP&A Act) and the NSW *Heritage Act 1977* (Heritage Act). Under certain circumstances an additional layer of protection is added by the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

2.1.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is a Commonwealth Act that provides a legal framework for the protection of the environment. The EPBC Act definition of environment includes places of natural, Indigenous and historic heritage value. Under the EPBC Act, heritage places can be listed on:

- World Heritage List (WHL) – places inscribed on the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage List.
- National Heritage List (NHL) – places of significance to the nation.
- Commonwealth Heritage List (CHL) – items belonging to the Commonwealth or its agencies.

The EPBC Act requires actions on Commonwealth land (Section 26) and actions undertaken by a Commonwealth agency (Section 28) to be assessed to determine whether they are likely to have a significant impact on the environment. Heritage places may be listed on a statutory register, such as the WHL, NHL, CHL or State-based registers, or may be an unlisted item identified by a Commonwealth agency.

Additionally, actions that may impact on Matters of National Environmental Significance (MNES) must also be assessed for impacts. MNES that relate to heritage include identification on the WHL or NHL. Under the EPBC Act, an action that may have a significant impact on a MNES is deemed to be a 'controlled action' and can only proceed with the approval of the Commonwealth Minister for the Environment. An action that may potentially have a significant impact on a MNES is to be referred to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) for determination as to whether or not it is a controlled action. If deemed a controlled action, the Project is assessed under the EPBC Act for approval.

The project will not occur in the vicinity of any World heritage properties or places listed on the NHL or CHL. The EPBC Act is therefore not relevant to the assessment and will not be discussed further.

2.1.2 NSW Environmental Planning and Assessment Act 1979

A framework for formally assessing cultural heritage values as part of the development and assessment process is provided within the EP&A Act. It requires that environmental impacts are considered before development and that appropriate measures to avoid, mitigate or ameliorate impacts are developed; this includes impacts on cultural heritage items and places as well as archaeological sites and deposits.

In accordance with the EP&A Act, local governments are directed to prepare planning instruments which regulate land use and planning. Local environmental plans (LEPs), development control plans (DCPs) and State Environmental Planning Policies (SEPP) are examples of these. These documents provide guidance on planning decisions, identify environmentally sensitive areas, and include the identification of heritage items. Due to the size, economic value or impacts, some types of development are assessed as State Significant Development (SSD) or State Significant Infrastructure (SSI). Where a project is identified as SSD or SSI, the NSW department with

responsibility for planning is the consent authority and directs the proponent to prepare an application for SEARs, which define the various studies and guidelines for the preparation of an EIS and supporting technical reports.

The project is SSI and therefore an EIS will be required to address the SEARs.

i State Environmental Planning Policies (Precincts – Central River City) 2021

The State Environmental Planning Policy (Precincts – Central River City) 2021 (SEPP 2021) is a statutory legislation that guides land use planning and development to ensure environmental sustainability and protection. The relevant aims of SEPP 2021 are:

a) to facilitate the development, redevelopment or protection of important urban, coastal and regional sites of economic, environmental or social significance to the State so as to facilitate the orderly use, development or conservation of those State significant precincts for the benefit of the State,

b) to facilitate service delivery outcomes for a range of public services and to provide for the development of major sites for a public purpose or redevelopment of major sites no longer appropriate or suitable for public purposes.

Part 2 of SEPP 2021 defines permitted or prohibited development based on land use zones defined within the document. It outlines where and when development may be carried out with or without consent and areas where development is prohibited.

Additionally, Schedule 4 of the Environmental heritage - Chapter 4 lists heritage items relevant to this impact assessment area.

ii Parramatta Local Environmental Plan 2023

Part 5, Section 5.10 of the *Parramatta Local Environmental Plan* 2023 (PLEP 2023) addresses the conservation of heritage significance within the City of Parramatta LGA. The objectives of the PLEP 2023 in relation to heritage are:

a) to conserve the environmental heritage of the City of Parramatta,

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

c) to conserve archaeological sites

d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

To achieve these objectives, development consent is required to demolish, move, alter, disturb or excavate a heritage item, an Aboriginal object or a building, work, relic or tree within a heritage conservation area. Schedule 5 of the *PLEP* 2023 provides a list of heritage items, conservation areas and archaeological sites within the Parramatta LGA.

iii Ryde Local Environmental Plan 2014

Part 5, Section 5.10 of the *Ryde Local Environmental Plan* 2014 (RLEP 2014) addresses the conservation of heritage significance within the Ryde LGA. The objectives of the RLEP 2014 in relation to heritage are:

a) to conserve the environmental heritage of Ryde

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

c) to conserve archaeological sites

d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

To achieve these objectives, development consent is required to demolish, move, alter, disturb or excavate a heritage item, an Aboriginal object or a building, work, relic or tree within a heritage conservation area. Schedule 5 of the RLEP 2014 provides a list of heritage items, conservation areas and archaeological sites within the Ryde LGA.

As this project is SSI, the controls of the PLEP 2024 and RLEP 2014 do not apply. However, this SoHI assesses the impacts to the heritage items, heritage conservation areas and archaeological sites identified in Schedule 5 of both the PLEP 2024 and the RLEP 2014.

2.1.3 NSW Heritage Act 1977

The Heritage Act is legislation for the promotion and conservation of the heritage places, items, and objects of NSW. The Heritage Act is administered by the Heritage Council of NSW whose role is to advise the Minister with responsibility for heritage on matters relating to the conservation of the State's heritage. In practice, this power is largely delegated to Heritage NSW.

i State Heritage Register

Under the Heritage Act, items of significance to the State can be recognised on the State Heritage Register (SHR). Items on the SHR cannot be demolished, nor can they be damaged, developed, altered or excavation undertake without approval from the Heritage Council of NSW (or its delegate) under Section 59 of the Act. Section 59 extends to relics inside the item's curtilage.

ii Archaeology and relics

The Heritage Act also protects 'relics', regardless of their listing status. It applies to all NSW land that is not listed on the SHR. Section 4(1) of the Heritage Act (as amended 2009) defines 'relic' as follows:

> A "relic" means any deposit, artefact, object or material evidence that:
>
> (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and
>
> (b) is of State or local heritage significance.

Section 139(1) of the Heritage Act states that:

> A person must not disturb or excavate any land knowingly or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit.

Section 146 requires persons to notify the Heritage Council of NSW within a reasonable time if an unanticipated relic is discovered. The Heritage Act identifies the category of 'works', which refers to historical infrastructure, and is viewed as separate to that of archaeological 'relics' under the Heritage Act. 'Works' may be buried, and are therefore archaeological in nature, but exposing a 'work' does not trigger reporting obligations under the Heritage Act unless it is of demonstrable significance.

iii State Government Heritage and Conservation (s170) Registers

Section 170 of the Heritage Act requires State government agencies establish and maintain a register of heritage items, to be known as a Heritage and Conservation Register. State agencies are required to undertake due diligence with regard to the care, control and management of items listed on their Section 170 Heritage and Conservation Register. Additionally, State agencies must notify the Heritage Council of NSW 14 days in advance if they intend to remove an item from their register, transfer ownership, cease occupation, demolish. Section 170 does not place statutory requirements on individuals or non-State government entities.

2.2 Assessment approach and requirements

2.2.1 Secretary's Environmental Assessment Requirements

This assessment has been prepared in accordance with the SEARs for the project, issued on 24 September 2024. The SEARs identify matters that must be addressed in the EIS and essentially form its terms of reference. Table 2.1 lists individual requirements relevant to this SoHI and where they are addressed in this report.

Table 2.1 Historical heritage – relevant SEARs issued by DPHI

Requirement	Section addressed
1. Environmental Impact Assessment Process	
1. The Environmental Impact Statement (EIS) must be prepared in accordance with Part 8 of the *Environmental Planning and Assessment Regulation 2021* (the EP&A Regulation).	1. Section 2.1.2
2. The EIS must be prepared having regard to the Department's State Significant Infrastructure Guidelines and State Significant Project Technical Guidelines (together, the Guidelines), as relevant.	2. Sections 2.1.2, 2.1.3, and 3.1
5. The onus is on the Proponent to ensure legislative requirements relevant to the project are met.	5. Sections 2 and 9
2. Environmental Impact Statement	
1. The EIS must include, but not necessarily be limited to, the following: a) the statutory context of the project b) the assessment and mitigation of impacts, which provides a detailed summary of the results of the assessment of the potential impacts of the project	 a) Section 2 b) Sections 8 and 9
3. Assessment and Mitigation of Key Issues and Impacts	
1. The level of assessment of likely impacts must be proportionate to the significance of, or degree of impact on, the issue, within the context of the project location and the surrounding environment. The level of assessment must be commensurate to the degree of impact and sufficient to ensure that the Department and other government agencies are able to understand and assess impacts.	1. Sections 7 and 8
3. For each key issue, the EIS must include a detailed summary of the results of the assessment of the potential impacts of the project undertaken in detailed studies, including: a) the condition of the existing environment b) a summary of the key findings of the detailed technical studies in the appendices of the EIS, using suitable cross-referencing to reduce repetition between the two parts of the EIS c) description of the scale and nature of the predicted impacts, including any cumulative impacts, and whether these impacts will comply with the relevant statutory requirements, standards or performance measures d) demonstrated ability to avoid, mitigate or offset the impacts of the project having regards to - – mitigation measures incorporated into the design of the project (e.g., changes to the project area, project layout and design, key uses and activities carried out on site, timing) – other mitigation measures that will be implemented – any negotiated agreements or offsets proposed to address residual impacts of the project following mitigation	3. a) Section 4 b) Refer to EIS c) Sections 8.4, 8.5 and 8.7 d) Sections 8.6 and 9

Requirement	Section addressed
e) detailed reasons justifying any predicted exceedances of relevant standards or performance measures	e) Section 8.4.1
f) identification of key uncertainties associated with the assessment and what action will be taken to address these uncertainties	f) Section 8
g) highlight any key linkages between the assessment of different key issues or likely cumulative impacts of the project.	g) Sections 8.4, 8.5 and 8.7
4. Key Appendices	
1. The EIS must include the following appendices:	1.
a) a SEARs table, identifying the sections and subsections where the SEARs have been addressed in the EIS and in the specialist assessment reports	a) Table 2.1 (this table)
b) a statutory compliance table, identifying where the relevant statutory requirements have been addressed in the EIS	b) Section 2.3
11. Heritage – Environment	
1. Assess and manage direct and/or indirect impacts to the heritage significance of:	1.
a) environmental heritage, as defined under the Heritage Act 1977	a) Section 8 and 9
b) items/places/properties listed on the Local, State, Commonwealth, National World Heritage, and State Agency Section 170 Heritage and Conservation Registers or lists	b) Sections 4.3, 8 and 9
c) heritage items and conservation areas identified in environmental planning instruments applicable to the project area.	c) Section 4.3
2. Where impacts to State or locally significant heritage items are identified, the assessment must:	2.
a) include a significance assessment, a statement of heritage impact (SOHI) for all heritage items and a historical archaeological assessment	a) Sections 7, 8.7, 6.3, and 6.4
b) assess the consistency of the project against conservation policies of any relevant conservation management plan	b) Sections 2.4, 8.4.1i, and8.4.1ii
c) consider impacts to the item of significance caused by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment, drainage infrastructure, contamination remediation and site compounds (as relevant)	c) Sections 8.4.1 and 8.4.2
d) outline measures to avoid and minimise those impacts during construction and operation in accordance with the current guidelines	d) Section 9
e) identify opportunities for the project to reflect on the heritage character and significance of the site and surrounding area during construction and operation through heritage interpretation	e) Section 9
f) outline the future management framework for the ongoing protection, management and conservation of Heritage objects and other heritage values	f) Section 9
g) include justification for any changes to the heritage fabric or landscape elements, including any options analysis	g) Sections 8.6, 8.7, and 9
h) be undertaken by a suitably qualified heritage consultant(s) and / or historical archaeologist (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria).	h) Whole report, as demonstrated in Section 1.6
12. Noise and Vibration	
1. The assessment of construction noise and vibration must:	1.
a) identify and assess the potential vibration impacts on Aboriginal places and environmental heritage (including heritage items)	a) Section 8.4.2ii
18. Visual	
2. An assessment of the visual impact of the project and any ancillary infrastructure during construction and operation on:	2. Sections 4 and 8.4.2i
a) the existing visual environment of the area, including views	
b) key sites and buildings	
c) heritage items	
d) the local community and public amenity.	

2.2.2 Agency engagement

In addition to the SEARs listed above, additional engagement has been undertaken with a variety of other government agencies, councils, and other relevant stakeholders. Applicable comments from these groups have been collated and included in Table 2.2 below, along with EMM responses and the location of relevant information within this report.

Table 2.2 Relevant agency comments and EMM responses

Comment issuer	Comment	EMM response
Heritage NSW	Due to the number of sites (state and local heritage registers) included in/in the vicinity of the proposed State Significant Infrastructure (SSI), a Statement of Heritage Impact (SoHI) is required for this project.	This report.

2.3 Statutory Compliance Table

SEAR 4.1b requires the inclusion of a table summarising where the relevant statutory requirements have been addressed in the EIS. Table 2.3 provides the required statutory compliance table.

Table 2.3 Statutory compliance

Statute	Compliance
Environment Protection and Assessment Act 1979	This SoHI has been prepared in compliance with Division 5.2 of the Act
Heritage Act 1977	Section 5.23 of the EP&A Act means the requirements of this Act do not apply.
Parramatta Local Environmental Plan	Section 5.22 of the EP&A Act means the requirements of this Regulation do not apply.
Ryde Local Environmental Plan	Section 5.22 of the EP&A Act means the requirements of this Regulation do not apply.
Environment Planning and Assessment Regulation 2021	This SoHI has been prepared in compliance with the Regulation as demonstrated in Section 3.

2.4 Conservation management plans

A conservation management plan (CMP) is a document prepared by an asset owner to assist them in managing the heritage significance of the asset while allowing for its continued operation. A CMP outlines the historical development, physical description, heritage significance, opportunities and constraints and policies that will direct the conservation, development and maintenance of the asset. CMPs are only relevant to a SoHI where there is a direct impact to the asset covered by the CMP. The project will directly intersect with two sites that have individual CMPs. The CMPs are summarised below and the project is assessed for compliance with the policies of the CMPs in Section 8.

2.4.1 University of Western Sydney CMP 2008

A CMP for the University of Western Sydney Parramatta South Campus, Rydalmere (which includes the State significance Rydalmere Hospital Precinct) was prepared in 2008 for the University of Western Sydney by Conybeare Morrison International (Conybeare Morrison International 2008). The CMP assesses the former

Orphan School, which is currently the University of Western Sydney Parramatta Campus. This CMP focuses on the south-west and west areas of this site's curtilage as that is the location of the significant heritage items. The impact area of this project is situated along the east edge of this site's curtilage and will not have any direct impacts onto the significance fabric of this site. Therefore, the policies are being complied with for this site.

2.4.2 Sewage Pumping Station SP0067, Camellia CMP 2025

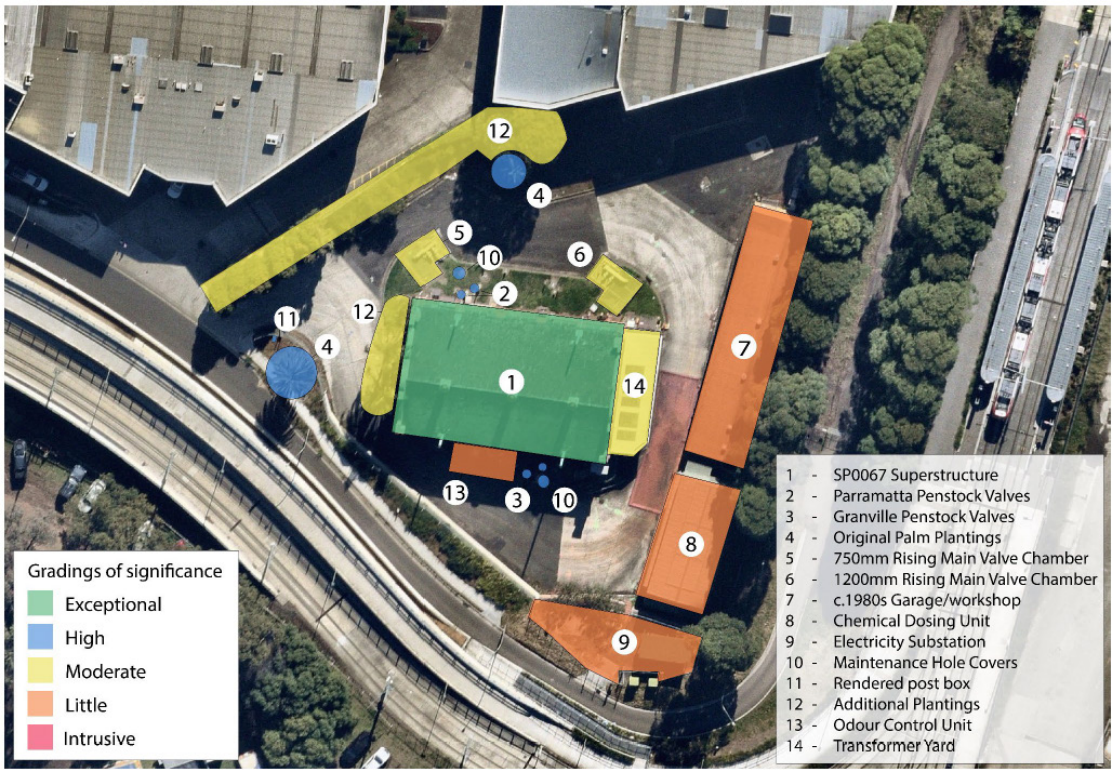
A CMP for Sewage Pumping Station 67 was prepared for the Sydney Water Corporation by Extent Heritage (2025). This CMP provides an updated historical analysis and significance assessment for the site, replacing the policies of the previous 2009 CMP (Truman Zaniol & Associates 2009). The CMP determines there is unlikely to low archaeological potential at the site. The CMP grades the site elements as outlined in Table 2.4. The gradings and policies are used in Section 8 to assess the level of impacts the project may have. Many of the impacts are directed towards the elements of lesser significance at the site's exterior, however there will be permanent changes to the internal substructure, which is of exceptional significance, but has tolerance for change (Plate 2.1 - Plate 2.3).

Table 2.4 Grading of elements at the Sewage Pumping Station 67 – Sydney Water managed land

	Condition	Significance
Buildings/features		
SP0067 Superstructure	Good	Exceptional
Parramatta Main Sewer and penstock valves	Poor	High
Granville Main Sewer and penstock valves	Poor	High
Original Date Palm Plantings	Good	High
750mm rising main and valve chamber	Good	Moderate
1200mm rising main and valve chamber	Good	Moderate
C.1980 garage/workshop	Fair	Little
Chemical dosing unit	Good	Little
Electricity Substation	Good	Little
Maintenance holes to sewer inlet chambers	Good	High
Rendered post box	Fair	High
Plantings, including Cocas Palms, Cypress Pines, and other trees on site	Good	Moderate
Odour Control Unit	Good	Little
Transformer yard along rear (eastern) elevation of superstructure	Good	Moderate
Concrete driveway, kerb, gutters and bitumen road surface.	Good	Little
All fencing	Good	Little
All recently installed IICATS fabric	Good	Intrusive
Element - Exterior	**Condition**	**Significance**
Flood gate at superstructure entrance	Good	Intrusive
Roof structure, including ventilators and parapet flashings	Good	Exceptional

	Condition	Significance
Roof tiles	Fair	Little
All brickwork, including tuckpointed brickwork, brick plinths, and dentil course	Good	Exceptional
Terracotta vents	Fair-Good	High
Steel framed windows, rendered heads and brick sills	Good	Exceptional
Rendered parapets, string courses, cornices and hoods	Good	Exceptional
Cartouche and raised letting	Good	Exceptional
Roller door to front entrance of superstructure	Good	Moderate
3 x original rainwater heads	Good	Moderate
1 x rainwater head (southwest corner) and all eaves guttering	Good	Little
Rendered plinths at entrance	Good	High
Chequer plate threshold at entrance	Fair	Little
Surface run conduit generally	Good	Intrusive
Soffits and eaves	Fair	High
All modern signage, fixings, floodlights, and alarm box on front façade (except raised lettering above entrance)	Fair	Intrusive
Element - Interior	**Condition**	**Significance**
Open plan spatial configuration including exposed substructure	Good	Exceptional
Brickwork	Good	Exceptional
Steel trusses and timber purlins	Good	Exceptional
Battened asbestos cement ceiling	Good	High
Travelling crane, crane access stair, and platform	Good	Little
Original crane track	Fair	High
31mm diameter balustrade and timber kickboard	Good	High
40mm diameter recent balustrade	Fair	Little
Concrete floor	Good	Exceptional
Brick amenities enclosure north-west corner	Good	Little
Brick room south-east corner	Good	Little
Foul air extraction unit	Good	Little
IICATS fabric	Fair	Little
Switchgear and raised flooring along east wall	Good	Little
Surface run conduits and modern light fittings	-	Intrusive
Contemporary signage	Good	Intrusive
Hand painted signage	Good	Moderate
Crane signage	Fair	High

	Condition	Significance
Crane and well flushing switches on west wall	Fair	High
Element – Substructure	**Condition**	**Significance**
Reinforced concrete circular structure, including visible boarded off-form surface	Good	Exceptional
Steel floor plates in machinery chamber	Fair	High
Wet wells 1 and 2	Poor	Exceptional
Recent access stair and landings	Good	Little
Store located below entrance	Good	Exceptional
All mechanical, electrical, pipework, and valve components, including pumps and motors, 120 mm rising main, 750 mm rising mains, sump pump and motor, suction and delivery pipework and valves, electrical starters, generators and distribution boards, and IICATS equipment	Good	Moderate



Source: (Extent 2025: 82)

Plate 2.1 Extent 2025 CMP figure showing assessed levels of significance for buildings and site features

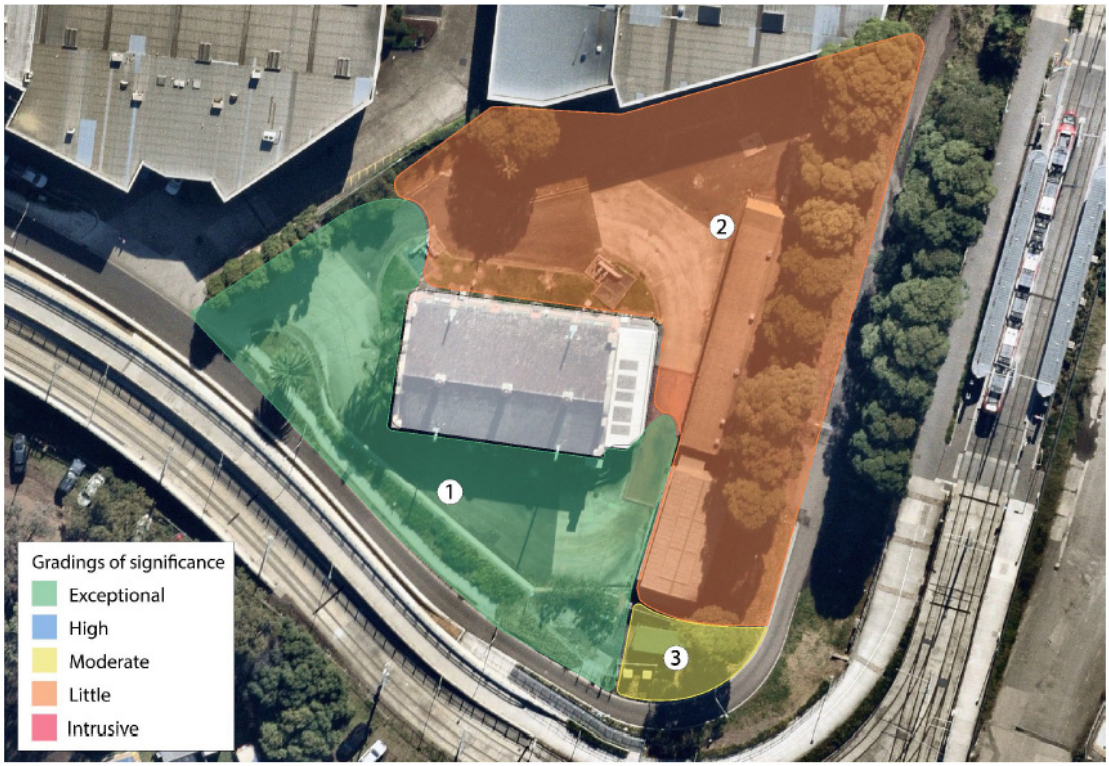


Figure 118. Plan of the site showing assessed level of significance for areas surrounding SP0067.

Source: (Extent 2025: 87)

Plate 2.2 Extent 2025 CMP figure showing assessed levels of significance for areas surrounding SP0067

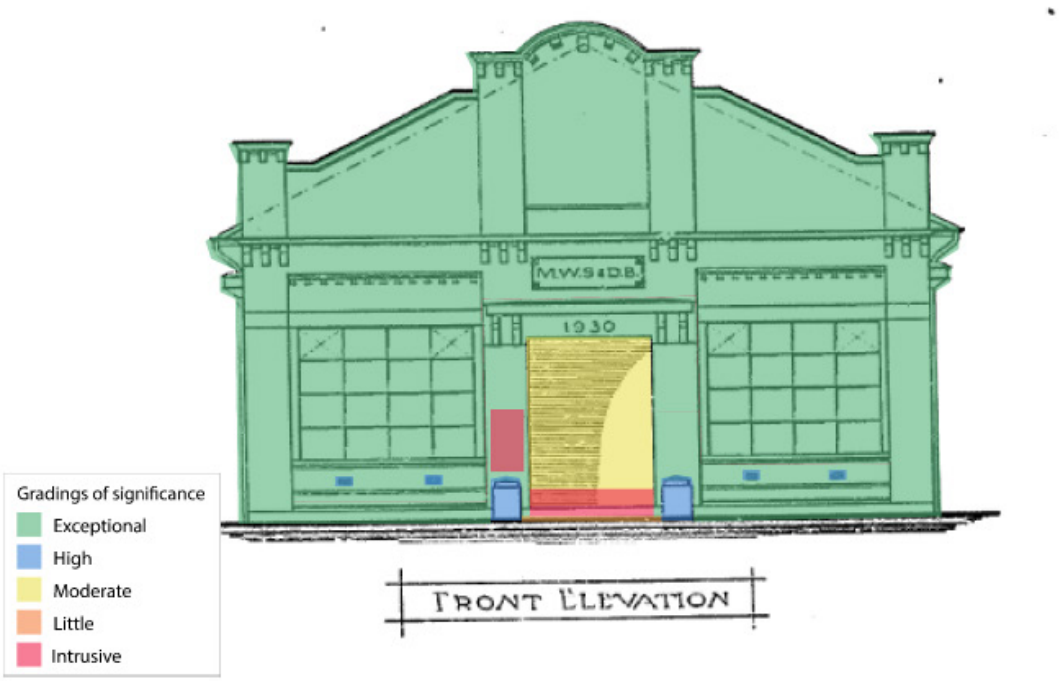


Figure 115. Front elevation of SP0067 showing assessed levels of significance for individual elements.

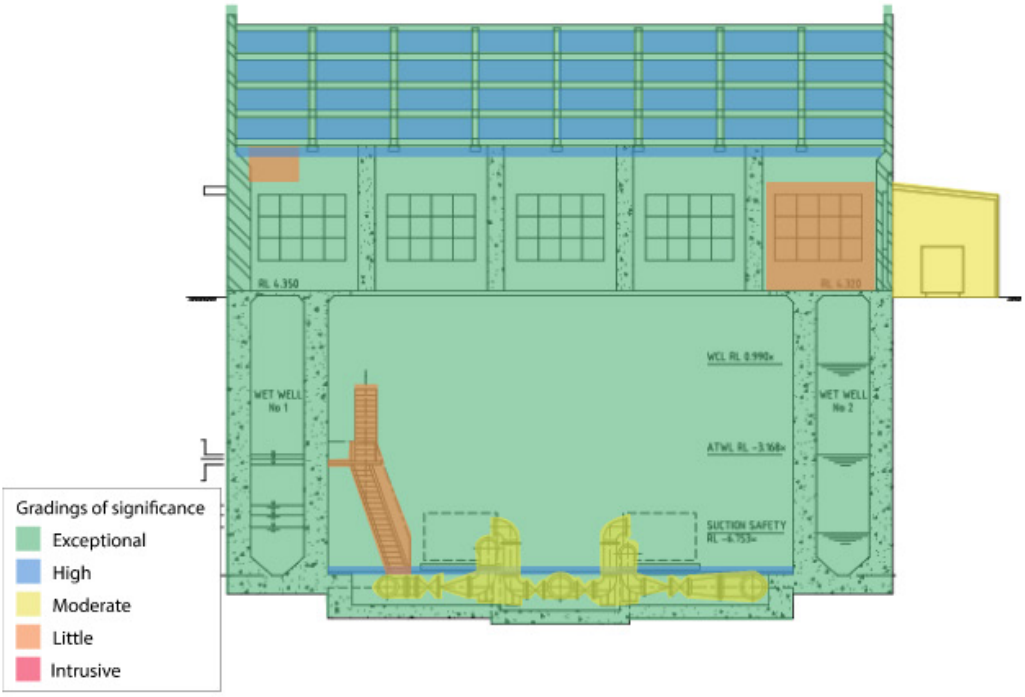


Figure 116. East-west section of SP0067, including substructure showing assessed levels of significance for individual elements.

Source: (Extent 2025: 85)

Plate 2.3 Extent 2025 CMP figures of assessed levels of significance of Brick station structure and internal substructure

3 Assessment methods

This SoHI has been prepared in accordance with the relevant government assessment requirements, guidelines and policies. This report and associated field survey were undertaken using the principles of The Australian International Council on Monuments and Sites, Charter for Places of Cultural Significance (also known as the Burra Charter, Australia ICOMOS, 2013) and the *NSW Heritage Manual* (NSW Heritage Office and NSW Department of Urban Affairs and Planning 1996). Use of these documents satisfies the requirements of the SEARs.

The Burra Charter defines the concept of cultural significance as 'aesthetic, historic, scientific, social or spiritual value for past, present or future generations' (Australia ICOMOS 2013, Article 1.2). It identifies that conservation of an item of cultural significance should be guided by the item's level of significance.

The Heritage Manual comprises the following guidance documents:

- *Assessing Heritage Significance* (DPHI 2023a)
- *Statements of Heritage Impact Guidelines* (DPHI 2023b)
- *Investigating Heritage Significance* (Heritage Council NSW 2022)
- *Assessing Significance for Historical Archaeological Sites and 'Relics'* (NSW Heritage Branch 2009).

These documents have been used to guide this SoHI.

3.1 Research sources

Research for this report was conducted using primary sources such as maps, plans and gazettes etc, which were accessed through online portals such as:

- Land and Property Information (LPI)
- National Library of Australia: Trove Online
- Historical aerial photographs (Land Insight & Resources)
- State Library of NSW (Mitchell Wing).

3.2 Field survey methods

The EMM historic heritage team visited the impact area in January 2025 to conduct a field survey as part of the preparation of this SoHI.

i Objectives

The purpose of the field survey was to record historical cultural heritage with potential to be impacted by the project, record features of interest and their significance and identify potential management measures required prior to construction.

In order to assess features for landscape values, potential and significance, the team undertook a vehicular and pedestrian survey of the impact area.

ii Data collection methods

Site locations and their details were recorded with a mobile phone using site recording forms created by EMM on the Survey123 application for ArcGIS (Esri© software). The mobile phone had a location accuracy of up to ±5 m, similar to hand-held non-differential GPS units (~5 m). The Survey123 forms allowed for a site's location, details and representative photographs to be linked together, which avoids potential post-fieldwork issues around data integrity.

iii Survey plan

Field survey was conducted on a single occasion on 30 January 2025 and was undertaken by Archaeologist Adrian Caridi (EMM).

Given the extent of the area's historical context and the impact assessment area, a targeted field strategy was implemented, focusing on key sites (outlined in Section 6) in or adjacent to the impact area that were identified through an extensive desktop review.

4 Existing environment

4.1 Introduction

Understanding the environmental context is crucial for predicting archaeological potential, including the likelihood of finding archaeological artefacts within the landscape, how they are spread spatially, and their state of preservation

The environmental characteristics of any area influenced the way people used the landscape. In the past, the availability of resources such as water, flora, fauna, stone material and topography played a substantial role in the choice of camping, transitory movement and ceremonial areas used by Aboriginal people.

Migrants to the early colony looked for the same landscape characteristics but manipulated their environment in ways that left more obvious marks. Water, level or gently sloping ground, and suitable soils to grow crops and animals was sought after. Therefore, understanding environmental factors assists with predicting where sites are likely to occur. Additionally, natural and cultural (human-made) site formation processes that occur after the deposition of archaeological material influence the way archaeological material is distributed and preserved across a landscape.

4.2 Landscape overview

The impact area is situated within the Cumberland Plain, part of the larger Sydney Basin bioregion, which stretches across the western part of the Sydney metropolitan area. The Cumberland Plain is characterised by its gently undulating terrain, with elevations ranging from approximately 10 to 80 m above sea level. This landscape has evolved over millions of years, primarily composed of Wianamatta Group shales and sandstones from the Triassic period (DPIE 2022, NPWS 2003).

Geologically, the Parramatta region is notable for its predominance of Bringelly Shale, a component of the Wianamatta Group, which has led to the development of fertile soils conducive to diverse vegetation. The Cumberland Plain bioregion is distinguished by grassy woodlands and open forests. Key vegetation communities include the critically endangered Cumberland Plain Woodland, which consists of species such as grey box (*Eucalyptus moluccana*), forest red gum (*Eucalyptus tereticornis*), and various native grasses (NSW Office of Environment and Heritage. 2016)

The Parramatta region is a highly urbanised area, reflecting its role as a central hub within Greater Western Sydney. The city of Parramatta serves as a major commercial and business district, featuring a skyline of high-rise buildings and a vibrant urban environment. Surrounding suburbs exhibit a mix of residential developments, including high-density apartments, townhouses, and detached homes (City of Parramatta Council 2022).

In addition to its residential and commercial zones, the Parramatta LGA includes significant industrial precincts, particularly in suburbs like Rosehill and Camellia. These areas are characterised by large manufacturing plants, warehouses, and other industrial facilities, contributing to the region's economic vitality. Contrasting with the urban and industrial landscapes are substantial green spaces and parklands, such as Parramatta Park and the Parramatta River corridor, which provide recreational opportunities (City of Parramatta Council 2022, DPIE 2022)

4.3 Heritage listings

Statutory and non-statutory registers were reviewed as listing on statutory registers provides a basis under which the item or place is protected. Statutory listings provide legal protection for heritage items under the legislation outlined above. Statutory registers reviewed as a part of this assessment include:

- World Heritage List (WHL)
- National Heritage List (NHL)

- Commonwealth Heritage list (CHL)
- State Heritage Inventory, including the State Heritage Register (SHR), Section 170 registers (s170), and local heritage items.
- Relevant s170 for this project are Sydney Water Heritage and Conservation Registers, Department of Health Heritage and Conservation Registers, Transport for NSW Heritage and Conservation Register, and Sydney Olympic Park Heritage and Conservation Register.
- Schedule 5 of the *Parramatta Local Environmental Plan 2023* (*PLEP* 2023)
- Schedule 5 of the *Ryde Local Environmental Plan 2014* (*RLEP* 2014)
- *State Environmental Planning Policy* (SEPP) (Precincts—Central River City) 2021

Non-statutory listing is an acknowledgment of a site or place's importance to sections of the community. Listings on such registers do not place legal requirements on development but nevertheless influence the future of such listed items. Non-statutory registers reviewed as a part of this assessment include:

- Register of the National Estate (RNE) - the RNE is an archived list of heritage items that were protected under the now repealed Commonwealth *Heritage Commission Act 1975*, which was replaced by the EPBC Act. While many items were transferred from the RNE to the NHL or CHL, those that had not remained on the RNE as an indication of their heritage value.

This report assesses the heritage items in the impact area and within 200 m (100 m either side) of the impact area as these items represent the key heritage constraints for the project. This search area was adopted to account for indirect impacts, such as visual or vibrational impacts that could arise during the project construction or operation.

The heritage items that are within the impact area are presented in Table 4.1. The heritage items within 200 m (100 m buffer either side) of the impact assessment area are outlined in Table 4.2. This buffer was decided based on the minimal sightlines available in the urbanised environment. The locations of all items are placed spatially in Figure 4.1.

Table 4.1 Heritage register search – Impact area

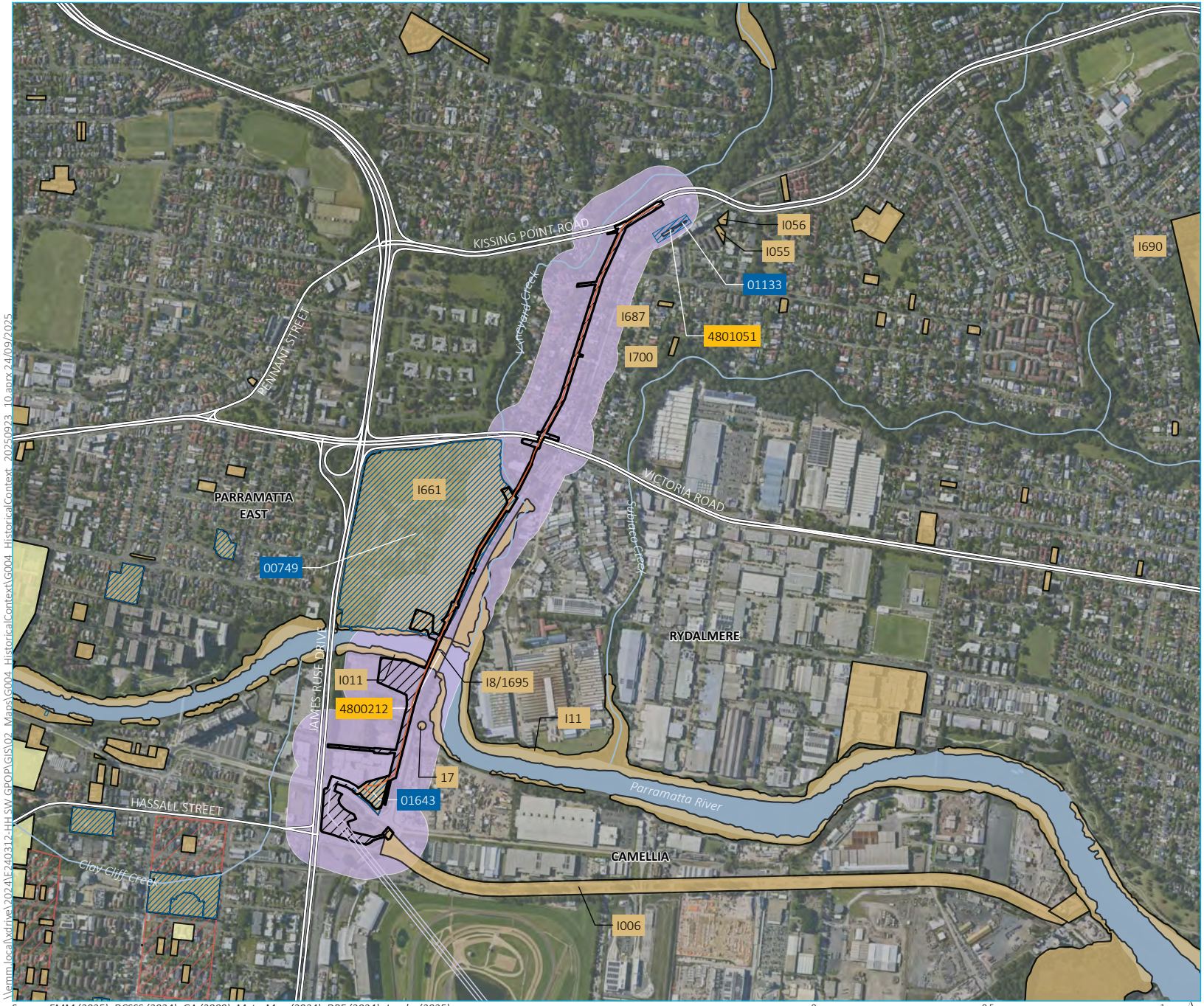
Jurisdiction	Heritage Register	Place ID	Listing	Address
Federal	World Heritage List	-	-	-
	Commonwealth Heritage Register	-	-	-
	National Heritage Register	-	-	-
	Register of the National Estate (non-statutory)	-	-	-
State	State Heritage Register	00749	*Rydalmere Hospital Precinct (former)*	171 Victoria Road, Rydalmere NSW 2116
		01643	*Sewage Pumping Station 67*	1B Grand Avenue North, Camellia NSW 2142
	State Environmental Planning Policy (SEPP) (Precincts—Central River City) 2021	-	-	-

Jurisdiction	Heritage Register	Place ID	Listing	Address
	Section 170 Sydney Water Heritage and Conservation Registers	4571724	Sewage Pumping Station No 67 (SP0067)	1B Grand Avenue North, Camellia NSW 2142
	Section 170 Department of Health Heritage and Conservation Registers	5000658	*Rydalmere Hospital Precinct (former)*	171 Victoria Road, Rydalmere NSW 2116
Local	Parramatta Local Environmental Plan 2023	I9	*Sewage Pumping Station 67*	1B Grand Avenue North, Camellia NSW 2142
		I661	*WSU Parramatta Campus (former Rydalmere Hospital & Female Orphan School)*	171 Victoria Road, Rydalmere NSW 2116
	Ryde Local Environmental Plan 2014	I72	*Memorial Park (including obelisk) and remnants of former Meadowbank baths*	2 Meadow Crescent Meadowbank NSW 2114

Table 4.2 Heritage register search – Items within 200 m buffer of impact area

Jurisdiction	Heritage Register	Place ID	Listing	Address	Distance from impact area
Federal	World Heritage List	-	-	-	-
	Commonwealth Heritage Register	-	-	-	-
	National Heritage Register	-	-	-	-
	Register of the National Estate (non-statutory)				
State	State Heritage Register	01133	*Dundas Railway Station*	Station Street, Dundas NSW 2117	~60 m east of the brine pipeline impact area
		01189	Meadowbank rail bridge over Parramatta River	Main North Line 17.500 km Bowden Street Meadowbank NSW 2114	~20 m east of river release pipeline impact area.
	State Environmental Planning Policy (SEPP) (Precincts—Central River City) 2021	Item 87	Explosives Store	Avenue of Oceania, Newington NSW 2127	~15 m south-east of river release pipeline impact area.
	Section 170 Transport for NSW Heritage and Conservation Register	4800212	*Camellia (Parramatta River) Underbridge Abutments*	Between Camellia and Rydalmere stations Parramatta River	Abuts east of the brine pipeline impact area.
		4801051	*Dundas Railway Station Group*	Station Street, Dundas NSW 2117	~60 m east of the brine pipeline impact area.
		4805744	Meadowbank (Parramatta River) Underbridge (John Whitton Bridge)	Main North Line 17.500 km Bowden Street Meadowbank NSW 2114	~20 m east of the river release pipeline impact area.

Jurisdiction	Heritage Register	Place ID	Listing	Address	Distance from impact area
	Section 170 Sydney Olympic Park Heritage and Conservation Register	I42	Explosives Store – Building 87	Avenue of Oceania, Newington NSW 2127	~15 m south-east of river release pipeline impact area.
Local	Parramatta Local Environmental Plan 2023	I6	*Tram alignment*	Grand Avenue, Camelia NSW 2142	Abuts east of the brine pipeline impact area.
		I7	*Grave of Eliner Magee & Child*	1 Grand Avenue, Camelia NSW 2142	~25 m east of the brine pipeline impact area.
		I11	*Wetlands*	Parramatta River, Parramatta NSW 2150	Abuts west of brine pipeline, ~60 m south-east of WRRF, and ~100 m north-west of river release pipeline impact areas.
		I8/ I695	*Clyde Carlingford Rail Bridge abutments*	1 Grand Avenue (north of), Camellia NSW 2142/ Adjacent to 171 Victoria Road	Abuts east of the brine pipeline impact area.
		I54	*Dundas Railway Station Group*	Station Street, Dundas NSW 2117	~60 m east of the brine pipeline impact area.
		I704	*Dwelling*	24 Silverwater Road, Silverwater NSW, 2264	Abuts compound impact area at Deakin Park.
		I291	*Explosives Store*	Avenue of Oceania, Newington NSW 2127	~15 m south-east of river release pipeline impact area.
		I703	*Earnest Fleming Pty Ltd Machinery Merchants*	75-77 Derby Street, Silverwater NSW 2264	~10 north-east of the river release pipeline impact area.
		I677	*Capral Aluminium*	Unwin Street, Rosehill NSW 2142	Abuts south and west of WRRF impact area.
	Ryde Local Environmental Plan 2014	I56	Meadowbank Railway Bridge over Parramatta River	Main North Line 17.500km Bowden Street Meadowbank NSW 2114	~20 m east of the river release pipeline impact area.



KEY

- Impact assessment area
- River release pipeline
- Brine pipeline
- Transfer pipeline

Heritage item

- State Heritage register
- Section 170 Heritage and Conservation Register (TfNSW)

LEP listing

- Conservation Area- general
- Item- general
- Item- archaeological

Existing environment

- Major road
- Named watercourse
- Named waterbody
- Heritage register buffer (100m)

Source: EMM (2025); DCSSS (2024); GA (2009); MetroMap (2024); DPE (2024); Jacobs (2025)

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GDA2020 MGA Zone 56

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Heritage register listings
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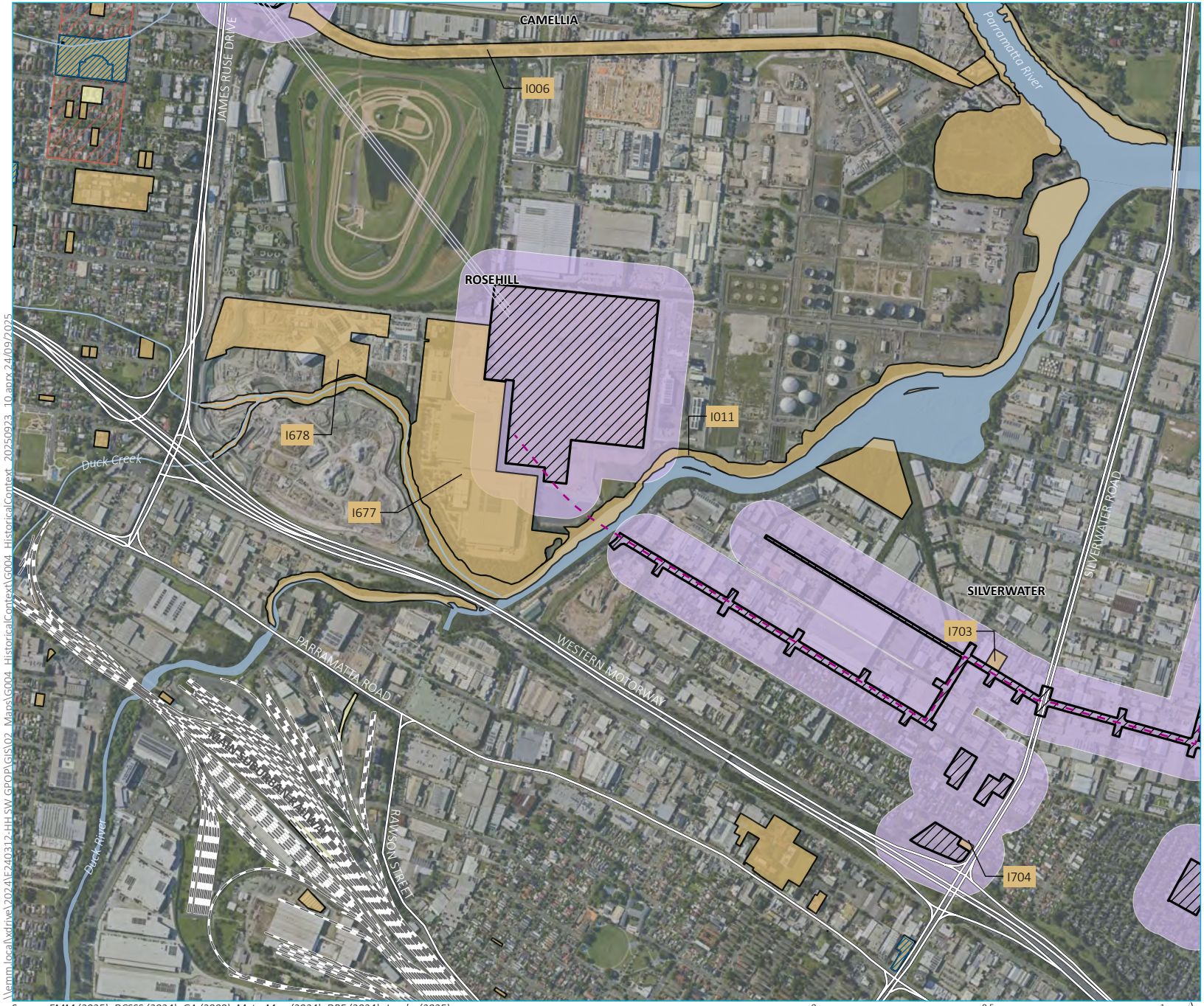
Sydney Water GPOP
Statement of Heritage Impact
Figure 2.1

EMM
creating opportunities



KEY

- Impact assessment area
- River release pipeline
- Brine pipeline
- Transfer pipeline

Heritage item

- State Heritage register

LEP listing

- Conservation Area- general
- Item- general
- Item- archaeological

Existing environment

- Rail line
- Major road
- Named watercourse
- Named waterbody
- Heritage register buffer (100m)

Source: EMM (2025); DCSSS (2024); GA (2009); MetroMap (2024); DPE (2024); Jacobs (2025)

0 0.5 1 km

GDA2020 MGA Zone 56

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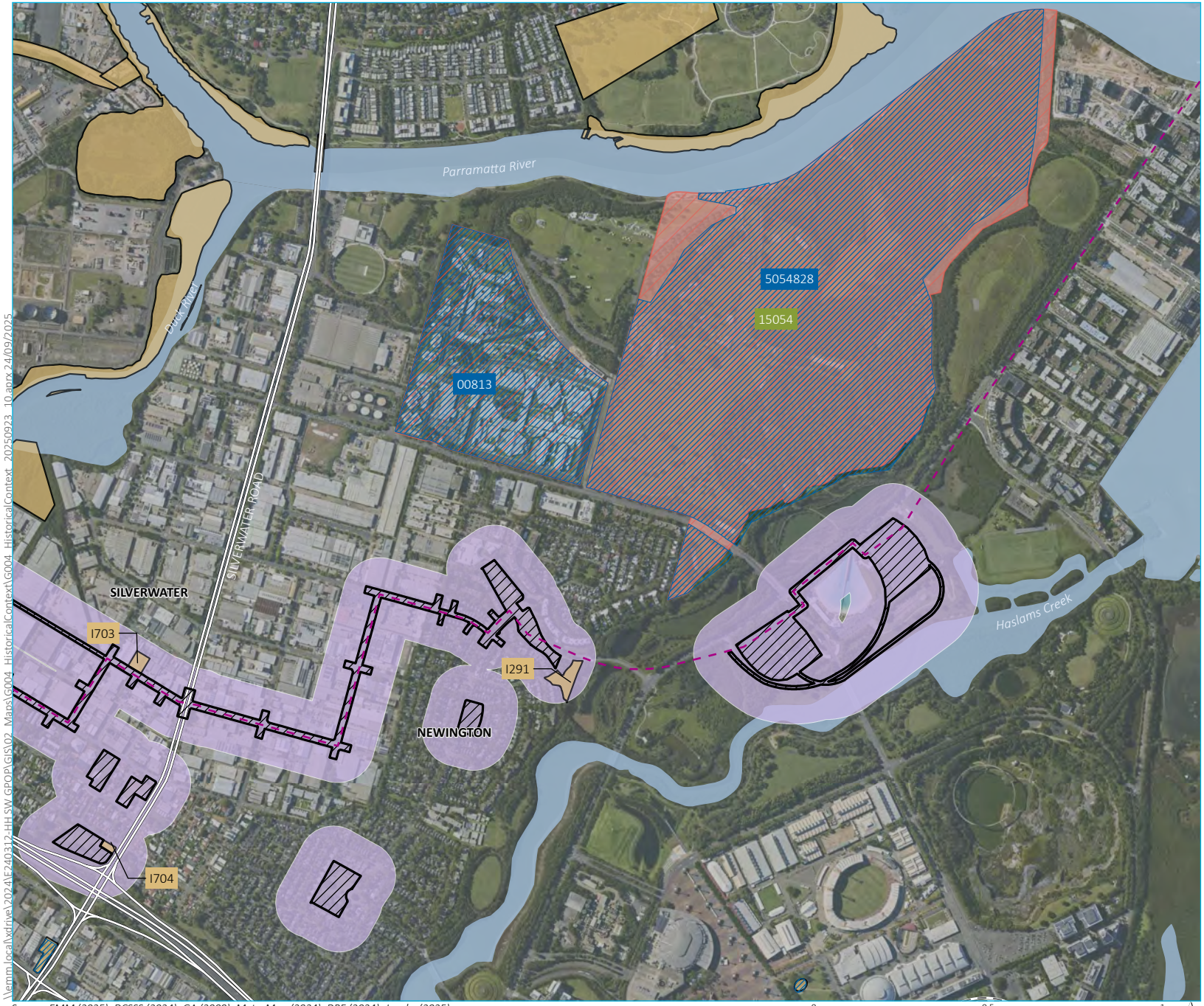
Heritage register listings
Page 2 of 4

Sydney Water GPOP
Statement of Heritage Impact
Figure 2.1

EMM
creating opportunities



KEY

- Impact assessment area
- River release pipeline
- Brine pipeline
- Transfer pipeline

Heritage item

- State Heritage register
- Register of the National Estate (RNE)
- State Environmental Planning Policies (SEPP) Precincts- Central River City) 2021

LEP listing

- Conservation Area- general
- Item- general

Existing environment

- Rail line
- Major road
- Named waterbody
- Heritage register buffer (100m)

Heritage register listings
Page 3 of 4

Sydney Water GPOP
Statement of Heritage Impact
Figure 2.1

Source: EMM (2025); DCSSS (2024); GA (2009); MetroMap (2024); DPE (2024); Jacobs (2025)

0 0.5 1 km
GDA2020 MGA Zone 56

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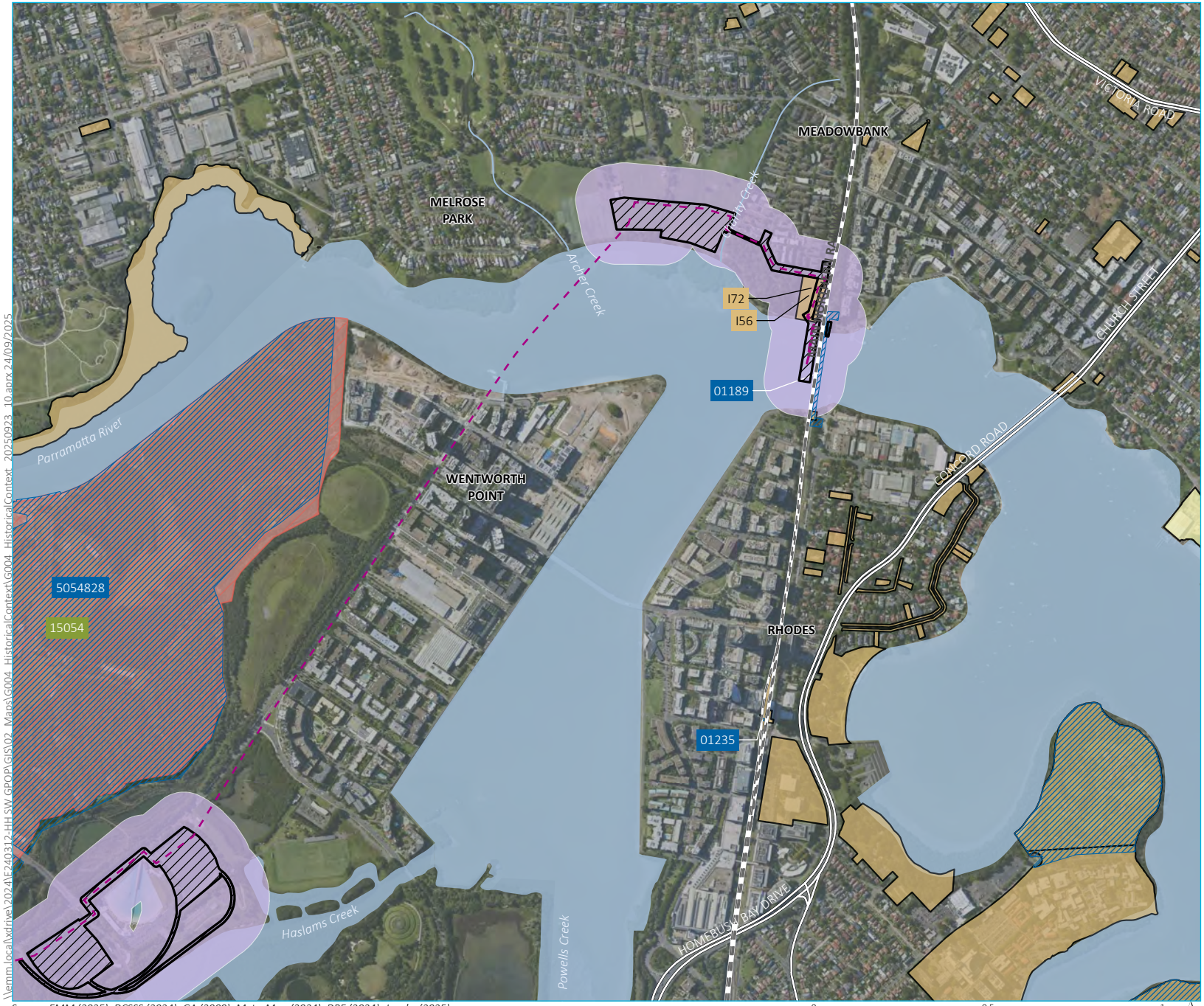

KEY

- Impact assessment area
- River release pipeline
- Brine pipeline
- Transfer pipeline

Heritage item

- State Heritage register
- Register of the National Estate (RNE)
- State Environmental Planning Policies (SEPP) Precincts- Central River City) 2021

LEP listing

- Conservation Area- general
- Item- general
- Item- archaeological

Existing environment

- Rail line
- Major road
- Named watercourse
- Named waterbody
- Heritage register buffer (100m)

Source: EMM (2025); DCSSS (2024); GA (2009); MetroMap (2024); DPE (2024); Jacobs (2025)

0 0.5 1 km

GDA2020 MGA Zone 56

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Heritage register listings
Page 4 of 4

Sydney Water GPOP
Statement of Heritage Impact
Figure 2.1

EMM
creating opportunities

5 Historical summary

5.1 Key findings

The impact area is on the outskirts of the Parramatta Government farm/town, which was established 2 November 1788. The pipeline passes through land that was subdivided into farm estates of varying acreages from 1791. Generally, farming continued on the estates into the 1860s but land on the north bank of the Parramatta River, present-day Rydalmere, was resumed for the Orphan School site. Land use was influenced by the proximity of the Parramatta River, which was a major colonial transport route. The subdivision of the estates over the 1860s and 1880s made way for residential and industrial development, which shaped the landscape into the 1990s. More recently, much of the pipeline route, in particular the WRRF site, has been subject to contamination remediation. The following historical summary demonstrates that although this report is focusing on the impact area's heritage significance, an understanding of the broader regions is required to contextualise it.

5.2 Historical themes

The Australian and NSW heritage systems employ a series of historic themes to guide the understanding of history and historical investigation in the nation and state. As part of any historic heritage assessment, it is important to review the historic themes when undertaking research on an area or place to provide proper context. The state and national themes are complementary to enable the historian to present a unified understanding of how an area fits into Australian history. The historic themes are also an important guide when assessing an item's heritage significance. They provide information on how an item may be historically significant at the local, state or national level.

Finally, historic themes help to develop interpretation and management strategies for items of heritage significance. A full list of these themes can be found on the Heritage NSW website. Historic themes in the impact area were identified based on the historical background (as described below) and the results of the historical survey (Section 5.3). The Australian and NSW historic themes relevant to the impact area that have been used in this report are listed in Table 5.1.

Table 5.1 Historical themes

Australian historic themes	NSW historic themes
1. Tracing the natural evolution of Australia	Environment – naturally evolved
2. Peopling Australia	Aboriginal cultures and interactions with other cultures; Convict; Migration
3. Developing local, regional and national economies	Agriculture; Commerce; Environment – cultural landscape; Events; Industry; Pastoralism; Science; Technology; Transport
4. Building settlements, towns and cities	Towns, suburbs and villages; Land tenure; Utilities;
5. Working	Labour
6. Educating	Education
7. Governing	Defence; Welfare
8. Developing Australia's cultural life	Domestic life; Leisure; Social institutions; Sport;

5.3 Historical context

5.3.1 The environment of pre and early contact

Over thirty separate Aboriginal groups are known to have populated the wider Sydney Basin in 1788, each with their own country, practices, diets, dress, and dialects. The impact area is in the country of the Burramattagal Darug (Dharug, Daruk) people, whose territory encompassed the head of the Parramatta River (Kass, Liston, and McClymont 1996:5–6, Tindale 1974:193). The river, and its surrounding woodland and waterways, offered a wide range of terrestrial and aquatic resources to support the lifeways of the Burramattagal (Kass et al. 1996:6).

Within months of the First Fleet landing at Port Jackson shrinking food supplies and unsuccessful attempts establishing agriculture compelled the British colonisers to look for land beyond Port Jackson (Kass et al. 1996:9). In April of 1788, Governor Phillip led an expedition west along the Parramatta River in search of arable ground (Kass et al. 1996:9). On the 24 April 1788, the party arrived at The Crescent (present-day Parramatta Park) and saw before them thousands of acres of arable land and the future of a successful colony (Kass et al. 1996:12).

On the 2 November 1788 the new land was claimed with the construction of an earthwork fortification on east side of The Crescent, south of the river (Collins 1792). Marines and convicts began the marking out and construction of the settlement of Rose Hill with the land surrounding the rudimentary settlement set aside as a Government farm (Collins 1792, Kass et al. 1996:14–16). The impact area is located east of the Government Farm (Plate 5.1). A plan of the Parramatta River from 1789 shows the impact area was not settled at this time, however, a bridge is marked over a no longer extant section of A'Becketts Creek, which appears to be in the vicinity of the present-day Rosehill Gardens Racecourse Plate 5.1.

By 1790, the township at Rose Hill was taking shape, and in 1791, the settlement was renamed Parramatta, after the Burramattagal place name meaning "head of a river." (Kass et al. 1996:18–20). Over the next few years transport to and from Parramatta by boat and road was improved and the population of the settlement grew steadily (Kass et al. 1996:42). In addition, free settlers and soldiers were granted farms along the Parramatta River and its tributaries (Kass et al. 1996). The impact area was subdivided into farms of varying acreage and taken up from 1791. The following section explores the history of the impact area by geographic location as the scheme passes four landforms separated by the Parramatta and Duck Rivers.

With indicative pipeline alignment. The blue arrow shows the location of a bridge in the vicinity of the impact area.

Source: State Library of NSW, Call: M SAFE/MT4 140/1792/1. By William Bradley.

Plate 5.1 Detail of the 1789 "Flats at the head of Port Jackson & channel up to Rose Hill"

5.3.2 Development of Rydalmere

The indicative brine pipeline transitions between the NSOOS and the Pumping Station 67, from a sewer line, north of Kissing Point Road, south along Rippon Road and Railway Street to the Parramatta River. This portion of the pipeline passes through two free settler farm grants located on the west and east side of Vineyard Creek, which were later developed as social institutions and suburban subdivisions (Plate 5.2).

i The Vineyards and Subiaco

A 140 acre (56.7 ha) parcel of land granted to free settler Philip Schaeffer (also Schaffer) in 1792 is located on the east side of Vineyard Creek, opposite the Orphan School site (Archaeological Management & Consulting Group Pty Ltd 2004:14). Schaeffer had occupied the property from March 1791, and he named the farm The Vineyard (AM&C Group 2004:14). Watkin Tench visited the farm in December 1791 and noted Schaeffer had a hut but a "good brick house" was also under construction (AM&C Group 2004:14–15). It is likely other huts were present on the property as Schaeffer was assigned convict labourers to work the grant (AM&C Group 2004:14–15). In addition, Schaeffer had 14 acres (5.7 ha) under cultivation and was growing maize, wheat and tobacco, as well as 900 wine grape vines, which produced the first wine in the colony in 1795 (AM&C Group 2004:14). Both Vineyard Creek and Subiaco Creek bordered the grant, (possibly historically Schaeffer's Creek) were named after Schaeffer's property (AM&C Group 2004:14).

Schaeffer's property was linked to the Parramatta commissariat store via two informal trackways (Kass et al. 1996:33–34). The first, on the north boundary of the property was surveyed by James Meehan in 1806 and became known as the High Road before it was extended to Ryde (Kissing Point) in 1813 and was renamed Kissing Point Road (Kass et al. 1996:33–34). The second track was south, towards the River and cut through both The Vineyard Estate and the Orphan School property (Kass et al. 1996:33–34). The south route was incorporated into Victoria Road in the 1870s (Kass et al. 1996:33–34).

Schaeffer sold the Vineyard estate to Henry Waterhouse in 1797, who in the previous year had brought the first merino sheep to the colony (AM&C Group 2004:14). Waterhouse grazed his flock on the Vineyard estate and supplied settlers with merino lambs (AM&C Group 2004:14). In 1800, Waterhouse left for England so leased the property to William Cox, who had acquired small grants north of Kissing Point Road and established Brush Farm (Kass et al. 1996:53). Despite holding Brush Farm, the Cox family lived at the Vineyard until acquiring Canterbury Estate later that year (Kass et al. 1996:53). The Vineyard estate was then leased to Gregory Blaxland before Hannibal Hawkins Macarthur purchased the property in 1813 (Kass et al. 1996:21).

Under Hannibal Macarthur's ownership The Vineyard was initially used as an extension of John and Elizabeth Macarthur's merino farming venture (Nairn 1967). Sheep were grazed on the property and John Macarthur assigned his nephew Hannibal to assist Elizabeth in the management of the flocks and wool business during his absence (Nairn 1967). John returned in 1817 and Hannibal developed his own farming interests while also working as a merchant (AM&C Group 2004:16). In 1822, Hannibal was granted an additional 160 acres (64.7 ha) east of the property, which was incorporated into the estate (AM&C Group 2004:16). In 1833, Hannibal Macarthur commissioned John Verge to design a new house for The Vineyard, which was completed in the neo-classical style (Kass et al. 1996:94). Prior to this, the Macarthur's were residing in Vineyard Cottage (AM&C Group 2004:16). The 1844 plan of the north side of the Parramatta River shows The Vineyard estate homestead was located at the Junction of the Parramatta River and Vineyard Creek and included four brick/stone structures surrounded by a circular road/carriageway (Plate 5.3). The homestead itself is set in a wooded landscape, and a large, fenced garden was north of the homestead, on the banks of Vineyard Creek. A weatherboard "lodge" is marked along the access road running north/south in the centre of the property and two unmarked weatherboard structures are on Kissing Point Road. A wharf is also located south of the homestead group (Plate 5.3).

Hannibal Macarthur was affected by the 1840s economic depression and the family was forced to mortgage the Vineyard Estate in 1843 (AM&C Group 2004:16). In 1844, the mortgage passed to Philip Parker King and the property was sold to Thomas Icely for £4,500 in July 1848 (AM&C Group 2004:16; *Sydney Chronicle*, 11 July 1848:11). The estate was purchased by Archbishop John Bede Polding in late 1848. Polding established a convent for the Benedictine Order on the estate and renamed the property Subiaco (AM&C Group 2004:17). The convent supported itself through the production of communion wine and a girl's school was opened on the site in 1851 (AM&C Group 2004:17). The school operated on the site until 1925 and the convent closed in 1957 (AM&C Group 2004:17).

In 1886, Thomas O'Neill purchased portions of the old Vineyard Estate between Spurway Street to Park Road and subdivided the land for sale (Kass et al. 1996:228). O'Neill's subdivision was known as Rydalmere and the locality became known by that name (Kass et al. 1996:228–230). Small orchards and poultry farms were established over the subdivision and the area retained an agricultural focus into the twentieth century (AM&C Group 2004:13, Kass et al. 1996:230). The Carlingford, Castle Hill and Dural railway extension was constructed north/south through the Orphan School and old Vineyard Estate area in 1896, and Rydalmere station was built between Vineyard Creek and Victoria Road (Kass et al. 1996:242). Further subdivision occurred over the former Vineyard Estate in the 1920s with the Catholic Church retaining only 6 acres (2.4 ha) around Subiaco/Vineyard House for the convent (AM&C Group 2004:17). The 1943 aerial photograph of the north side of the River shows Subiaco at the junction of the Parramatta River and Vineyard Creek (Plate 5.4). The current streets were present as dirt roads north of the Subiaco building group and small residential lots were dotted over open land south of Victoria Road, with houses and farms becoming denser towards Kissing Point Road. Residential development of Rydalmere intensified after the Second World (AM&C Group 2004:13).

Following the closure of the convent, Subiaco was converted to a boys school between 1958 and 1961 (AM&C Group 2004:17). In 1952, Rheem (Australia) Pty Limited purchased a large portion of land in the vicinity of Subiaco and established a metal container manufacturing plant (AM&C Group 2004:17). The company purchased Subiaco in 1961 and all buildings were demolished (Kass et al. 1996:94). At present, Schaeffer's grant contains a mix of industrial estates, commercial, and residential premises.

With the currently existing pipeline alignment. The blue arrow shows a dam on Vineyard Creek and the white arrow shows the site of a "Bathing House".

Source: HLRV

Plate 5.2 Undated plan of the Field of Mars Parish (likely post-1850s).

With pipeline alignment. The Orphan School is shown by the blue arrow and elements of The Vineyard Estate are shown with white arrows.

Source: State Library of NSW, Call: M4 811.1301/1844/1

Plate 5.3 ***Plan of the town of Parramatta and the adjacent properties*, W. Meadows Brownrigg surveyor, 1844 [1971 facsimile].**

With the currently existing pipeline alignment. The Orphan School/Rydalmere Hospital is shown by the blue arrow and the Vineyards/Subiaco is shown by the green arrow.

Source: SixMaps.

Plate 5.4 1943 Aerial photograph of the north-side of the Parramatta River showing the development of the Orphan School/Rydalmere Hospital and The Vineyards/ Subiaco.

ii Female Orphan School and the Rydalmere Hospital Precinct

The current route of Railway Street and the existing brine pipeline to be refurbished passes through the 60 acres (24.28 ha) officially granted to surgeon Thomas Arndell in 1792 (Tanner & Associates Pty Ltd 2000:1). Arndell occupied the property, which he called Arthur's Hill, from early 1791 but was not granted the land title until he retired from government service (Tanner & Associates Pty Ltd 2000:1). By October 1792, Arndell and his family were residing in a hut on the property and had 18 acres (7.3 ha) under cultivation (Tanner & Associates Pty Ltd 2000:1). Bushfires in December of the same year destroyed the farm, and although Arndell held the grant until 1804, it is not clear if the family continued to occupy and farm the land (Casey & Lowe Associates 1997:1).

Captain Philip Gidley King, Governor from 1800 to 1806, established an orphanage for girls in Sydney in 1801 (Kass et al. 1996:58). By 1803, the orphanage had outgrown its George Street premises and King aimed to establish a larger institution at Parramatta (Kass et al. 1996:58–59). Arndell's grant was resumed for the site of future orphanage in 1804 and Arndell was gifted a new grant in Baulkham Hills in return (Casey & Lowe Associates

1997:1). A lack of funds, however, meant the orphanage was never established under King's governorship (Kass et al. 1996:58–59). In 1810, Governor Macquarie revitalised the orphanage scheme by diverting customs revenue, as well as raising import taxes on spirits and the price of publicans licences to fund orphan and charity schools in the colony (Tanner & Associates Pty Ltd 2000:3).

Work began on the construction of the Female Orphan School in September 1813 (Kass et al. 1996:79). The building, designed by Mrs Macquarie based on her family home, was constructed on high land of Arndell's grant overlooking the Parramatta River (Plate 5.5) (Kass et al. 1996:79–80). The central brick and sandstone building was constructed in the Colonial Georgian Regency architectural style and featured a three-storey central block flanked by two horizontal wings (Kass et al. 1996:79–80). Other buildings in the precinct included a kitchen, bakehouse, pantry and fowl house in the east yard, and an enclosed bleaching yard and fowl house in the west yard, as well as cow sheds away from the main buildings (Tanner & Associates Pty Ltd 2000:7). A carriage circle was built on the river-side of the central building and land between the school and river was landscaped with stone steps leading to the river (Kass et al. 1996:80). The Female Orphan School was opened in 1818 and the 70 girls at the George Street institution were transferred to Parramatta (Tanner & Associates Pty Ltd 2000:4).

Additional building works including extensions, additions, and the installation of a water supply/drainage system occurred across the Female Orphan School site through the 1820s (Tanner & Associates Pty Ltd 2000:7). In 1833, Macquarie resumed a further 50 acres (20 ha) north of Arndell's grant as a pasturage reserve for the Orphan School (Plate 5.2) (Tanner & Associates Pty Ltd 2000:7). A plan of the north side of the Parramatta River from 1844 does not show the structures of the Female Orphan School in any detail but the plan does indicate Vineyard Creek had been dammed in multiple places to create a freshwater reservoir (Plate 5.6).

The Female Orphan School was renamed the Protestant Orphan School in 1850 as boys were transferred from the Boys Orphan School at Bonnyrigg to Parramatta (Casey & Lowe Associates 1997:1, Tanner & Associates Pty Ltd 2000:12). The orphan school precinct was modified to accommodate both sexes and outbuildings were added, rebuilt and adapted including a bathing house on the River (Plate 5.2), hospital and drill masters block, laundries, kitchens, engine house, storerooms, cow sheds, dam, bread ovens, pump house, bathrooms, cart shed and school rooms (Casey & Lowe Associates 1997:1, Tanner & Associates Pty Ltd 2000:15). The majority of additions were built north of the 1818 structures, towards Victoria Road (Casey & Lowe Associates 1997:4). The Orphan School building group is shown in an illustration of Parramatta from 1877 (Plate 5.7). The impact area is outside of the image; however, it appears the land east of the school was at least partially forested. Changing legislation led to the closure of the Orphan School in 1877 (Tanner & Associates Pty Ltd 2000:15).

After the 1886 annexation and subdivision of the east portion of the site, in 1888, the Orphan School site was approved to be used as a branch of the Parramatta Hospital for the Insane and was named Rydalmere Hospital for the Insane (Tanner & Associates Pty Ltd 2000:28–29). The buildings were repaired and altered to make the site suitable for 200 patients (Tanner & Associates Pty Ltd 2000:28). Moreover, construction began on new buildings including open wards and common facilities centred around courts, green areas and vistas, which aligned with changing mental health treatment philosophies over the late nineteenth and early twentieth centuries (Casey & Lowe Associates 1997:4). A sketch plan of the hospital, likely from the early twentieth century, shows the main hospital buildings centred around the Old Orphan School precinct (Plate 5.7 and Plate 5.8). An orchard, farm buildings and cricket pitch were to the north and additional grazing paddocks and farm buildings were located north of Victoria Road. The layout on the plan aligns with buildings seen in the 1943 aerial photograph of the area (Plate 5.4) The hospital was renamed Rydalmere Psychiatric Hospital in 1945 (Casey & Lowe Associates 1997:1). The next period of major development of the Hospital came in the 1950s and 1960s as new buildings were added to upgrade the site to contemporary healthcare standards and the old Orphan School buildings were abandoned c.1969 (Casey & Lowe Associates 1997:4–5). The Hospital was closed in 1988 (Casey & Lowe Associates 1997:1).

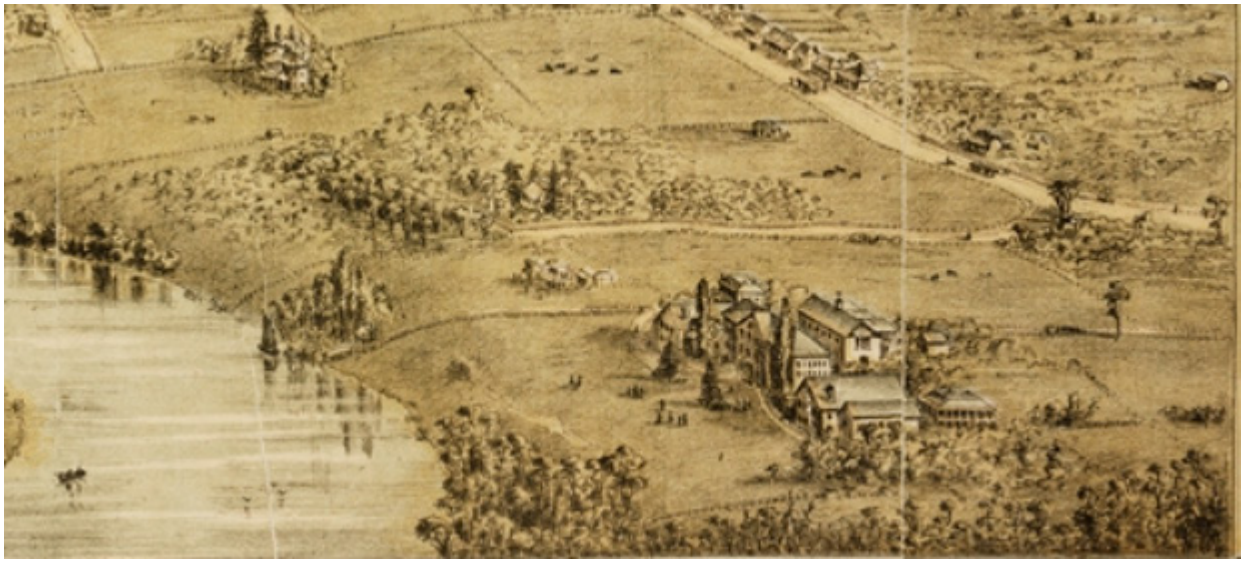
In 1993, the land between the Parramatta River and Victoria Road was acquired by the University of Western Sydney (Tanner & Associates Pty Ltd 2000:36). The Orphan School and hospital buildings were renovated into teaching spaces and offices and the university campus opened in 1998 (Tanner & Associates Pty Ltd 2000:36). The area north of Victoria Road has been developed as a mixed education and residential area.

Table 5.2 Historical Timeline of the Parramatta Orphanage and Rydalmere Hospital

Year	Event
1800 & 1810	The Parramatta site was selected for orphanage use
1810	Tender for building called for
1813	Foundation stone laid
1818	Construction finished
1820	Work on the new facilities commences
1826	The garden was said to consist of six acres and was well stocked with vegetables
1829	A new kitchen and storeroom constructed
1830/1831	More additions and renovations
1854	Hospital built
c.1868	New kitchen constructed; by 1870 a meat shed was attached
1870	Twenty figs and twenty pines sent to the school from Royal Botanic Gardens
1870s	Program of additions and renovations carried out
1882	Forty-bed dormitory constructed
1888	Site transferred to the Department of Lunacy
1891	Site granted independent status and renamed Rydalmere Hospital
1893 & 1896	Royal Botanic Gardens sent trees and shrubs for planting
1895	New boat shed and landing stage constructed
1905	New stair block added to the central block
1909	Ward built to adjoin the former Drill Master's residence
1926	• Former hospital extensively remodelled • Additions made to the Master's residence and Chief Attendant's Cottage
1938	Veranda and balcony added to former hospital
Post WWII	Service building constructed to the north; new administrative and recreational facilities in the centre of the site
1948	Dayroom built at the corner of the former hospital
1950s & 1960s	Additions and alterations made to some buildings which considerably changed their form and appearance
1957	Porch added to hospital
1959	South facade of hospital obscured by the construction of a ward
1960s & 1970s	Further planting of more informal natives
1969	Central building closed
1975/76	National Estate Program funding of $24,000 to restore roof of female orphan school (total cost c$60,000); Restoration of brickwork and removal of redundant structures; Preparation of CMP
1985 onwards	South campus at Rydalmere progressively closed
1993+	Site undergoing refurbishment to house the University of Western Sydney

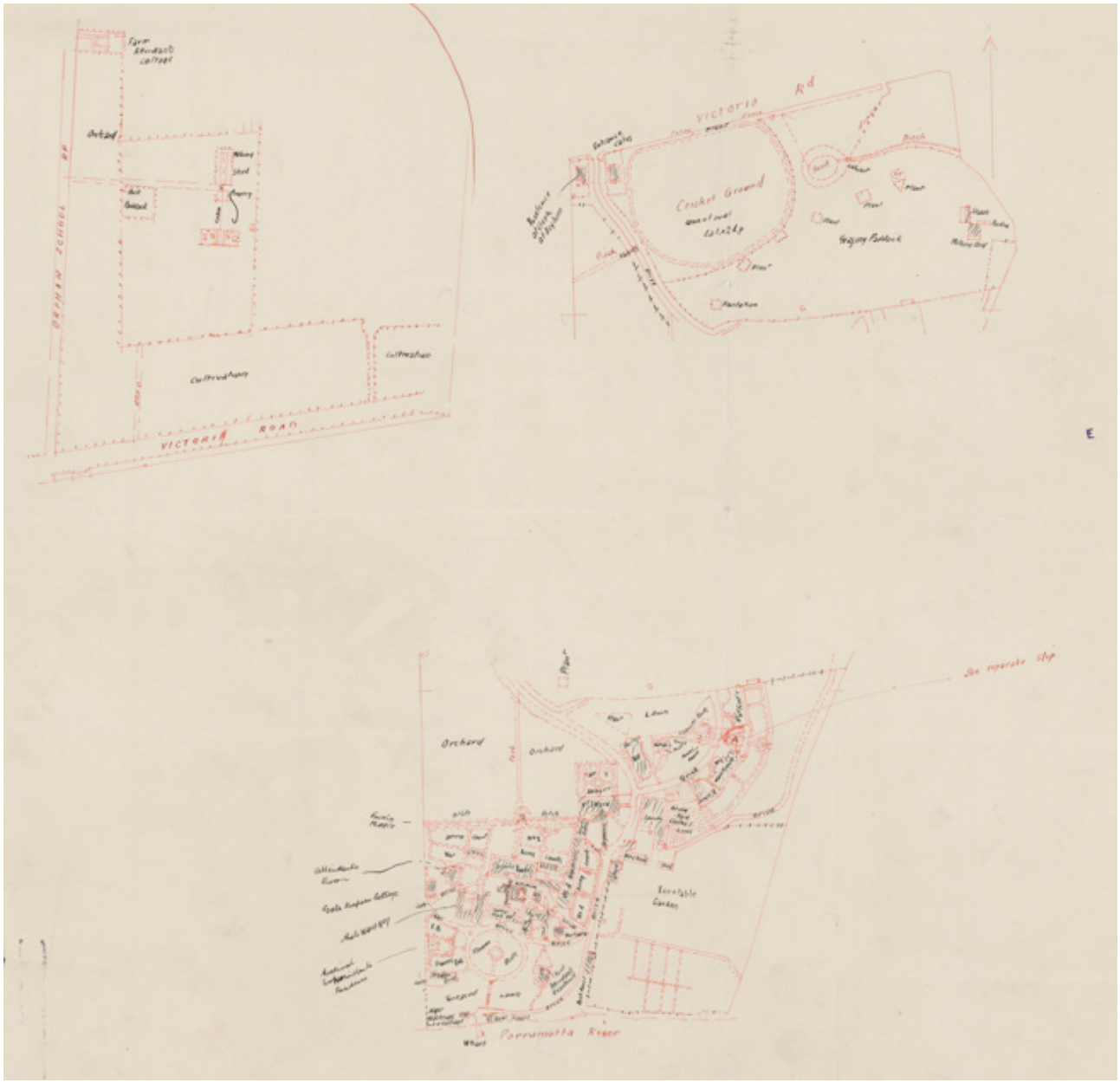
Source: State Library of Victoria, Call: RARELTEF ; 919.402 L98V

Plate 5.5 ***View of the Female Orphan School, Near Parramatta, New South Wales*, Joeseph Lycett, 1825.**



Source: State Library of NSW, Call: 1877 XV1B/Parr/1

Plate 5.6 **Detail of the Orphan School from *Town and district of Parramatta. New South Wales: Bird's eye view and insets of buildings*, Gibbs, Shallard & Co., 1877.**



Source: State Library of NSW, Call: 013 - Z/SP/R19/13

Plate 5.7 ***Sketch plans of Hospital for the Insane Rydalmere - Victoria Rd, Orphan School Rd*, c.1882-1924.**

With the currently existing pipeline alignment.

Source: State Library of NSW, Call: 013 - Z/SP/R19/13.

Plate 5.8 Detail of the main hospital precinct from *Sketch plans of Hospital for the Insane Rydalmere - Victoria Rd, Orphan School Rd*, c.1882-1924.

iii Dundas Railway Station

The Dundas Railway Station group is located south of Kissing Point Road and is c.60 m south of the start point of the indicative brine pipeline. The station is located on the north boundary of the 140 acre (56.7 ha) land parcel granted to Philip Schaeffer in 1792 (see Section 5.3.2i) (NSW Land Registry Service n.d.). The station was opened as *Kissing Point Road Station* on 20 April 1896 and was part of the Bennett and Simpson's private railway (Parramatta History and Heritage 2019). The first phase of the Bennett and Simpson's private railway was constructed by Rosehill Gardens Racecourse owner John Bennet in 1888 to bring patrons from Clyde Station to the racecourse (SHI SHR #01133 *Dundas Railway Station*). The railway line was extended over 1890s to serve the surrounding orchards and subdivisions (SHI SHR #01133 *Dundas Railway Station*). The railway line was taken over by the New South Wales Government in 1901 and was renamed Dundas Station (NSW Land Registry Service n.d.).

Dundas Station was destroyed by fire in 2006 but was reconstructed following its original design the following year (NSW Land Registry Service n.d.).

5.3.3 Development of Parramatta River, Duck River, and tributaries

The Parramatta River was one of the primary highways of the New South Wales colony until the coming of the railway in 1855 (Tanner & Associates Pty Ltd 2000:1). People and goods travelled to and from Sydney along the Parramatta and Duck Rivers and their tributaries with landing places, including docks and wharves, located along the waterways (Kass et al. 1996:152). Historical plans of the Parramatta River depict these landing places, including a wharf on The Vineyards peninsula in 1844 (Plate 5.3). A dock that was used as a terminus for the Parramatta township at low tide was also located at Redbank, opposite of The Vineyards Estate

(Kass et al. 1996:152). Ferry traffic had reduced by 1859 but the waterways remain transport routes into the present (Kass et al. 1996:152).

The Parramatta River and surrounding waterways have been used as a transport route since the explorations in 1788. Moreover, the banks of the Parramatta River and its tributaries have a long history of settlement and development. Even so, sections of remnant native mangroves and salt marshes survive along the Parramatta River, Duck River, Vineyard Creek, and Subiaco Creek (SHI PLEP 2023 I011 *Wetlands*). These portion of remnant wetlands are representative of the pre-European landscape of the foreshores and tidal water flats of the Parramatta region.

i Clyde Carlingford Rail Bridge

The cessation of convict transportation to New South Wales in 1840 led to two decades of population and economic stagnation for Parramatta (Kass et al. 1996:133). In the late 1840s, however, plans were underway for the construction of a railway line from Sydney through the County of Cumberland, which was to terminate at Parramatta (Kass et al. 1996:133). The railway line was opened in September of 1855 but Parramatta station was relocated during works to extend the trainline to Blacktown in 1860 (Kass et al. 1996:155).

The estates east of the Parramatta township were subdivided over the 1880s for suburban and industrial development, which led to the expansion of transport routes across the Parramatta region (Kass et al. 1996:270). In 1895, the Rosehill railway line was constructed from Clyde to Carlingford (Kass et al. 1996:270). As part of the extension, a brick rail bridge was built across the Parramatta River (SHI PLEP 2023 #I008 and #I695 *Clyde Carlingford Rail Bridge abutments*). The existing brine pipeline to be refurbished traverses the Parramatta River in the location of the Clyde Carlingford Rail Bridge.

5.3.4 Development of Camellia and Rosehill

The indicative brine pipeline crosses the Parramatta River and continues south through the Camellia/Rosehill peninsula. The indicative brine pipeline meets the indicative transfer main at the SP0067 sewage pumping station and both pipelines terminate at the WRRF. The indicative river release pipeline travels south from the facility and crosses Duck River. The Camellia/Rosehill peninsula was taken up as part of Macarthur's *Elizabeth Farm* grant, with land later subdivided for Rosehill Gardens Racecourse and industrial development.

The first European settler on the Camellia/Rosehill peninsula was Charles Williams, also known as Christopher Magee/Mcgee, who was granted 30 acres (12.1 ha) on the south bank of the Parramatta River in 1891 (Archaeological and Heritage Management Solutions Pty Ltd 2009:12). Williams/Magee established a small farm in the vicinity of Camellia Railway Station and grew maize, wheat and tobacco (AHMS 2009:12). Ensign William Cummings was granted 25 acres (10.1 ha) on the south bank the following year (AHMS 2009:12). Williams/Magee's wife, Eleanor and child died in a boating accident on the Parramatta River in 1793 and their grave is located on Grand Avenue, Camellia, east of the pipeline route approximately 160 m south of the Clyde Carlingford Rail Bridge (AHMS 2009:12). Cummings later purchased the Williams/Magee property and by 1794 had extended his holdings to 200 acres (80.9 ha) (AHMS 2009:12, Parramatta History and Heritage 2020a).

John Macarthur was granted 100 acres (40.4 ha) on the south side of the Parramatta River in February 1793 (AHMS 2009:12). Macarthur built a brick farmhouse, now located on Alice Street, and set about expanding his *Elizabeth Farm* estate (AHMS 2009:12, Parramatta History and Heritage 2020c). The impact area passes through the 850 acres (344 ha) between Clay Cliff Creek and the Parramatta/Duck River junction that was purchased by Macarthur and incorporated into *Elizabeth Farm* in October 1816 (Plate 5.9) (AECOM Australia Pty Ltd 2018:10). By the 1820s, the *Elizabeth Farm* estate covered over 1000 acres (400 ha) (Parramatta History and Heritage 2020c). The Macarthur's cleared portions of the estate for growing corn, wheat, and potatoes, as well as grazing cattle, goats, pigs, and famously Merino sheep (AHMS 2009:12). The location of the farm on the peninsula allowed the Macarthur's to selectively breed their Merino flock without interference from free roaming outside stock (Kass et al. 1996:205). John Macarthur died in 1834 and the estate continued to be overseen by the

Macarthur family until the 1880s (Bravery 1996:6). From 1850, portions of *Elizabeth Farm* were leased to various tenants, including the Macarthur's gardener, Silas Sheather, who received 3 acres (1.2 ha) on the Parramatta River in 1852 to establish a plant nursery that became knowns as Camellia Grove Nursery (Bravery 1996:6, Parramatta History and Heritage 2020a).

Reuss and Browne's 1859 plan of Parramatta shows the extent of development across *Elizabeth Farm* (Plate 5.10). It appears the impact area was likely used for grazing or agriculture with portions of the peninsula cleared of native flora. It must be noted, however, the area without trees may not have been cleared but left blank on the map to ensure legibility of text. Vegetation survived around the riverbanks and salt marshes were located at the Parramatta River/Duck River junction. Four features were recorded along the south bank of the Parramatta River (Plate 5.10). Moving west to east, Sheather's nursery is shown as a fenced enclosure adjoining a road to the south, and a wharf is east of the nursery. A cottage group is at the curve of the river and a fenced enclosure with building is shown toward the Parramatta/Duck River junction. In addition, a track passes through the impact area from the *Elizabeth Farm* homestead, north-east to the enclosure. Sheather's nursery is also shown on depiction of the south bank of the Parramatta River from 1877 (Plate 5.11). A second cottage is visible east of Sheather's property, but it is not clear if this is the cottage shown on the map of a new tenant farm. Although the riverbank has been partially cleared around the buildings, the land south is shown to still be densely forested.

Elizabeth Farm estate was purchased by Septimus A. Stephen in 1881 and 850 acres (344 ha) were subdivided for sale in 1883 (Bravery 1996:7, Parramatta History and Heritage 2020c). A portion of 140 acres (56.7 ha) in the subdivision area was reserved for recreation (Parramatta History and Heritage 2020c, 2020a). Silas Sheather purchased the nursery lot in 1889 and the remaining subdivision lots were purchased for industrial purposes over the late nineteenth and early twentieth century and the peninsula retained its industrial landscape into the 2010s (Parramatta History and Heritage 2020c, 2020a). Late nineteenth and twentieth century industrial activity on the Camellia/Rosehill peninsula included tanning and boot making, seed crushing plant, a slaughter yard and meat processing plant, James Hardie Company asbestos-cement product factory, Australian Cream Tartar factory, paint factory, Goodyear Tyre and Rubber factory, and an oil refinery (Parramatta History and Heritage 2020a).

The following section presents an overview of items of the heritage and historical significance in the impact area.

With indicative pipeline alignment.

Source: HLRV.

Plate 5.9 Undated plan of the Saint John Parish (pre-1861).

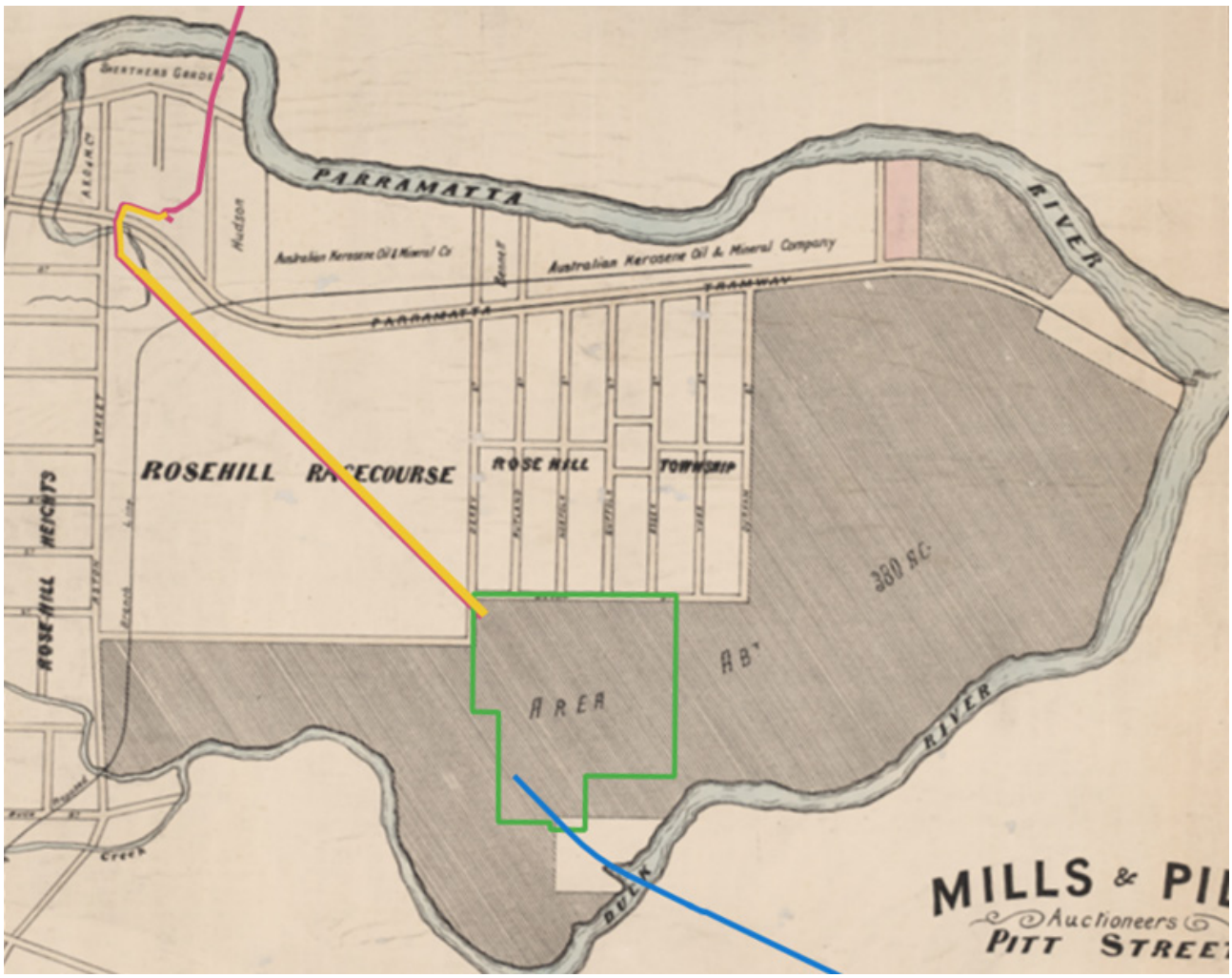
With indicative pipeline alignment. Marked features are shown by the blue arrows.

Source: State Library of NSW, Call: 1859 Z/M3 811.13gbbd/1859/1, Maps/0313

Plate 5.10 Reuss and Browne's map of the subdivisions of Parramatta and environs, 1859.

Source: State Library of NSW, Call: 1877 XV1B/Parr/1

Plate 5.11 Detail of the farms on the south-side of the Parramatta River opposite the Orphan School from Town and district of Parramatta. New South Wales: Bird's eye view and insets of buildings, Gibbs, Shallard & Co., 1877.



With indicative pipeline alignment.

Source: National Library of Australia, Call: MAP F 158

Plate 5.12 Detail of the Elizabeth Farm subdivision plan, Mills & Pile Auctioneers, c.1900.

i Tram alignment

From 1867, freeholders, leaseholders and business holders petitioned the Government to build a road through the Macarthur estate to allow free movement of people and goods to Parramatta from Redbank Wharf at the Parramatta/Duck River junction (Kass et al. 1996:205). Redbank Wharf had been constructed in 1846 as a low-tide dock for steamer ships over four-foot and the Macarthur's initially allowed public carriages to pass through the *Elizabeth Farm* estate along a track that ran along Parramatta River (Kass et al. 1996:152, 205). But the Macarthur's soon became concerned as ferries were unloading at all tides increasing the traffic of people through their property (Kass et al. 1996:205). In addition, ferry companies had begun transporting heavy goods along the road instead of unloading at the Queen's Wharf, George Street east (Kass et al. 1996:205). As a result, the Macarthur's restricted access to the road (Kass et al. 1996:205). A petition to the Government was successful and a road was planned, but never built (Kass et al. 1996:206).

In 1875, Charles Jeanneret purchased both the Parramatta River Steam Company and Parramatta and Hunter's Hill Steam Ferry Company, consolidating the companies under the name the Parramatta and River Steamers (Kass et al. 1996:206). From 1870, companies had requested that passenger steamers and luggage be excluded from wharfage dues when disembarking at the Queen's Wharf and, while some owners were able to find work arounds, Jeanneret did not have alternatives prior to establishing his company (Kass et al. 1996:206). Following the establishment of the Parramatta and River Steamers company, Jeanneret leased land from the Macarthur

estate and built a new deep-water wharf at the Redbank Wharf site (Kass et al. 1996:206). Jeanneret also petitioned the Government to construct a private tramway from the new wharf to the Parramatta town centre, which was approved by a special Act of NSW Parliament in 1881 (Kass et al. 1996:241).

The private tramway was built between 1883 and 1884 (Kass et al. 1996:241; *The Sydne*y *Morning Herald*, 2 October 1883:5). The track measured 2.6 m in width and travelled from the wharf, west along George Street to a terminus at the Domain Park Gates, O'Connell Street (Kass et al. 1996:241). The tramway route through the Camellia/Rosehill peninsula is shown in Plate 5.12. From 1884, eight passenger steamers travelled between Sydney and Redbank Wharf daily and passengers were transferred to Parramatta via the tramway (SHI PLEP 2023 #I6 *Tram Alignment).* After the tramway opened in 1884, the Parramatta River was dredged allowing access to Queen's Wharf during low tides and creating a more direct between route between Sydney and Parramatta (Kass et al. 1996:241). Nevertheless, steamers continued to frequent Redbank Wharf until 1928, when passenger ferries stopped serving the west of the Parramatta River west of Meadowbank (SHI PLEP 2023 #I6 *Tram Alignment)*.

ii Sewage pumping station (Lot 2 DP1248546)

The location of Parramatta on low-lying land on a river meant drainage and waste management were concerns for government officials from the founding of the settlement (Truman Zaniol & Associates 2009:8). Convict teams were employed to build brick drains to channel stormwater and sewage into the Parramatta River (Truman Zaniol & Associates 2009:8). In the late nineteenth century, increasing issues caused by river pollution led the Parramatta Council to upgrade the township's sewage system (Truman Zaniol & Associates 2009:9).

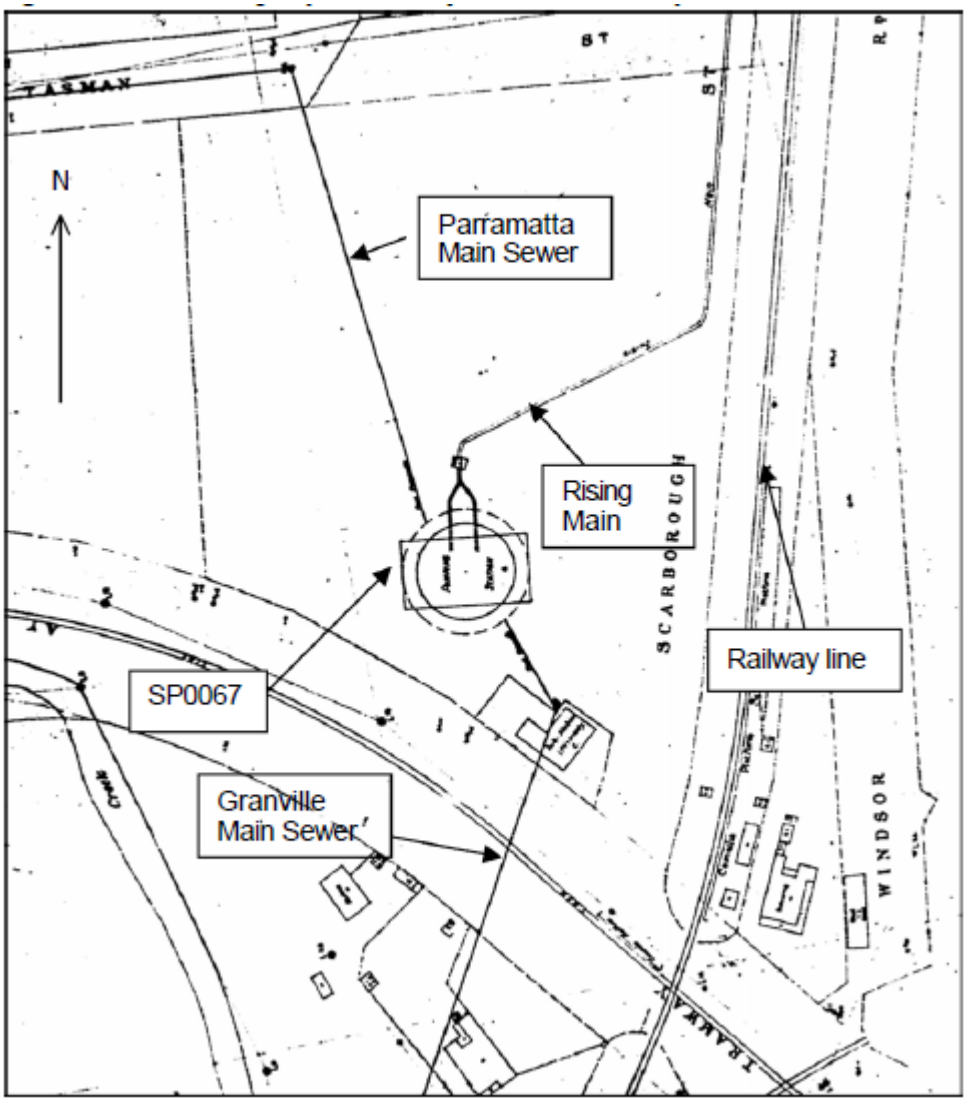
In 1891, approximately 62 acres (c. 25 ha) in the north-east of the *Elizabeth Farm* estate, near the Parramatta/Duck River junction, were resumed for a sewage farm (Truman Zaniol & Associates 2009:9). The sewage farm processed and treated sewage and stormwater before it was discharged into the river system (SHI SHR #01643 *Sewage Pumping Station 67*). By 1910, the sewage farm had insufficient capacity to deal with the growing population of the Parramatta township but continued to function into the 1920s (Truman Zaniol & Associates 2009:9). The Metropolitan Board of Water Supply and Sewerage took over management all sewage interests in 1916 and under the Board's guidance the sewage farm was closed and the land sold off prior to 1926 (Truman Zaniol & Associates 2009:9).

The first phase of the NSOOS was built across Sydney suburbs in 1889 (SHI SHR #01643 *Sewage Pumping Station 67*). As growing populations put pressure on existing sewage systems, a scheme was developed to connect western suburbs of Sydney, including Parramatta, to the NSOOS in 1914 (Truman Zaniol & Associates 2009:9). The scheme was approved by the NSW Parliamentary Standing Committee for Public Works in 1915 and works began in 1916 and were completed in September 1929 (Truman Zaniol & Associates 2009:10). The plan included the construction of a pumping station at Camellia to connect the existing Parramatta sewer and new sewer lines to the NSOOS (Truman Zaniol & Associates 2009:9–10).

Although the majority of NSOOS works at Camellia had been built and connected by June 1929, the Sewage Pumping Station No. 67 was completed later, between 1930 and 1931 (Truman Zaniol & Associates 2009:36). The circular reinforced concrete substructure, with two sewage wells, two pumping units and a valve chamber, was in place by 1930 and the current brick building on Grand Avenue North replaced the temporary wooden superstructure in 1931 (Truman Zaniol & Associates 2009:36). The circular substructure measured c. 30.4 m diameter and 12.8 m in depth (Truman Zaniol & Associates 2009:15).

A plan of the Sewage Pumping Station site from c. 1930 shows a pumping station building was present over the circular substructure and the Granville main sewer, Parramatta main sewer, and rising main connected to the station (Plate 5.13). An electrical substation was also located south of the pumping station. The property lot fronted onto the Grand Avenue tramway and the railway line was to the east (Plate 5.13).

Planners of the NSOOS underestimated the population growth of Parramatta and in the 1950s new equipment was added to increase to the capacity of the pumping station (Truman Zaniol & Associates 2009:23). Two additional pumping units were added as part of the 1956 amplification works and a new electrical substation was built the following year (Truman Zaniol & Associates 2009:23, 25). Additional changes occurred in the 1960s including the removal and replacement of the 1930s pumps in 1964 and rising main in 1986, as well as, the addition of ancillary buildings (Truman Zaniol & Associates 2009:26–27). A store and workshop were constructed in the east of the site in 1981 (Truman Zaniol & Associates 2009:29). Since then, the major changes to the site include the demolition of depot buildings in the south-east corner of the site and the construction of the chemical dosing plant in 2015 in addition to the demolition of 1960s ancillary buildings in 2019-2020 (Extent 2025).



Source: Truman, Zaniol & Associates Pty Ltd 2009: 14

Plate 5.13 Plan of Sewage Pumping Station SP0067, c.1930.

iii Rosehill Gardens Racecourse

The 140 acres (56.7 ha) set aside for recreation in the 1881 *Elizabeth Farm* subdivision were purchased by John Bennett who intended to develop the site for cycling, cricket, football, tennis, and horse racing (Kass et al. 1996:223). Bennett constructed a racecourse with a track the same length as the established Randwick on the land (Kass et al. 1996:223). Rosehill Racing Club was completed in February 1885 and was opened in April (Kass et al. 1996:223, Parramatta History and Heritage 2020c). Bennett also received permission from the Government to

construct a private railway line and station to transport people to the racecourse from Clyde Station (Parramatta History and Heritage 2020c) (Section 5.3.2.iii).

The Rosehill Gardens Racecourse company purchased the racecourse in 1900 (Kass et al. 1996:296). The site was temporarily closed for expansion and the construction of two reinforced concrete stands before reopening in February 1924 (Kass et al. 1996:296). Other informal gambling also occurred around the racecourse site such as two-up (Kass et al. 1996:296).

iv Capral Aluminium (Lot 50 DP1248546)

The Capral Aluminium building was constructed as a factory for the Australian Aluminium Company Pty Ltd between 1939 and 1940 (*The Argus*, 21 July 1939:9; *The Cumberland Argus and Fruitgrowers Advocate*, 20 March 1940:3). The brick, concrete and steel factory was completed at a cost of £82,000 and was considered "the most beautifully designed factory yet erected in any State" (*Smith's Weekly*, 28 December 1940:18; *The Cumberland Argus and Fruitgrowers Advocate*, 20 March 1940:3). Initially, the factory was scheduled to produce cast and extruded aluminium products, being aeroplane and car parts including engine parts, and aluminium tubing (*The Argus*, 21 July 1939:9). Upon opening in 1940, however, the factory was incorporated into war effort manufacturing and specialist machinery was imported for the production body panels for defence aircraft (*The Cumberland Argus and Fruitgrowers Advocate*, 20 March 1940:3). Aluminium products continued to be manufactured after the Second World War and the Australian Aluminium Company was incorporated under the name Capral Aluminium in 1995 (Capral Aluminium 2023).

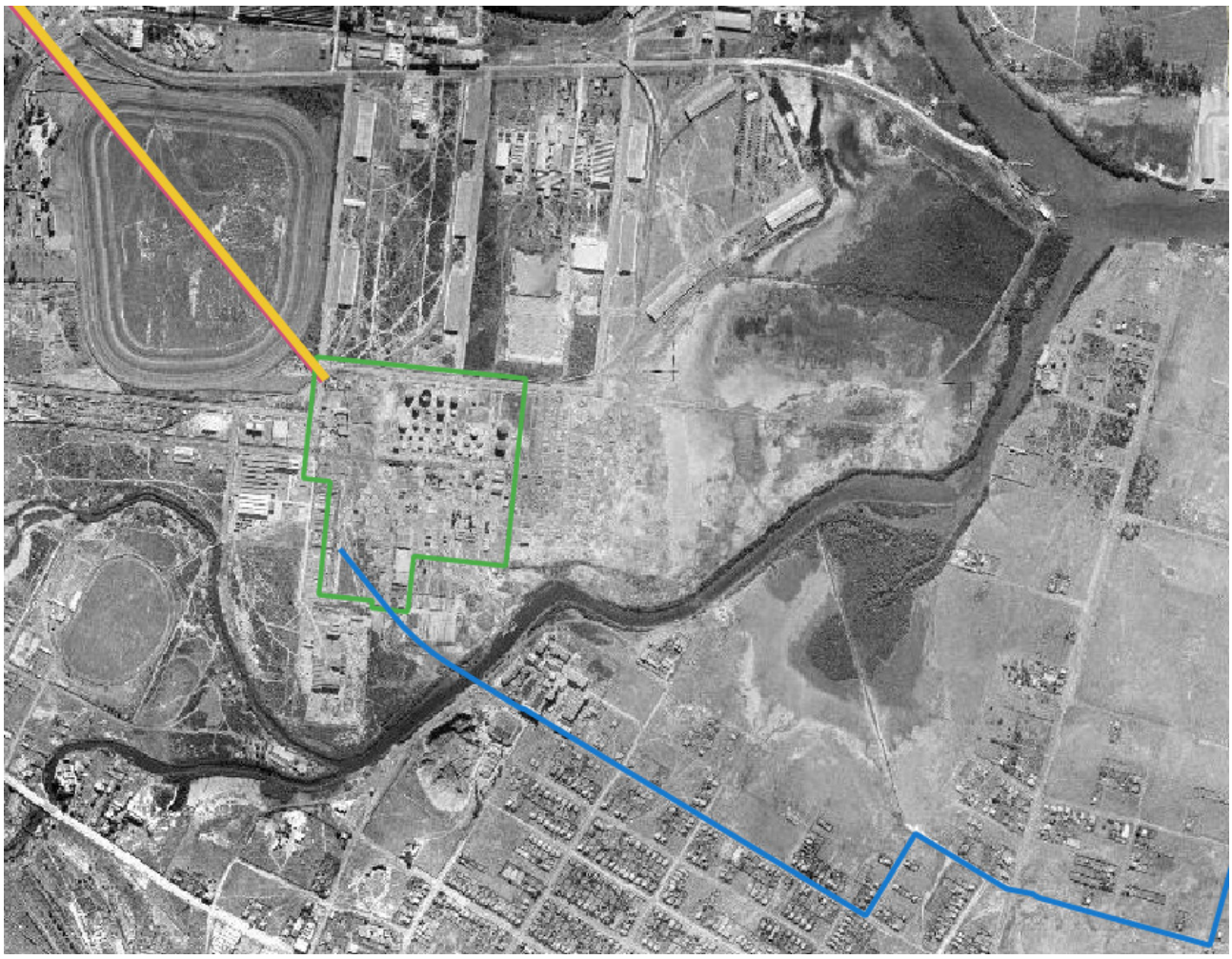
v Clyde Refinery

In 1908, the Commonwealth Oil Corporation purchased 142 acres (57.5 ha) of the Elizabeth Farm subdivision in the vicinity of the Parramatta/Duck River junction (Plate 5.12) (AECOM Australia Pty Ltd 2018:10, Skidmore n.d.:2.49). The Company does not appear to have developed the site and by 1911 the Commonwealth Oil Corporation had gone into receivership (AECOM Australia Pty Ltd 2018:10, Skidmore n.d.:2.49). John Fell & Co, an established shale oil extracting and refinery company, took over all Commonwealth Oil Corporation assets in 1913 (AECOM Australia Pty Ltd 2018:11). Fell & Co expanded the Rose Hill site by an additional 60 acres (24.3 ha) in 1918 and began construction the construction of a shale oil refinery on the site in c.1925 (AECOM Australia Pty Ltd 2018:11, Skidmore n.d.:2.49). The refinery included a 750 barrel Dubbs thermal cracking plant, which was the first of its kind in the southern hemisphere (AECOM Australia Pty Ltd 2018:11). From 1926, John Fell & Co supplied British Imperial Oil Company, later The Shell Company of Australia Ltd, with 1,500 tonnes of crude oil per month (AECOM Australia Pty Ltd 2018:11). Initially, crude oil was transported to the Clyde Refinery by rail but construction of a wharf on Duck River and an extension to the Camellia private rail line allowed oil to be transported by barge from the Gore Bay oil terminal up the Parramatta River from 1927 (Parramatta History and Heritage 2020b).

In 1927, a fatal explosion at the Clyde Refinery killed three men, including John Fell's son, and Fell sold the refinery to Shell the following year (Parramatta History and Heritage 2020b). The handover, however, took two years and Douglas Fell acted as the refinery manager during the change of ownership and continued as manager under Shell (Parramatta History and Heritage 2020b). Shell expanded the refinery operations over the twentieth century and the Clyde Refinery site came to dominate the east portion of the Camellia/Rosehill peninsula (AECOM Australia Pty Ltd 2018:12–14, Skidmore n.d.:2.50). An aerial photograph from 1943 shows the development of the refinery across the peninsula (Plate 5.14). The Clyde Refinery ceased operations in 2013 as the works could no longer compete economically with Asian refineries (AECOM Australia Pty Ltd 2018:14). Shell converted the refinery site to an import terminal and sold the operations to Viva Energy Australia in 2014 (AECOM Australia Pty Ltd 2018:14, Parramatta History and Heritage 2020b). The former Clyde Refinery was decommissioned c.2020 and subject to remediation (Parramatta History and Heritage 2020b).

The WRRF is in the south-west corner of the former Clyde Refinery (Lot 1 DP1300589). This section of the Refinery was the core of the former refining operations and was cleared as part of remediation works (AECOM Australia Pty Ltd 2013:40). Plant in this area formerly included:

- Distillate splitter
- Crude distillation unit 2
- High vacuum unit
- Catalytic cracking unit and gas separation unit
- Dry gas treater
- Poly plant
- Alkylation plant
- Caustic soda treater and caustic soda regeneration
- Biotreater
- Sulfur recovery units 1 and 2
- Hydro blasting area
- Substations 3, 16 and 24
- Tankfarm H (tanks 501 to 505) (AECOM Australia Pty Ltd 2013:40).



With indicative pipeline alignment.

Source: Sixmaps

Plate 5.14 1943 aerial of the Camellia and Rosehill area showing Clyde Refinery infrastructure

5.3.5 Development of Silverwater, Newington, Wentworth Point

After crossing Duck River, indicative river release pipeline travels south-east, through Silverwater and Newington to the south bank of the Parramatta River at Wentworth point. The land between Parramatta River and Parramatta Road, Duck River, and Haslam's Creek was first settled in 1797, with two 25 acre grants (20.23 ha total) awarded to Captain Henry Waterhouse and Lieutenant John Shortland, south of the Parramatta River (Tanner Architects 2013:10). In 1800, Isaac Archer, a marine from the First Fleet, received an 80-acre (32.4 ha) grant adjoining Shortland's farm to the east and Samuel Haslam was granted 50 acres approximately 1.6 km north of the impact assessment area in 1806 (Tanner Architects 2013:10). Later that year, Judge-Advocate Richard Aitkens leased all free land east of Duck River and north of Parramatta Road, but the lease was soon cancelled and subsequently granted to free settler John Blaxland in 1807 (Artefact Heritage Services 2023b).

Blaxland named his 1,290-acre (522 ha) grant "Newington" and consolidated the surrounding grants into the Newington Estate in 1808 (Graham Brooks and Associates Pty Ltd 2003:25). Hundreds of acres were cleared of native vegetation for pastoral and agricultural activities, however, the Estate featured large areas of low-lying swamp land, which were not utilised during Blaxland's tenure (Graham Brooks and Associates Pty Ltd 2003:25, Tanner Architects 2013:12). During his first decade of occupation, Blaxland established 40 acres (16.2 ha) of salt evaporation pans along the river, producing the first usable salt in Australia (Kass et al. 1996:64, 94). By 1838, the saltworks generated 1,000 tons of salt and employed 70 convict labourers. At this time, the estate featured a

simple main dwelling, a kitchen, coach house, stable, barns, sheds, workmen's cottages, and service buildings. In 1829, Blaxland began construction on the English Regency style 'Newington House' on a rise in the landscape, which was completed in 1832 and surrounded by English gardens (Comber 2003a).

Blaxland died in 1845, and the estate was sold in 1851 by the Australian Trust Company to recover funds from an earlier mortgage (Tanner Architects 2013:12–13). The Blaxland family regained the estate by 1854 but faced difficulties selling subdivided land. In 1860, the estate was sold to merchant Charles Kent but the sale was later forfeited, leading the family to lease the property to the Wesleyan Methodist Church (Tanner Architects 2013:13). The church established an abattoir (1860), rendering plant (1862), and bone-crushing mill (1866) on the estate, and also continued salt production for meat preservation (McConnel Smith and Johnson Pty Ltd Architects 2010). Newington Estate was sold to John Weatherill in 1877 but Weatherill's attempt at subdivision was also unsuccessful leading to the property to come under Government control in 1880 (Tanner Architects 2013:13).

i Silverwater Prison Complex (Lot 22 DP 876995)

The current route of the river release pipeline passes south of the Silverwater Prison complex curtilage.

With all the troubles of selling Blaxland's Newington Estate from 1851, Newington House was not occupied for over a decade and fell into disrepair (McConnel Smith and Johnson Pty Ltd Architects 2010). In 1863, Reverend John Allen Manton, on behalf of the Methodist Church, leased Newington House for a boys' school, leading to its restoration (Artefact Heritage Services 2023c:8). By 1880, the school had outgrown Newington House and moved to Stanmore (Artefact Heritage Services 2023c:8). Following the NSW Government's acquisition of the Estate in 1880, Newington House was converted to a Benevolent Asylum for aged and destitute women, who were formerly housed at the Hyde Park Barracks (Plate 5.15) (Artefact Heritage Services 2023c:8). The Estate was successfully subdivided for Government and private purposes in 1881 (Artefact Heritage Services 2023c:8).

In 1887, Newington House became the centre of the Silverwater State Hospital/Hospital and Asylum, a role it maintained until 1969 (Plate 5.16) (Artefact Heritage Services 2023c:8). The Hospital and Asylum expanded north and west from the original estate homestead and led to significant alterations, including new nurse's quarters, support buildings, and various agricultural and utility structures (Table 5.3) (Artefact Heritage Services 2023c:8–10, Comber 2003b). In 1969, the Department of Corrective Services repurposed the Newington Hospital and Asylum into a minimum-security men's prison, the Silverwater Correctional Centre, and a women's prison, the Mulawa Correctional Centre (Artefact Heritage Services 2023c:10).

Table 5.3 Historical timeline of the Newington Estate and surrounding developments

Year	Event
1807	1290 acre grant made to John Blaxland
1829-32	A farm, factory, and saltworks established; c.1832 house built
c.1832	Newington House built in the style of an English mansion with disciplined English gardens
1838	A private chapel (St. Augustine's) built
1840s	Monolithic sandstone veranda colonnade added to the house
1845	John Blaxland died; Property used to manufacture salt; House considerably neglected
1863	Newington College established with 19 boys; House restored
1860s	Chapel used as a schoolroom for Newington College
1880	School moved to Stanmore; Part of the site bought by NSW government as an asylum for aged women
1881	Site subdivided

Year	Event
1887	House became the centre of the Silverwater State Hospital (retained role until 1969)
1896	Dormitory Block built for the asylum
1911-1918	Asylum converted to State Hospital; Irwin House and the Engineer's Cottage built
1968-69	Department of Corrective Services took over site; Silverwater Correctional Centre and Mulawa Correctional Centre established; development occurred over next 20 years
1985	Major redevelopment of the site; expansion of built form to the north and west; significant buildings constructed between 1986-88 for additional accommodation at Mulawa
Early 1990s	Additions included a minimum security facility and periodic detention centre; Newington House refurbished for DOCS administration
1995-96	Metropolitan Remand Reception Centre constructed; maximum security men's prison facility; Mulawa Correctional Centre (Women's Prison) built, incorporating historical buildings
1999-2000	Topography of surrounding site changed for Sydney Olympic Games; Millenium Parklands developed, physically cutting off the Newington Estate from Parramatta River
c.2002-04	Newington House renovation works for new staff toilet facilities
2004	New Mental Health Assessment Unit and Clinic approved within Mulawa CC as part of facility improvements

With indicative pipeline alignment. The location of the Newington House site is indicated by the blue circle

Source: HLRV

Plate 5.15 'Parish of Saint John', 1868

With indicative pipeline. The location of the Silverwater Complex is indicated by the blue circle

Source: HLRV

Plate 5.16 'Parish of Saint John'. 1926

ii Newington Armament Depot, Nature Reserve and Explosives Store

From 1837, the colony's gunpowder and explosives were stored at magazines on Goat Island but overcrowding led to the construction of another magazine on Spectacle Island in 1863 (Tanner Architects 2013:12). The location of the NSW colony's powder and explosives so near to the expanding City of Sydney and surrounding suburbs soon raised safety concerns and, in 1875, representatives of the Sydney and suburban municipalities and the Sydney Chamber of Commerce petitioned the Colonial Secretary to relocate the magazines (Tanner Architects 2013:12). As a result, a Gunpowder Board was assembled in May of 1875 (Tanner Architects 2013:13). The Gunpowder Board proposed the establishment of a powder magazine depot for both Government and civilian use on the Newington Estate (Tanner Architects 2013:13–14). The Government considered the scheme but distance from the powder ground at Rose Bay, need for reclamation of swampland, and high traffic on the Parramatta River hindered official approval (Tanner Architects 2013:14). By 1880, overcrowding of the Goat and Spectacle Island magazines resulted in the Government resuming 248 acres 1 rood 8 perches (100.5 ha) of the Newington Estate for the 'erection of a magazine for the storage of gunpowder and other explosives' and associated buildings (Tanner Architects 2013:12).

The site of the Armament Depot was dominated by mudflats, swamp, mangroves and saltmarshes (Tanner Architects 2013:12). Between 1889 and 1893, 200 acres (81 ha) of the site were drained and the foreshore were straightened and banked (Tanner Architects 2013:16). Even so, areas on the riverbank were unable to be reclaimed until the twentieth century but the swamp areas were used for the disposal, burning and testing of armaments and explosives as well as disposal of other industrial waste (Tanner Architects 2013:16).

Between 1897 and 1898, the Government Powder Magazine was built on reclaimed land (Tanner Architects 2013:14). The powder magazine was excavated into the ground and had an arched roof and anti-chamber for workmen to change (Tanner Architects 2013:14). The building was lined with double walls and damp-proof flooring complying with the highest safety standards (Tanner Architects 2013:14). A suite of associated buildings were also constructed over the site, including a superintendent's cottage, workmen's cottages, guard house, lock-up, lamp-room, cooperage, a laboratory for making cartridges, and a gun-cotton store (Tanner Architects 2013:14). All stock was transported to the site from the Parramatta River, and a wharf and tram system moved stock from the River to the depot (Tanner Architects 2013:14, 16).

After the First World War, the Australian Military moved its ammunition to Liverpool and control of the Newington Depot passed from the Army to the Navy in 1921 (Tanner Architects 2013:16). The Newington Depot was too small to accommodate the needs of the Navy and by 1922, new buildings were under construction (Tanner Architects 2013:16). Further, in 1924 the Navy requested the depot site to be extended east into land leased by the Homebush State Abattoir and by 1941 all leased land had been resumed for military use (Tanner Architects 2013:16). The Carnarvon Golf Course, to the west was also used by an ammunition store for the US Navy during World War Two (WWII) (Tanner Architects 2013:16). Under the control of the Navy, the Newington Armament Depot formed part of the Sydney Ammunition Pipeline, which was the system that de-ammunitioned and re-ammunitioned warships as they entered the dockyards for maintenance and/or updated stocks and ordinance (Graham Brooks and Associates Pty Ltd 2003:36). As part of the pipeline, the Depot received, stored, maintained and controlled the dispatch of naval weapons (Tanner Architects 2013:16).

From the 1960s, the Department of Defence began decommissioning the Sydney Ammunition Pipeline and plans were underway to close the Newington Depot (Tanner Architects 2013:19). In 1981, the Department of Defence adopted NATO safety principles for the storage, transport and handling of explosives (Graham Brooks and Associates Pty Ltd 2003:36). The Newington Armament Depot did not meet the new regulations and could not be made compliant, as a result the Depot was vacated from 1994 and closed in 1999 (Graham Brooks and Associates Pty Ltd 2003:36, Tanner Architects 2013:20). During this time work was underway for the Sydney 2000 Olympic complex and 259 hectares in the south of the Armament Depot was resumed and remediated for the development of the Athlete's Village (Tanner Architects 2013:22).

The Depot was transferred to the State Government in January 2000 and the *Sydney Olympic Park Authority Act 2001* granted protection for the 640-hectare Sydney Olympic Park site, which included the Newington Armament Depot and Nature Reserve (Tanner Architects 2013:20). Buildings of the depot site were adapted for arts, cultural, leisure, and educational purposes from 2003 as part of the Millennium Parklands precinct (Tanner Architects 2013:22–24).

Associated with the Depot, but not part of the state heritage listing, is the Explosives Store (PLEP #I291). In the west of the heritage curtilage, the explosives storehouse, referred to as building 87, was constructed in 1943/44 and remains standing today. It stopped being used as a storehouse for the Depot's explosives when the ownership was transferred. The entire structure is made of concrete and covered in earth for camouflage, both of which create the property of blast resistance (Brian McDonalds + Associates, 1997).

Source: Brian McDonald, Photographic survey Newington Armaments Depot for the Olympic Coordination Authority,1997.

Plate 5.17 Explosive Store 87, 1996.Millennium Parklands

The current route of the river release pipeline also passes in the vicinity of the Millennium Parklands curtilage. The Millennium Parklands encompass north-east portions of Blaxland's Newington Estate that were primarily wetlands drained from 1889 for the Armament Depot and leasehold land for industry including the NSW brickworks and Homebush State Abattoir grazing land (Graham Brooks and Associates Pty Ltd 2003). At present the Parklands contain the former Newington Armament Depot site, a portion of Blaxland Common, the Wanngal Wetland and Wanngal Woodland (Graham Brooks and Associates Pty Ltd 2003:10).

Prior to reclamation in the late nineteenth century the Millennium Parklands were located on the historical banks of the Parramatta River and Homebush Bay and the environment was dominated by estuarine saltmarsh and wetlands (Graham Brooks and Associates Pty Ltd 2003:28). Works between 1889 and 1893 reclaimed 200 acres (81 ha) of wetland and changed the alignment of the historical foreshore (Tanner Architects 2013:16). Native flora was cleared and the reclaimed area was maintained as mown grassland and pasture over the occupation of the Armament Depot, brickworks, and Abattoir (Graham Brooks and Associates Pty Ltd 2003:29). Sections of the foreshore that could not be reclaimed and cleared were likely used for dumping industrial and domestic waste (Graham Brooks and Associates Pty Ltd 2003:32).

Development began in the Newington area in the 1980s with the establishment of the Australia Centre business park as well as the State Sports Centre and Bicentennial Park (Tanner Architects 2013:22). At this time, the maintenance of the grassland east of the Armament Depot ceased and native species began to regenerate from seeds spread from surviving woodland (Graham Brooks and Associates Pty Ltd 2003:29). In 1991, the Homebush Bay Development Corporation was established to oversee the urban renewal of Homebush Bay and the Olympic Coordination Authority oversaw remediation of the Parklands site and land on the south of Homebush Bay between 1992 and 2000 (Graham Brooks and Associates Pty Ltd 2003:29). The remediation works included treatment of 155 hectares of land for soil and groundwater contamination, wetland/mangrove/saltmarsh

rehabilitation, and land fill works (Graham Brooks and Associates Pty Ltd 2003:32, Tanner Architects 2013:22). The wetlands and forest were gazetted as part of the Newington Nature Reserve c.2003 (Graham Brooks and Associates Pty Ltd 2003).

5.3.6 Development of Meadowbank

The river release pipeline travels north over the Parramatta River into Meadowbank. Parish maps indicate that the banks of the Parramatta River in this area were comprised of mudflats and the present-day river contours suggest areas of the flats were reclaimed (Plate 5.18). In addition, the banks of Charity Creek have also changed.

The pipeline route travels through the south of William Balmain's 1794 grant of 325 acres (131.5 ha), which was purchased by John Bennett in the following year (NSW Land Registry Service n.d., Phippen 2008). Moving east, the pipeline then travels through 160 acres (64.7 ha) granted to William Kent in 1799, which came under the ownership of various members of the Blaxland family from 1835 (NSW Land Registry Service n.d.:Primary Appn.13450). Construction of the railway in 1886 resulted in suburban and industrial subdivision over Meadowbank through the late nineteenth and twentieth century (Phippen 2008).

The impact area sits across land subdivided in two phases. The pipeline portion west of Charity Creek formed part of the Bennett Subdivision, advertised for sale from 1890 (NSW Land Registry Service n.d.:Vol.266-Fol.66). A plan of a later phase of the Bennett subdivision, dating to 1925, shows the pipeline passes through river side land south of Meadowbank Estate house (Plate 5.20). The pipeline portion east of Charity Creek formed part of the 1905 *Blaxland Estate* subdivision (Plate 5.21). The land that now comprises Memorial Park was designated as lots 47 to 56, with the east portion adjacent to the railway line already being owned by F. Whitham [*sic*]– the partial outline of a residence is shown on the estate plan (Plate 5.21).The Kent grant was sold to Phillip Parker King in 1832, who subdivided the holding into large blocks in 1835 (NSW Land Registry Service n.d.:Primary Appn.13450). The blocks were sold to various individuals but the portions between Charity Creek and the 1886 railway line were gradually acquired by John Blaxland and various members of the Blaxland family over the second half of the nineteenth century (NSW Land Registry Service n.d.:Primary Appn.13450). The Hunters Hill parish plan of 1907 indicates that block 52 and 56 of the Blaxland Estate subdivision had been purchased for a public park (Plate 5.18). Later parish plans indicate Lots 47 to 51 were gazetted for public recreation in 1926 (NSW Land Registry Service n.d.).

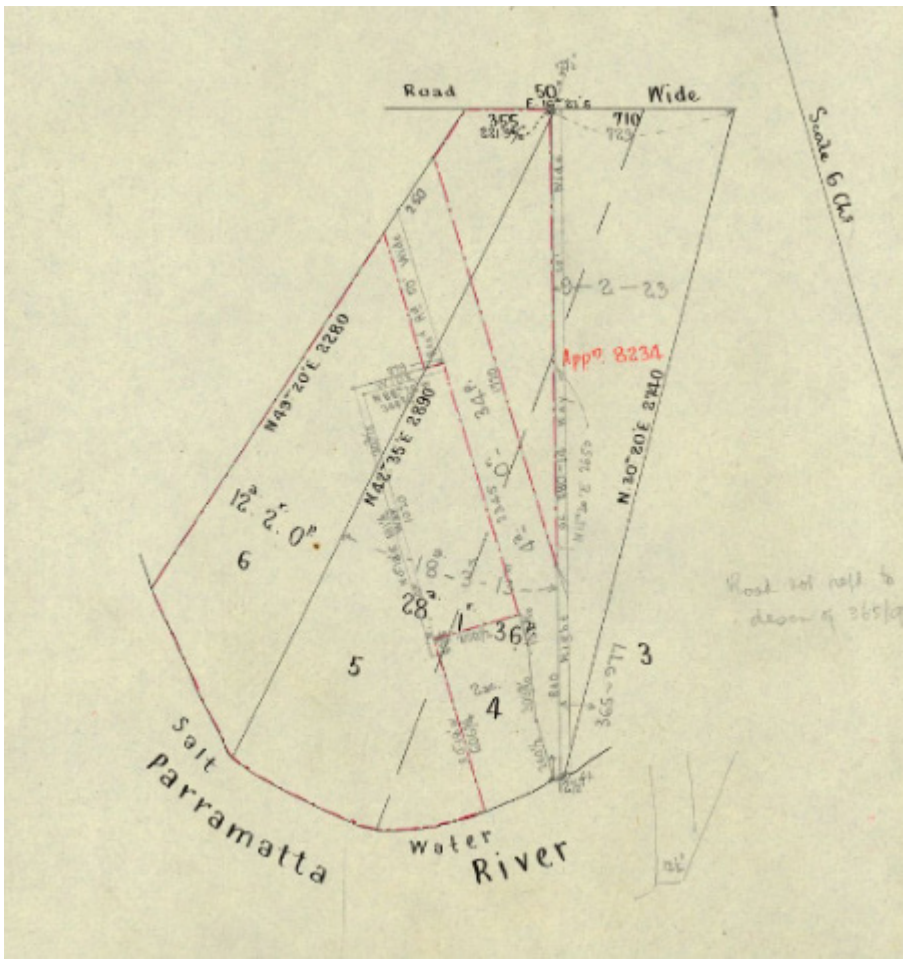
Fredrick Edward Whitham Esq, of South Tottenham, England, purchased a 2 acre (0.8 ha) portion of river front land from Gregory George and Ellen Blaxland in 1894 (NSW Land Registry Service n.d.:Book537-No.545). Information could not be found regarding Whitham's ownership of the land, but the 1905 Blaxland Estate subdivision plan does indicate that buildings were present on the lot by that time (Plate 5.20). Newspaper articles indicate the structure was two, terraced weatherboard cottages and it is possible the structures feature in Plate 5.23 (*The Cumberland Argus and Fruitgrowers Advocate*, 26 October 1912:8). The cottages were purchased by park trustee William Chorley in 1910 prior to the official resumption of Whitham's property lot for inclusion in the park area in January 1913 (NSW Land Registry Service n.d.:Vol.1152-Fol.43, *The Cumberland Argus and Fruitgrowers Advocate*, 26 October 1912:8). The cottages came under the ownership of the local council and were rented out (*The Cumberland Argus and Fruitgrowers Advocate*, 24 August 1918a:8). Despite being repaired through their life, the cottages had become dilapidated by 1929 and were demolished (*The Cumberland Argus and Fruitgrowers Advocate*, 24 August 1918a:8, *The Sun*, 5 December 1929:10).The public baths were first constructed in 1895 (Phippen 2008), initiated by the local residents association prior to the subdivision of the Blaxland Estate, with the lane shown to the 'proposed wharf site' presumably providing access. The further history of the baths is provided in Section 5.3.6i.

The local community installed a war memorial obelisk in the park in 1921 (SHI LEPI72 *Memorial Park (including obelisk) and remnants of former Meadowbank baths*).

With indicative pipeline alignment.

Source: HLRV

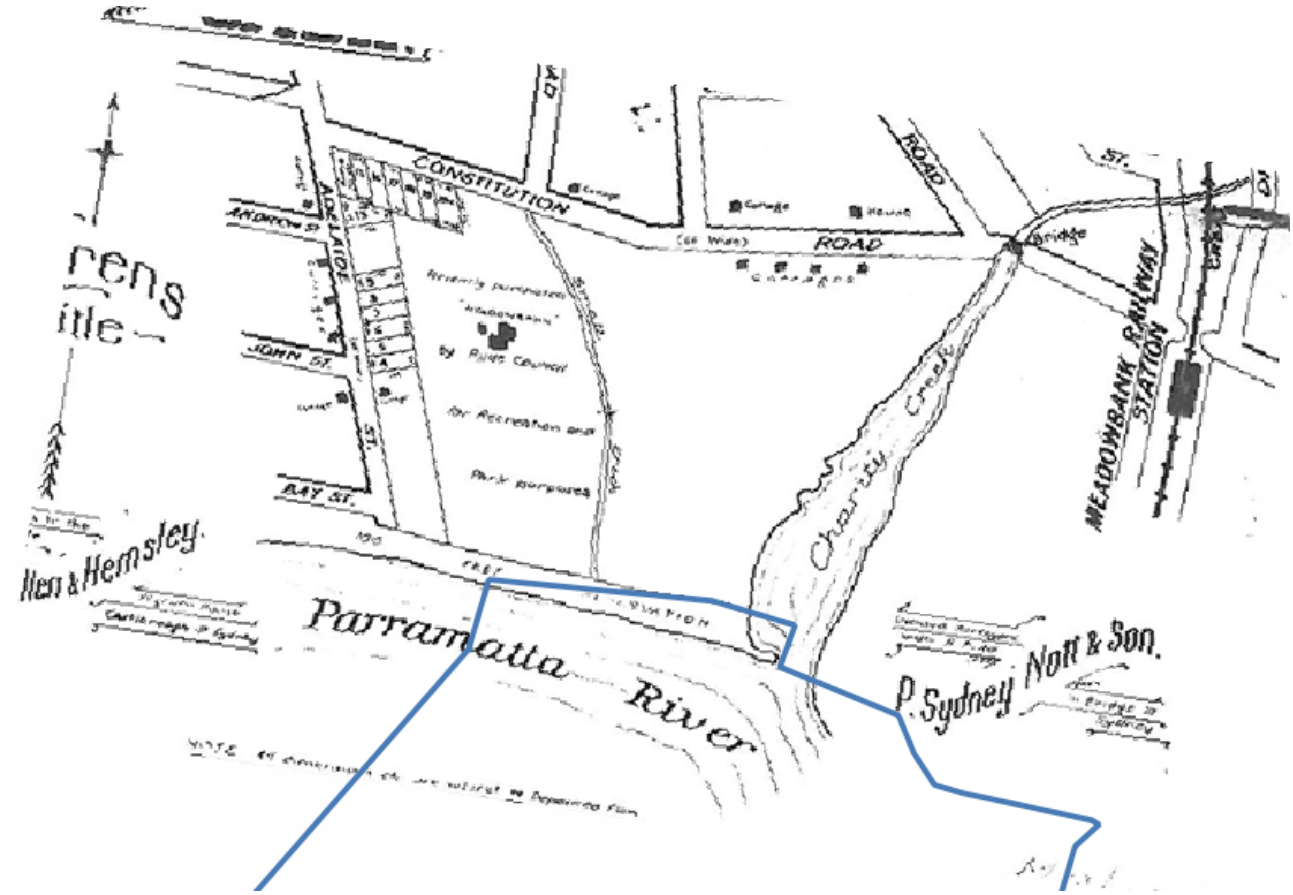
Plate 5.18 Excerpt from "Parish of Hunter Hill" 1907.



Whitham's property and associated road access is shown in lead pencil.

Source: HLRV

Plate 5.19 Excerpt from "Primary Application 13450" c.1905.



With indicative pipeline alignment.

Source: City of Ryde Libraries, B23.1925 BENN

Plate 5.20 Excerpt from "Bennett's, Meadowbank Estate" 1890.

With indicative pipeline alignment.

Source: NLA MAP LFSP 1513, Folder 101

Plate 5.21 Excerpt from "Blaxland Estate, Meadowbank" 1905.

i Meadowbank baths

First opened in 1895, the Meadowbank baths were located in the east portion of the modern-day Memorial Park, part of the wider Meadowbank Park. When first constructed, the baths consisted solely of temporary structures in the water until 1914, when the baths were fully erected as a rectangular boundary in the river connected to the shore (*Evening News*, 6 February 1914: 1). The boundary was made of thin wooden piles, with gaps to allow for water to permeate through, but, due to the materials, required constant repairs as the timber did not last very long in the River *(The Cumberland Argus and Fruitgrowers Advocate*, 7 February 1914: 8). Plate 5.22 shows a 1943 aerial of the bath boundary in the River.

During the 1914 construction, there was much debate on the nature and extent of the baths. It was agreed for the bath boundary to be built in the River, but whether it was to be temporary and for children only, or whether adults were allowed to use the baths, or if there were plans for 'proper' baths to be installed were argued *(The Cumberland Argus and Fruitgrowers Advocate*, 7 February 1914: 8). Additionally, there were no permanent dressing sheds due to a lack of funds, so temporary hessian walls were used as make-shift change rooms *(The Cumberland Argus and Fruitgrowers Advocate*, 30 November 1918: 8). After repairing damages caused by a flood to the baths in 1918, there was an attempt to raise funds for dressing sheds and the inclusion of standpipes and fireplaces in the park for use of visitors *(The Cumberland Argus and Fruitgrowers Advocate*, 30 November 1918: 8). Further construction of the baths themselves occurred in 1924, which again did not leave enough funds for dressing sheds (*The Sydney Morning Herald*, 20 October 1924: 10).

The lack of funds and dressing sheds lead to the site being labelled as 'scandalous' in February of 1926 by people offended by users of the bath undressing in public without the use of screens (*The Daily Telegraph*, 13 February 1926: 1). Due to the large number of people, both children and adults, regularly using the baths, steps were taken in October 1926 to deal with the baths. Dressing sheds were constructed as, by this stage, police were routinely required to maintain order (*The Cumberland Argus and Fruitgrowers Advocate*, 29 October 1926: 7).

In 1932, rules were changed at the baths to prohibit night swimming as the new tender was accepted for daylight use only (*The Cumberland Argus and Fruitgrowers Advocate*, 10 November 1932: 15). During this period, there were also several drownings caused by the abundance of people attending the baths, including a boy in 1926 and a girl in 1936 (*The Sydney Morning Herald*, 22 February 1926: 11; 15 January 1936: 15). Despite all these controversies, the baths continued operating until around 1943, when river pollution caused by Homebush Bay factories forced the site's closure (Phippen 2008). The site has since continued being used as a public park with a commemorative narrative through the memorial features.

With indicative pipeline alignment.

Source: Sixmaps

Plate 5.22 1943 aerial of Meadowbank, showing the bath's boundary in the Parramatta River.

Source: Courtesy of City of Ryde Libraries, No. 2938. Note dressing shed to the left in the image and structure at right rear is assumed to be the cottage of F. Whitham (indicated by blue arrow). The Memorial obelisk is visible on the right side, indicated by green arrow.

Plate 5.23 Meadowbank baths before 1926. View, North from the Parramatta River.

Source: Foster, A.G. Trove: PIC Row 12/8/3 #PIC/P860/394.

Plate 5.24 Meadowbank baths and Memorial obelisk. Meadowbank Railway bridge in background. Ca. 1920-1943.

ii Meadowbank Bridge and John Whitton Bridge

The current route of the river release pipeline terminates on the north side of the Meadowbank and John Whitton Bridge curtilages, which span the Parramatta River between Meadowbank and Rhodes.

Meadowbank Rail Bridge was constructed in 1886 as part of the Main North Line linking Sydney to Newcastle and later Tamworth and Queensland (Fraser and Best 2000). Meadowbank Rail Bridge was the 11th of 12 iron double lattice girder bridges designed by Engineer-in-Chief of the NSW Railways John Whitton and was the longest of Whitton's bridges and the only bridge with a double track (Fraser and Best 2000). The bridge parts were fabricated in England and built in place by local contractors Amos Bros at a cost of £69,000 (Fraser and Best 2000). The bridge was originally built to carry a single track but was extended to accommodate two tracks in 1891 (Transport for NSW 2024).

Prior to WWII, the Meadowbank Rail Bridge was recognised as a limitation to the expansion of the Main North Line (SHI s170 *Meadowbank (Parramatta River) Underbridge*). As a result, a second bridge, the John Whitton Bridge, was proposed to be constructed neighbouring Meadowbank Bridge (SHI s170 *Meadowbank (Parramatta River) Underbridge*). Works on the John Whitton Bridge began after the war with the concrete piers, which were able to hold four railway lines, completed in 1952 (SHI s170 *Meadowbank (Parramatta River) Underbridge*). Financial recession, however, meant works were suspended for 20 years (SHI s170 *Meadowbank (Parramatta River) Underbridge*). Construction restarted in 1972 and changes in technology meant the bridge was constructed

of lightweight steel and welded boxed girders (Fraser and Best 2000). The John Whitton Bridge came into service in 1980 and the Meadowbank Rail Bridge was decommissioned at that time (Fraser and Best 2000). In 2000, the Meadowbank Rail Bridge was converted to a pedestrian and cyclist corridor as part of the Olympics preparations (Fraser and Best 2000, Transport for NSW 2024).

Source: Courtesy of City of Ryde Libraries, No. 2937.

Plate 5.25 Meadowbank baths in foreground and Meadowbank Rail in background.

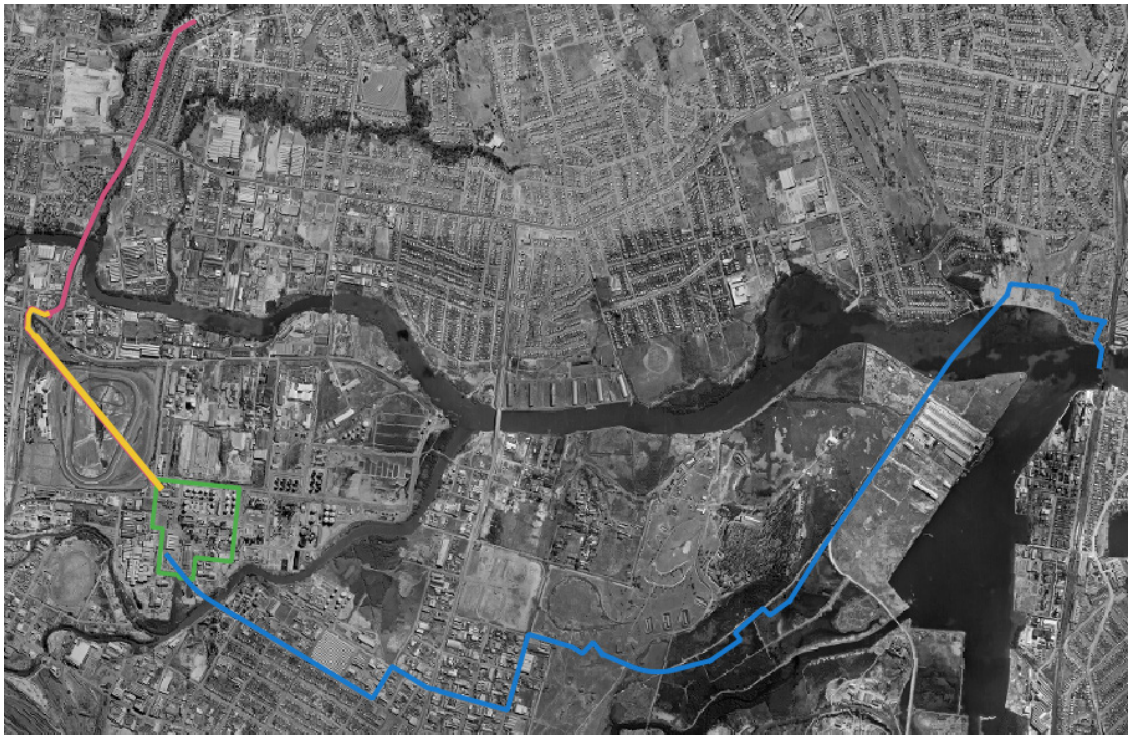
5.4 Land disturbance

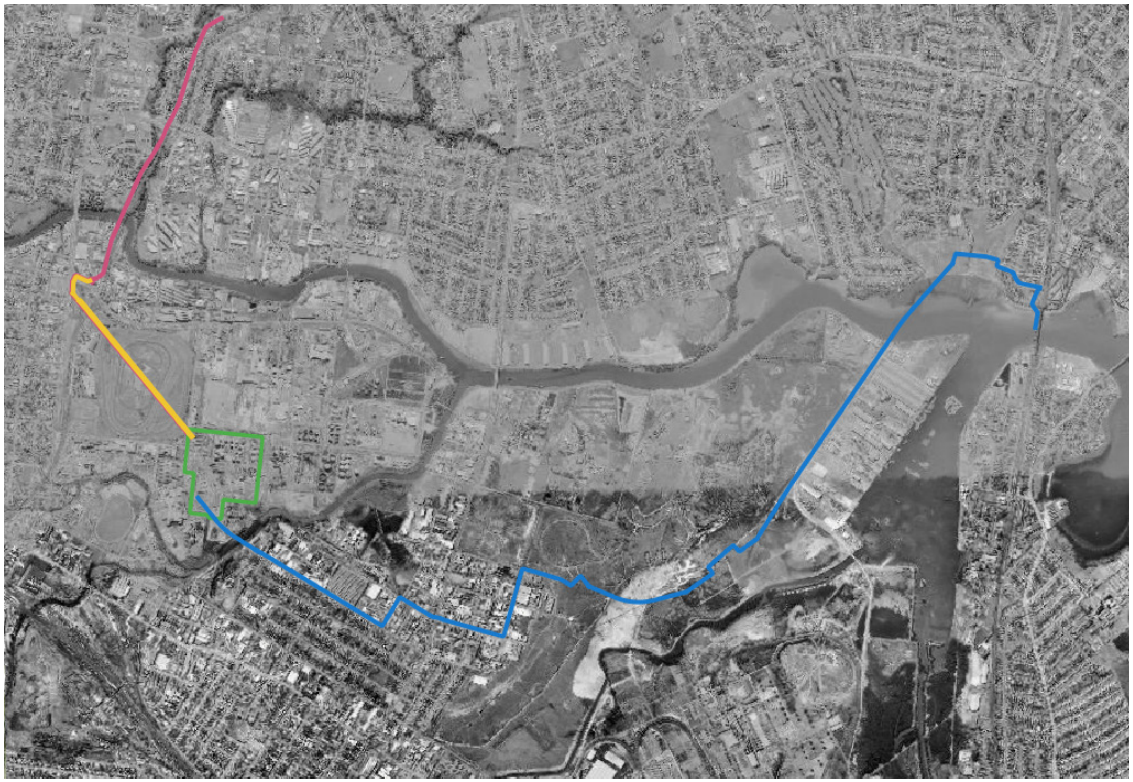
A review of the available historical imagery, reproduced in Table 5.4, provides insights into the transformation of the impact area and its surroundings. Aerial photographs indicate the impact area was subject to increasing suburban and industrial development, and redevelopment from 1943 into the present. Suburban growth and industrial development would have impacted archaeological resources associated with colonial settlement of the area through land clearing and levelling activities, installation of services, construction, and demolition. Areas of undeveloped land do survive around the former Orphan School site, Silverwater and Newington precincts and Meadowbank Park. These areas are likely to have higher archaeological potential than heavily developed portion of the impact assessment area. Much of the pipeline alignment will be repurposing or installing infrastructure in previously disturbed areas. Nevertheless, structures with heritage significance survive along the pipeline route and may retain associated archaeological resources that contribute to the significant of the items. All the historical aerials were sourced from NSW Historical Imagery Spatial Services. For tiled versions of the aerials showing details of the suburbs, see Appendix A.

Table 5.4 Historical aerials of the impact area

Aerial photograph with indicative pipeline outlined	Year of photograph and description.
	**1943** ***Rydalmere:*** – The streetscape is largely established, with major roads paved and minor ones unpaved. – Rydalmere Hospital and Subiaco precincts are prominent, surrounded by green spaces. – Suburban development is visible to the east and west, with remnant vegetation along waterways. ***Camellia and Rosehill:*** – The streetscape is well-defined, dominated by industrial development, including the Clyde refinery. – Rosehill Gardens Racecourse is visible, along with some surrounding buildings. – Suburban subdivisions are evident west of the impact area. ***Parramatta River, Duck River, and Tributaries:*** – The rivers' courses are consistent with present-day forms. – Creeks are more visible, likely due to less development and reclamation. – Riverbanks at Wentworth Point and Meadowbank lack vegetation. ***Silverwater, Newington, Wentworth Point:*** – The established streetscape south of the pipeline alignment is apparent; areas to the north are cleared but sparsely built. – Silverwater Hospital and Asylum are visible with surrounding plantings. – Armoury buildings are present north of the pipeline. – Wentworth Point is partially cleared, with industrial areas in the northeast. ***Meadowbank:*** – Meadowbank Parklands are developed, with tree stands in specific areas. – The Meadowbank Bridge is present. – The Meadowbank bight and Charity Creek have been developed, featuring a concrete seawall and a straight, concrete-lined creek. – Both suburban and industrial subdivisions are evident north of the pipeline.

Aerial photograph with indicative pipeline outlined	Year of photograph and description.
	**1955** ***Rydalmere:*** – Increased suburban development and clearance. – The north portion of Subiaco has undergone development. ***Camellia and Rosehill:*** – No significant observable changes from previous years. ***Parramatta River, Duck River, and Tributaries:*** – Higher silt levels are visible in the river compared to 1943. – No other significant changes observed. ***Silverwater, Newington, Wentworth Point:*** – Expanded suburban and industrial development along the pipeline route. – Clearance of trees and flooding of marshland in the northeast of Wentworth Point. ***Meadowbank:*** – The piers of the John Whitton Bridge are now visible. – No other significant changes observed.

Aerial photograph with indicative pipeline outlined	Year of photograph and description.
	**1965** ***Rydalmere:*** – Increased clearance and suburban subdivision continue. – Subiaco has been demolished. ***Camellia and Rosehill:*** – The Clyde refinery has expanded. – Development within the racecourse includes the inside track and a new dam. ***Parramatta River, Duck River, and Tributaries:*** – Silt levels have decreased compared to the 1955 aerial photograph. – No other significant changes observed. ***Silverwater, Newington, Wentworth Point:*** – Reclamation and industrial development have occurred in the north portion of the marshland at Wentworth Point. ***Meadowbank:*** – No significant changes observed.

Aerial photograph with indicative pipeline outlined	Year of photograph and description.
	**1970** ***Rydalmere:*** – Industrial development has expanded east of the former Subiaco homestead. ***Camellia and Rosehill:*** – New buildings have been added on the east side of the racecourse. ***Parramatta River, Duck River, and Tributaries:*** – No significant changes observed. ***Silverwater, Newington, Wentworth Point:*** – Continued expansion of industrial development at Wentworth Point. ***Meadowbank:*** – No significant changes observed.

Aerial photograph with indicative pipeline outlined	Year of photograph and description.
	**1986** ***Rydalmere:*** – No significant changes observed. ***Camellia and Rosehill:*** – No significant changes observed. ***Parramatta River, Duck River, and Tributaries:*** – No significant changes observed. ***Silverwater, Newington, Wentworth Point:*** – Increased industrial development. – Changes to Silverwater's boundary due to prison expansion. ***Meadowbank:*** – The John Whitton Bridge is present.

Aerial photograph with indicative pipeline outlined	Year of photograph and description.
	**1991** ***Rydalmere:*** – Industrial development has increased. ***Camellia and Rosehill:*** – No significant changes observed. ***Parramatta River, Duck River, and Tributaries:*** – No significant changes observed. ***Silverwater, Newington, Wentworth Point:*** – Increased industrial development. ***Meadowbank:*** – Mudflats are exposed south of the seawall.

Aerial photograph with indicative pipeline outlined	Year of photograph and description.
	**1994** ***Rydalmere:*** – Suburban development has increased south of Kissing Point Road. ***Camellia and Rosehill:*** – Expansion of the Clyde refinery and surrounding industrial areas. ***Parramatta River, Duck River, and Tributaries:*** – No significant changes observed. ***Silverwater, Newington, Wentworth Point:*** – Industrial areas have expanded north of the pipeline route. ***Meadowbank:*** – No significant changes observed.

Aerial photograph with indicative pipeline outlined	Year of photograph and description.
	**1996** ***Rydalmere:*** – No significant changes observed. ***Camellia and Rosehill:*** – No significant changes observed. ***Parramatta River, Duck River, and Tributaries:*** – No significant changes observed. ***Silverwater, Newington, Wentworth Point:*** – Tree planting on the northeast bank of the Parramatta River in the former Newington Armoury area. ***Meadowbank:*** – No significant changes observed.

Aerial photograph with indicative pipeline outlined	Year of photograph and description.
	**2004** ***Rydalmere:*** – Refurbishment of the industrial zone on the Subiaco promontory. ***Camellia and Rosehill:*** – Expansion of Rosehill Gardens Racecourse. ***Parramatta River, Duck River, and Tributaries:*** – No significant changes observed. ***Silverwater, Newington, Wentworth Point:*** – Residential development south of the pipeline route. ***Meadowbank:*** – Increased growth of flora along the bight, south of the seawall.

Aerial photograph with indicative pipeline outlined	Year of photograph and description.
	**2019** ***Rydalmere:*** – Continued refurbishment of the industrial zone on the Subiaco promontory. ***Camellia and Rosehill:*** – Expansion of industrial development across the peninsula, east of the pipeline. – Further expansion of Rosehill Gardens Racecourse. ***Parramatta River, Duck River, and Tributaries:*** – Increased growth of flora along the river and its tributaries. ***Silverwater, Newington, Wentworth Point:*** – Expansion of industrial development. – The footprint of the reclaimed Newington bushland/Millennium Parklands, west of the pipeline, has grown. ***Meadowbank:*** – Maturation of trees and mangroves in Meadowbank Park along the Parramatta River.

Aerial photograph with indicative pipeline outlined	Year of photograph and description.
	**2023** ***Rydalmere:*** – No significant changes observed. ***Camellia and Rosehill:*** – Demolition of Clyde Refinery tanks within the water treatment plant footprint. ***Parramatta River, Duck River, and Tributaries:*** – No significant changes observed. ***Silverwater, Newington, Wentworth Point:*** – No significant changes observed. ***Meadowbank:*** – No significant changes observed.

6 Field assessment

6.1 Overview

EMM archaeologist Adrian Caridi conducted a historical heritage survey of the impact area on 30 January 2025. The survey involved both pedestrian and vehicle traverses of the impact area and targeted locations based on areas deemed as archaeologically sensitive through prior background research. The survey was focused on heritage items and sites of interest within the impact area, particularly sections of the pipeline that involve open trenching as the installation method. For map locations of each item listed, see Figure 4.1. Unless specified, the photos for Section 6.2 were taken by Adrian Caridi.

6.2 Site description

6.2.1 Rydalmere Hospital Precinct (former) (SHR #00749, s170 #5000658 and PLEP #I661)

The site is now the Western Sydney University Parramatta Campus. The curtilage contained several significant buildings that have been incorporated into the modern university such as the asylum period structures. The primary feature of this heritage listing is the extant orphanage/hospital building. Located in the south-west corner of the curtilage, the building is two-storeys and fashioned in the Colonial Georgian style. It is made of sandstock brickwork and is flanked by pavilions connected to the central building. While the building is the largest and most imposing of the structures on the campus, other heritage buildings that were added to the site over time are located around the hospital, particularly to the north-east in addition to the heritage buildings, the Campus contains numerous non-significant buildings to facilitate the use of the site as a place of higher education.

The pipeline alignment runs through the north-east corner to the south-east corner of the SHR curtilage (Plate 6.1, Plate 6.2). The pipeline alignment traverses areas of grass, formed roads and car parks (Plate 6.1 to Plate 6.5). The car park towards the south-east of the curtilage being the end of the pipeline's interaction with this curtilage (Plate 6.5). Although the pipeline is in the heritage curtilage, the location of the primary hospital building for which the site is listed is located approximately 200 m west of the alignment, while other extant structures from the asylum period in the precinct are located between 100 and 150 m west of the alignment.

The desktop review did not identify structures or areas of archaeological potential dating from the Rydalmere Hospital phase in the pipeline alignment. However, the field survey identified a stone and brick feature (Plate 6.6 and Plate 6.7) slightly east of the alignment's impact area (north-east of one of the compounds at the Parramatta Western Sydney University Campus). This feature is approximately two metres wide and consists of two rough courses of rectangular pecked and dressed sandstone blocks, several of which have a curved surface. On top of the two sandstone courses is a course of bricks. The south end of the feature contains a section of mortared brickwork that appears to have been salvaged from a demolished structure and repurposed (Plate 6.7). The feature contains at least two different types of bricks. The sandstone blocks and bricks are held in place with a concrete that includes a coarse gravel aggregate. The sandstone and brick feature creates a platform in the slope of the land and presents as a crudely formed feature created from reused building materials. The composition of the concrete suggests a construction date within the last 75 years. Refer to section 6.3.1 for archaeological interpretation of this stone and brick feature.

Plate 6.1 North-east corner of the Rydalmere Hospital Precinct curtilage. View north-east.

Plate 6.2 East curtialge of Rydalmere Hospital Precinct. View south-east.

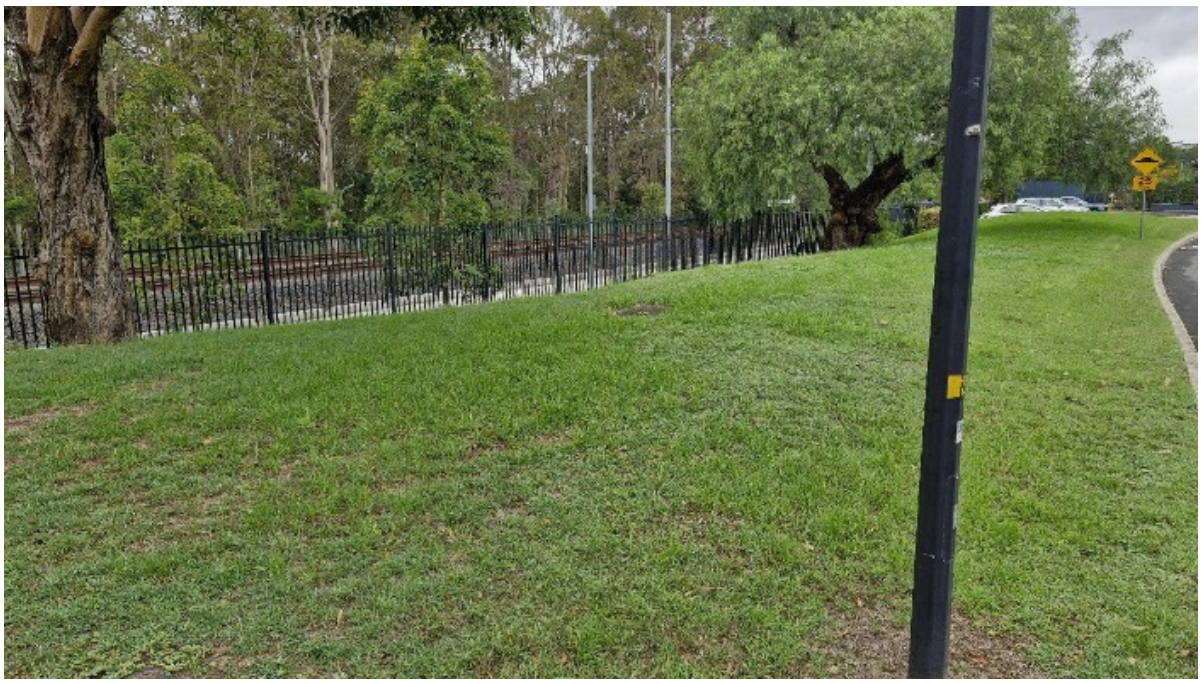


Plate 6.3 **Indicative image of alignment location Rydalmere Hospital Precinct curtilage. View east.**

Plate 6.4 **Indicative image of alignment location in Rydalmere Hospital Precinct curtilage . View south-east.**

Plate 6.5 South-east corner of the Rydalmere Hospital Precinct curtilage. View south.

Plate 6.6 Sandstone and brick feature. View west.

Plate 6.7 Sandstone and brick feature. View north-west.

6.2.2 Clyde Carlingford Rail Bridge abutments (s170 #4800212 and PLEP #I8/#I695)

The Clyde Carlingford Rail Bridge abutments, one on the north side of the Parramatta River (#I695) and one on the south bank (#I8), are still in use as a railway bridge. The brick arched abutments on either side of the River supports a steel lattice girder bridge between them (Plate 6.8 - Plate 6.9). The abutments are triple arched with decorative brick balustrading. Running parallel to the west side of the rail bridge is a steel pedestrian foot bridge. To the west of the foot bridge, also running parallel, is existing Sydney Water pipe infrastructure, which is being repurposed for the brine pipeline alignment, connecting from the Western Sydney University Campus. The pipe infrastructure bridge consists of concrete piers and a steel superstructure (Plate 6.9).

Plate 6.8 **Clyde Carlingford Rail Bridge (left) and Sydney Water pipe infrastructure River crossing (right). View south.**

Plate 6.9 **Sydney Water pipe infrastructure River crossing. View north-west.**

6.2.3 Sewage Pumping Station 67 (SHR #01643, s170 #4571724 and PLEP I9)

The Sewage Pumping Station is a rectangular gabled brick building in the Federation Free style located in the middle of the allotment (Plate 6.10 - Plate 6.13). The Sewage Pumping Station is in active use for its original purpose. The front facade of the building consists of a gabled parapet with a curvilinear apex feature, rendered cornice, projecting brick piers and a rendered string course (Plate 6.11). The entrance consists of a steel roller shutter door with a rendered bracketed cornice over. There are mature palm trees near the entrance to the site on the western edge, along with a row of cypress pines on the northwest corner of the curtilage Plate 6.14 Surrounding the building is a bitumen and concrete road (Plate 6.13 - Plate 6.15). Outside the station structure are two exterior pump/valve chamber infrastructures, one north-west and the other north-east of the building (Plate 6.12 - Plate 6.13). Additionally, there external maintenance structures used to support the site's function, including a mid-20th century caged transformer shed and late 20th century site shed and garage (Plate 6.16 - Plate 6.17). The interior substructure is comprised of a circular concrete space, housing the pumping units that were installed in 1964 when the original 1930s pumps were removed (Plate 6.18).

Plate 6.10 **Sewage Pumping Station 067 structure on the right, with the pipeline alignment on the left. View east.**

Plate 6.11 **Sewage Pumping Station 067 structure. View south-east.**

Plate 6.12 **North side of Sewage Pumping Station 067 structure in background with pipeline alignment in the foreground. View south.**

Plate 6.13 **Side of Sewage Pumping Station 067 structure (left) with pipeline alignment on the right (under road). Exterior pumps not being used in alignment, but represent supporting structural elements on site. View west.**

Source: Google Maps Street View

Plate 6.14 **Entrance to site on western edge, with cypress pines on left and mature palm trees on right.**

Plate 6.15 **End of pipeline alignment under road at north-east of Sewage Pumping Station 067 heritage boundary. View north-east.**

Source: (Truman Zaniol & Associates 2009:42)

Plate 6.16 **View of station building rear, and transformer shed enclosure. View south-west.**

Source: (Truman Zaniol & Associates 2009:40)

Plate 6.17 View of late 20th century garage and store buildings east of station. View south-east.

Plate 6.18 View of internal substructure including circular concrete structure and 1960s pumping units

6.2.4 Water Resource Recovery Facility (WRRF)

The site of the proposed WRRF was formerly part of the Clyde Terminal oil refinery site and contained storage tanks, buildings and infrastructure associated with the storage and distribution of petroleum products. The storage tanks, buildings and infrastructure have been demolished, and the site remediated. It currently presents as a vacant lot, the site shows significant evidence to ground disturbance associated with the remediation process, including numerous rectangular stormwater detention basins (Plate 6.19).

Plate 6.19 Location of pipeline alignment connection to the north of WRRF. View south-east.

6.2.5 Capral Aluminium (PLEP #I677)

Originally designed as a factory complex for aluminium products, site is still used as an industrial business park, serviced by multiple buildings and roads (Plate 6.20). The primary heritage feature is the multi-storey office building in Moderne style (Plate 6.21). The WRRF site abuts the west side of the Capral Aluminium curtilage. The curtilage is delineated by a row of mature trees that provides a visual screen between the two sites.

Plate 6.20 North curtilage of Capral Aluminium at Unwin Street. View south-west from WRRF.

Source: Google Maps Street View.

Plate 6.21 View of multi-storey office building associated with Capral Aluminium.

6.2.6 Earnest Fleming Pty Ltd Machinery Merchants (PLEP #I703)

An industrial brick structure with the name and address of the heritage site painted onto the front façade (Plate 6.22). The main entrance is a large vehicular sliding door in the centre of the building. The street verge includes a concrete footpath and a narrow strip of grass containing signage and power/lighting poles (Plate 6.23).

Plate 6.22 Earnest Fleming Pty Ltd Machinery Merchants on the north side of Derby Street. Pipeline alignment located under the south side of the road, opposite to the heritage structure. View, north-east.

Plate 6.23 **Location of pipeline alignment under the south side of road with the Earnest Fleming Pty Ltd Machinery Merchants structure on the north side of the road. View, north-west.**

6.2.7 Explosives Store (PLEP #I291)

The pipeline alignment will not intersect the curtilage of the Explosives Store, being 15 m north of the curtilage. The explosives storehouse 87 still exists in the west most portion of the curtilage (east of Nurmi Avenue) with the area containing regenerated bush. A ground survey in the north section of the curtilage did not record any relics in this area.

Plate 6.24 **North portion of Explosives Store heritage curtilage. View, east from west heritage boundary.**

Plate 6.25 North portion of Explosives Store heritage curtilage. View, west from east heritage boundary.

6.2.8 Memorial Park (including obelisk) and remnants of former Meadowbank baths (RLEP #I72)

The pipeline will run parallel to the north curtilage of the Memorial Park, before going south through the park, parallel to the east curtilage border.

The Park contains several permanent benches and tables, with footpaths dissecting the area and providing access to Parramatta River. The Park is well vegetated, containing stands of mature trees, underplanted with lawn. The primary feature of the park is the Memorial obelisk, located approximately 35 m from the River bank in the south-east corner of the Park and over 45 m from the closest portion of the pipeline alignment (Plate 6.27).

A another memorial is located approximately 65 m from the River bank, in the centre of the Park on the east side, is a stone structure with 'Ryde Remembers' carved into it and two plaques (Plate 6.28 - Plate 6.29). This feature is situated in the impact area. The memorial consists of a concrete/stone pillar, approximately 400 mm in height. The south vertical face contains a floral imprint and the words "RYDE REMEMBERS/2014-2018", together with a bronze plaque that states "For your generous commitment of time, support and inspiration to our endeavours". The top surface contains a second bronze plaque shows the 'City of Ryde' council logo at the top, the centre has information elaborating on the title "This plaque commemorates the Centenary of Armistice 2018".

The Riverbank has been formalised with a sandstone retaining wall that is vertical for most of the length of the Park, but is terraced under the John Witton Bridge. There are several small patches of mangrove vegetation in the water. A pedestrian/cycle path runs near the edge of the River, with a narrow landscaped garden bed between the two, which also contains light poles. No evidence of the in-River timber bath structure was visible from the highly modified shoreline. The Bowden Street car park that the river release pipeline will traverse before being embedded into bottom the Parramatta River, is not within the curtilage of this heritage item, and is noted to be on reclaimed land (Plate 6.30).

The north-east corner of Memorial Park along Meadow Cresent, in the vicinity of the former F. Whitham cottage (Plate 5.21), has been formalised into road-side parking on the same grade as the road. The park slopes gently towards the River, with no evidence of a flat area on which a residence may have sat.

Plate 6.26 **Indicative Location of pipeline alignment (along footpath) from north-east corner of Memorial Park heritage boundary. View south.**

Plate 6.27 **Location of pipeline alignment to the left at the footpath in relation to the Memorial obelisk (far right) at Memorial Park. View south.**

Plate 6.28 **Indicative Memorial Park pipeline alignment (along footpath). View north. 'Ryde Remembers' memorial structure (centre of image).**

Plate 6.29 **'Ryde Remembers' memorial structure.**

Plate 6.30 Indicative of Memorial Park pipeline alignment with Parramatta River shoreline and parking lot off Bowden Street in background. View south.

6.2.9 Meadowbank rail bridge over Parramatta River (SHR #01189 and RLEP #I56) and Meadowbank (Parramatta River) Underbridge (#4805744) (John Whitton Bridge)

No longer a rail bridge, the SHR listed Meadowbank rail bridge over Parramatta River has been repurposed as a cycleway, providing access across the Parramatta River. It is one of twelve double lattice girder bridges that survive substantially intact in the NSW. The bridge is constructed in six spans, the piers being twin cast iron cylinders, cross braced with iron (Fraser and Best 2000). The latticed railings form a visually imposing link between the piers (Plate 6.31).

To the west of the SHR item, is the current rail bridge listed on Transport for NSW's Section 170 register as the Meadowbank (Parramatta River) Underbridge, but more frequently referred to as the John Whitton Bridge. The Bridge is constructed with four concrete piers supporting five spans consisting of steel box girders topped with composite concrete slabs (Plate 6.32 - Plate 6.33).

Passing under the north end of both bridges is Bowen Street with carparking located on each side, as well as under the Meadowbank rail bridge over Parramatta River (Plate 6.34).

Source: Transport for NSW, https://www.transport.nsw.gov.au/projects/current-projects/meadowbank-bridge.

Plate 6.31 Meadowbank rail bridge over Parramatta River.

Plate 6.32 **Meadowbank (Parramatta River) Underbridge, also known as the John Whitton Bridge. View south-east.**

Plate 6.33 **West side of Meadowbank rail bridge over Parramatta River. Indicative of river release pipeline alignment west of the bridge. View south-east.**

Source: Google Maps Street View.

Plate 6.34 Carparking at Bowen Street under both bridges

6.2.10 Other sites in the vicinity of the impact area

The following sites were not visited during the heritage survey due to their distances from the impact area. The respective site descriptions are outlined in Table 6.1 as sourced from the State Heritage Inventory.

Table 6.1 Other sites in the vicinity of the impact area

Site	Description
Dundas Railway Station (SHR #01133, s170 #4801051 and PLEP #I54)	The station building is a reconstruction of the original timber narrow awning building (type 8). It is a painted timber building with a hip and gabled galvanised iron roof, and a skillion extension on the Carlingford (Up) end of the building. Four entry points, a large window and a small square window are located on the platform side and are covered with security screens. These are also used on all other windows and doors and hide the timber panelled doors and four paned timber framed windows. Some of the window frames appear to be original. The Station Street elevation is characterised by one double door entry, two large windows and several high, small square windows. The Station Street entry, together with the main entry area on the other side of the building have small, cantilevered awnings with corrugated iron sheeting and decorative ends. (Heritage NSW 2020a)
Tram alignment (PLEP #I6)	A wide street alignment with former tram alignment in the centre now used as car and truck parking bays. Avenue remains only where trams ran from George Street gatehouse to Camellia. (Heritage NSW 2004b)
Grave of Eliner Magee & Child (PLEP #I7)	A modern headstone marks the site of the grave of Elinor Magee and her infant child who were drowned in the nearby Parramatta River in 1793. Grave is marked by a painted concrete headstone with plaque enclosed by painted concrete edging. (Heritage NSW 2004a)
Wetlands (PLEP #I11)	This item consists of remnant wetland vegetation, characterised by mangrove and saltmarsh complex, located along the foreshores of Parramatta and Duck rivers and their tributaries, Vineyard and Subiaco creeks. (Heritage NSW 2004c)

Site	Description
Dwelling (PLEP #I704)	Built in the Victorian Italianate Style, this asymmetrical building addresses the street, on a large block. It features a corrugated iron gabled roof with a smaller gabled wing extending towards the street. The street elevation of the gabled wing features a paved wall containing three, timber framed, double hung, sash windows. The gable end features a decoratively carved timber barge board. An ogee verandah extends along the front of the building, supported by two pairs of timber posts and a brick balustrade. The end of the verandah is enclosed by a leadlight window. (Heritage NSW 1996)

6.3 Archaeological Potential

Due to its urbanised nature, the impact assessment area has been subject to ground disturbances across the decades. Factors that contribute to the area's archaeological potential, such as the highly developed area and subsequent historical phases that could be reflected in the archaeological record are explored below. The pipeline alignment primarily follows existing roadways where archaeological findings are likely to be limited to historic road surfaces, although these are unlikely to meet the threshold for relics as the roads are not heritage listed items. The following section will discuss the potential for archaeological resources to occur in the impact area with reference to the *Parramatta Historical Archaeological Landscape Management Study* (Godden Mackay Logan, 2000a, 2000b, 2000c) and the results of the site inspections, as described in Section 6.2.

An analysis of relevant historical aerials, maps and plans specific to the impact area and respective heritage listings has identified sites with archaeological potential. Subsequent research of associated aerial imagery allowed for the identification of structures, topographical features, or other indicators aligning with the historic maps, in addition to the field survey utilising ground truthing methods. These potential sites were targeted during the field assessment (Section 6).The explanation and definitions of the relevant levels terminology is described in Table 6.2 and Table 6.3. Figure 6.1 portrays the archaeological potential of the impact area spatially. The predictive model was constructed to evaluate the potential presence of additional sub-surface historical sites in the impact area that are not identified on plans and not within listed heritage sites. The predictive model is detailed in Section 6.4. It should be noted that archaeological potential does not necessarily equate to heritage significance.

The sites discussed in this section are included as construction works will occur in their respective curtilages.

Table 6.2 Levels of archaeological potential applied to potential resources in the impact area

Level of Archaeological Potential	Explanation
High	Known, intensive activity has occurred (during the historical phase) that is likely to result in an archaeological resource. The activity is geographically constrained and is not likely to have been subject to subsequent disturbance.
Moderate	Known activity likely to result in an archaeological resource has occurred (during the historical phase). The activity is geographically constrained but may have been subject to subsequent disturbance.
Low	Known activity that may have resulted in an archaeological resource has occurred (during the historical phase). The activity is not geographically constrained and/or is likely to have been subject to substantial subsequent disturbance.
Unlikely	No known historical activity has been identified within a geographically constrained area that is likely to result in an archaeological resource and/or an area where subsequent subsurface impacts have been extensive.

Table 6.3 Definitions of disturbance levels informing assessment of archaeological potential

Level of Disturbance	Definition
High	The historical site or feature has been subject to subsequent development that clearly demonstrates subsurface disturbance has taken place that would have a major impact on any archaeological deposits or relics.
Moderate	The historical site or feature has been subject to subsequent development that clearly demonstrates subsurface disturbance that would have an impact on any archaeological deposits or relics, however, archaeological evidence may remain.
Low	The historical site or feature has been subject to subsequent development however known subsurface disturbance has not been identified.
Nil	The historical site or feature has been subject to no known subsequent development of subsurface impacts that would have a direct impact on any archaeological deposits or relics.

6.3.1 Rydalmere Hospital Precinct (former) (Rydalmere) (SHR #00749, s170 #5000658 and PLEP #I661)

The brine pipeline will traverse through the east side of the SHR listed site. A review of available maps, plans and aerials indicates that there are no known developments or structures in the vicinity of the pipeline (Plate 5.8 and Plate 6.36) (Casey & Lowe Pty Ltd 2007: 8, Tanner & Associates Pty Ltd 2000: 69).

Being on the periphery of the Precinct, it is considered unlikely that there would be development or structures in this area as it is located away from the central hub of the Precinct. Based on the historical disturbance observed through the historical aerials, it is considered that the area has been subject to moderate to high levels of disturbance associated with the construction of the light rail, Railway Street and associated landscaping (Godden Mackay Logan 2000a: AMU 2999 & 3000). This is evidenced by the substantial difference between the level of the light rail, Railway Street and the adjacent land.

As discussed in section 6.2.1, the site inspection identified a sandstone and brick feature near the impact area(Plate 6.35). Historical plans of the precinct do not show any structures in this feature's vicinity (Plate 6.36). Previous archaeological studies and landscape element maps have not mapped or identified this feature. Reference to plans contained in these reports, however, indicates that the sandstone and brick feature is likely to be a surviving portion of the dressed stone edging or stone retaining wall identified by Tanner & Associates (2001:50–52) (Plate 6.37). The sandstone and brick feature therefore demonstrates the Precinct's boundary during the time it was the psychiatric hospital, with Tanner & Associates attributing the boundary to the period from the late 1800 to early 1900s (Tanner & Associates Pty Ltd, 2001: 50-52).

Nevertheless, this portion of the pipeline will be repurposing existing infrastructure and any required excavations will be within the previously disturbed footprint of the original pipeline. The archaeological potential of the pipeline alignment through the Rydalmere Hospital Precinct (former) is therefore considered to be unlikely.

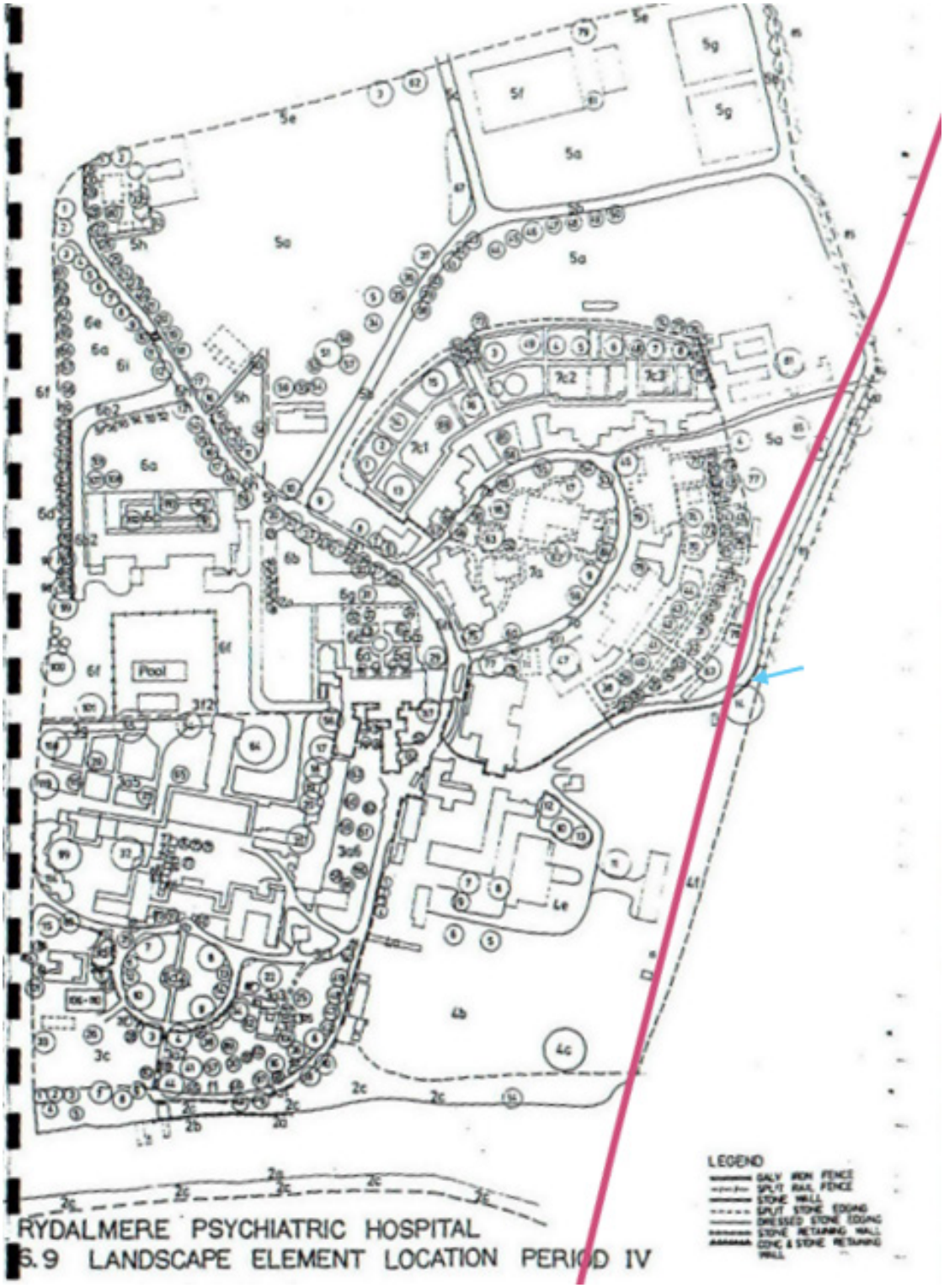
Source: Sixmaps

Plate 6.35 Location of sandstone and brick feature (red circle) at the Western Sydney University Parramatta Campus

With indicative pipeline alignment.

Source: Tanner & Associates 2000: 69.

Plate 6.36 1893 Surveyor's plan showing 'Contours, features, and buildings within the area dedicated for the hospital for the insane, Rydalmere



With indicative pipeline alignment. Blue arrow shows location of sandstone and brick feature.

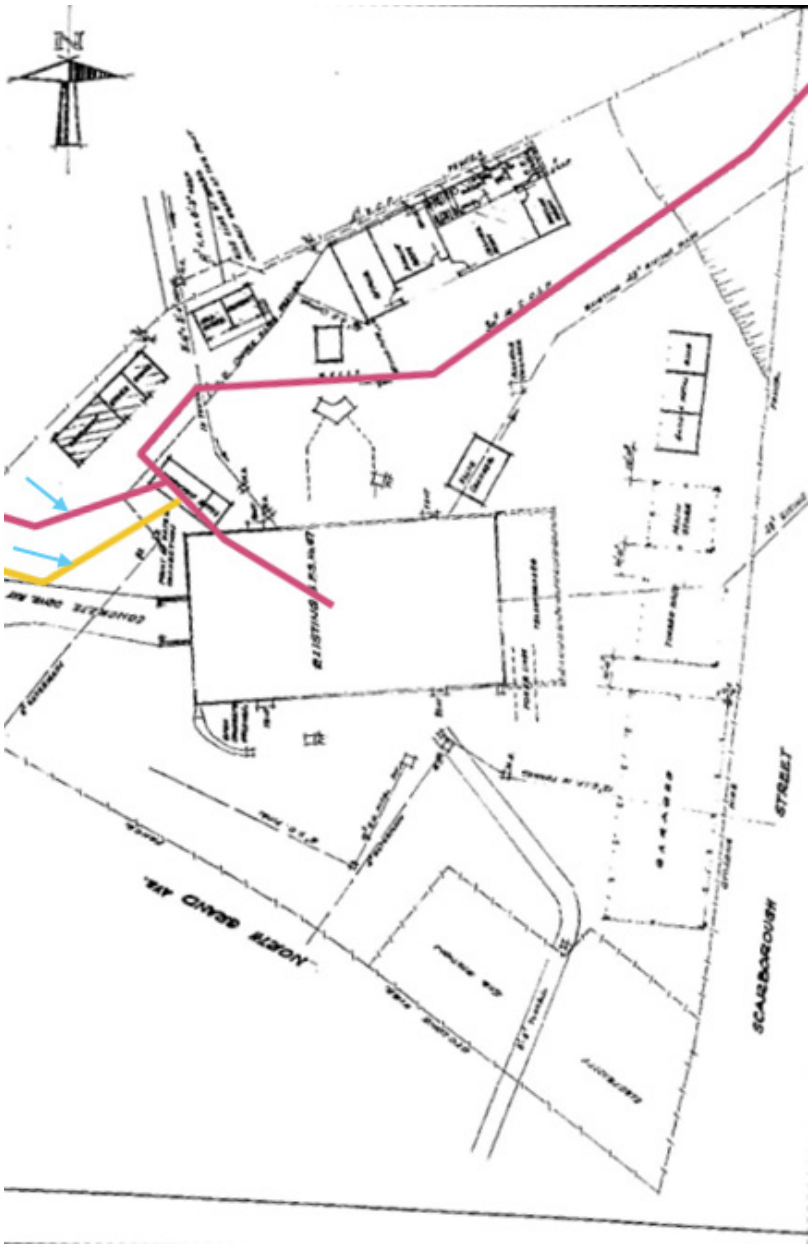
Source: Tanner & Associates 2001: 65.

Plate 6.37 Rydalmere Psychiatric Hospital landscape element location period IV

6.3.2 Sewage Pumping Station 67 (Camellia) (SHR #01643, s170 #4571724 and PLEP I9)

The CMP for the sewage pumping station assessed the potential for archaeology relating to the pre-pumping station phase of the site to be low as there is no evidence of occupation prior to the station's construction and given the substantial disturbance of the site during the construction of the sewage pumping station (Truman Zaniol & Associates 2009: 52).

A review of the available maps, plans and aerials of the site indicates the archaeological potential of the site is limited to the now decommissioned original rising mains and valve chambers, as well as the underground infrastructure that is still in use. Furthermore, there has been extensive levels of disturbance over the decades from works conducted at this site (Extent 2025). Therefore, the archaeological potential for this site is unlikely to low in the planned open trenching area.



With indicative pipeline alignment. Blue arrow shows portions of the pipeline requiring open trenching. The non-arrowed pipeline is repurposing existing infrastructure.

Source: Truman, Zaniol & Associates Pty Ltd 2009: 28.

Plate 6.38 1967 plan of the site with ancillary buildings

6.3.3 Water Resource Recovery Facility (WRRF)

The WRRF is located south-east of the Rosehill Gardens Racecourse and where the pipeline will be terminating, then beginning again on the opposite end of the WRRF's boundaries. This site will also have a range of process infrastructure and ancillary facilities for the operation of the pipeline treatment. Within the boundaries, there has been high levels of disturbance associated with the demolition and remediation of the Clyde Terminal oil refinery. There will also be capping for the contamination installed prior to the project commencing, increasing the depth at the site. As a result, this site is considered unlikely to contain archaeological resources.

6.3.4 Memorial Park (including obelisk) and remnants of former Meadowbank baths (Meadowbank) (RLEP #I72)

A review of the historical plans, aerials and images identified several areas of archaeological potential (Figure 6.2):

- F. Whitham's cottage
- Meadowbank baths
- Land-side structures related to the Meadowbank baths and park activities.

Each of these are discussed separately below.

i F. Whitham's cottage

Plate 5.21 shows a partial footprint of a building present in 1905 as being on the property boundary adjacent to Meadow Cresent. The footprint represents two, terraced weatherboard cottages of an unknown construction date. As pre-existing structures were not mentioned in the property deed it is likely the terraced cottages were constructed under Whitham's ownership (NSW Land Registry Service n.d.:Book537-No.545). The cottages were acquired by the local council prior to 1912 and area probably depicted in the 1926 photograph of the baths, reproduced in Plate 5.23. The partial outline of the cottages on the Blaxland Estate subdivision plan may be explained by the 1926 photograph, which indicates the rear of the cottages were raised on piers to navigate the slope of the land without substantial leveling and terracing of the property. It is therefore surmised that the front (north) of the cottages was constructed at the level of Meadow Cresent and foundations could be anticipated. A 1930 aerial shows the location of the foundations within the impact area (Plate 6.39).However, it is uncertain whether the north portion of the structure, being the piers shown in the 1926 photograph, may be archaeologically preserved within the car park fronting Meadow Cresent as the level of disturbance in this area is unknown. The piers of the rear of the structure are less likely to be preserved archaeologically. The archaeological potential for evidence of F. Whitham's cottage to be archaeologically preserved therefore ranges between high in the north near Meadow Cresent to low in the south (Figure 6.2).

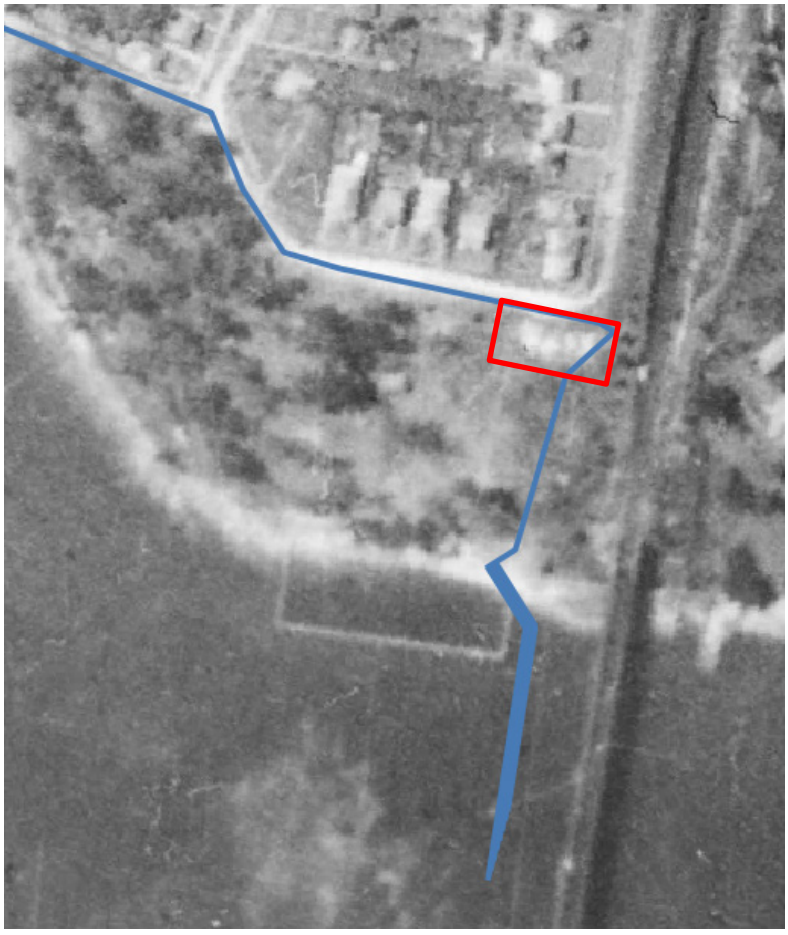
ii Meadowbank baths

While no land-side evidence of the Meadowbank baths was identified during the site inspection, the potential for evidence of the baths to be retained within the Parramatta River is considered to be moderate (Figure 6.2). Historical plans and aerials indicate the timber piles and slats that formed the boundary of the bath in the River was demolished sometime between 1961 and 1965, but it is unclear whether the piles were pulled out or cut off below the water line and near the level of the River bed. The potential for timber piles associated with the baths to be preserved in the River-bed is considered to be moderate and Plate 5.22 shows the proximity of the alignment to the bath boundary.

iii Land-side structures associated with the Meadowbank baths and park Land-side structures related to the Meadowbank baths and park activities

The 1926 photograph (Plate 5.23) shows a structure located near the centre of the Park, to the north-west of the obelisk. The structure is a simple, rectangular gabled building of brick with a tiled or slate roof. The central portions of the long sides are in-filled with timber, creating two large openings. It is likely that this structure are the dressing rooms that were constructed in late 1926, probably not long after they were opened. Archaeologically, the structure could present as a foundation slab, however, aerials indicate this area was extensively terraced by 1970 (Plate 6.40), suggesting a high level of disturbance and therefore low archaeological potential (Figure 6.2).

A 1955 aerial (Plate 6.41) shows an unknown structure located in the Park. The aerials indicate the structure existed from least 1955, but not prior to 1943 and was demolished before 1986. A 1961 status branch charting map labels the structure located in this area as being for “Public Recreation” (Plate 6.42), which does not narrow down the function of the structure. A review of historical aerials post the demolition of the structure indicate the area has been subject to low to nil levels of disturbance and the archaeological potential is therefore moderate.



With indicative pipeline alignment in blue and location of F.Whitham foundation in red.

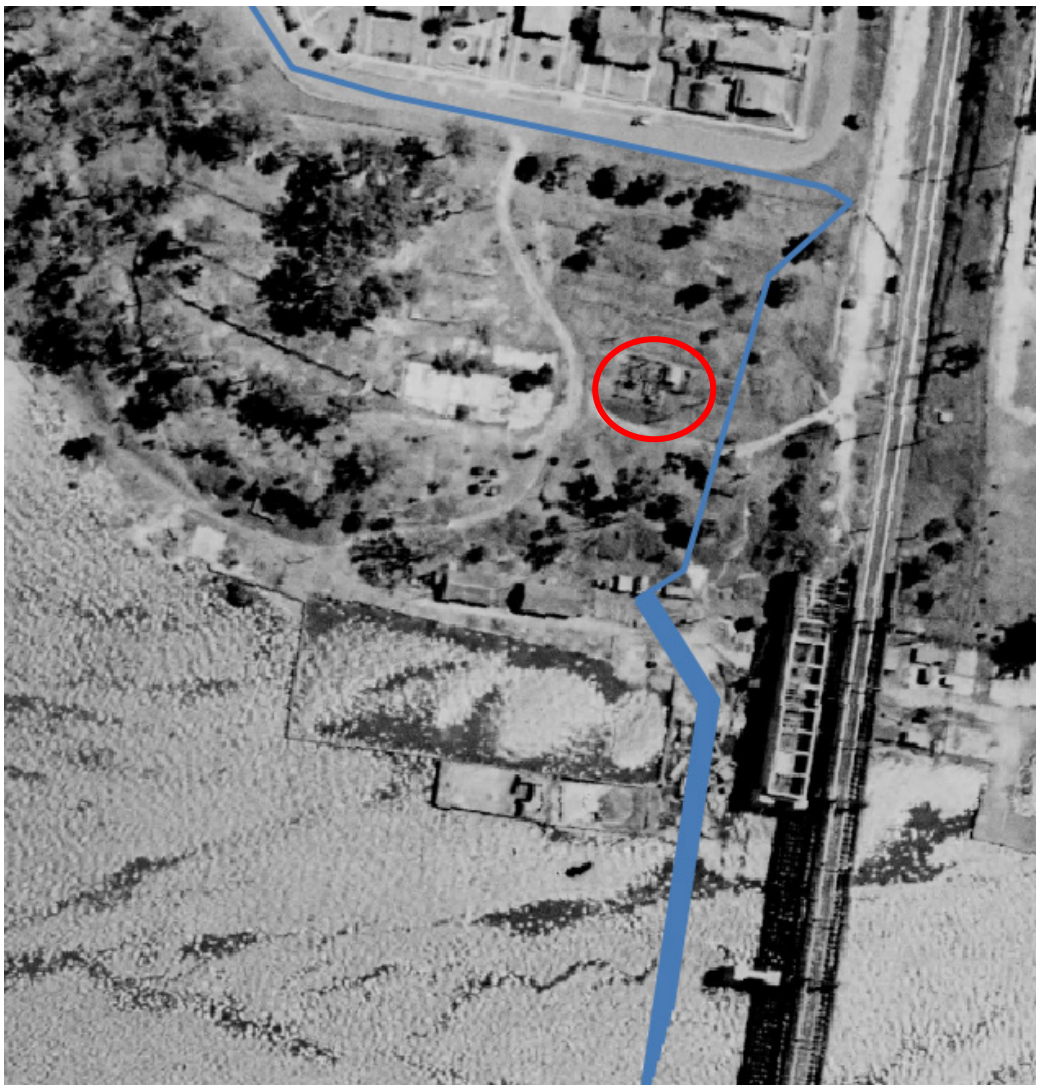
Source: NSW Historical Imagery.

Plate 6.39 1930 aerial of Meadowbank Memorial Park showing foundation of the F.Whitham structure

With indicative pipeline alignment.

Source: NSW Historical Imagery.

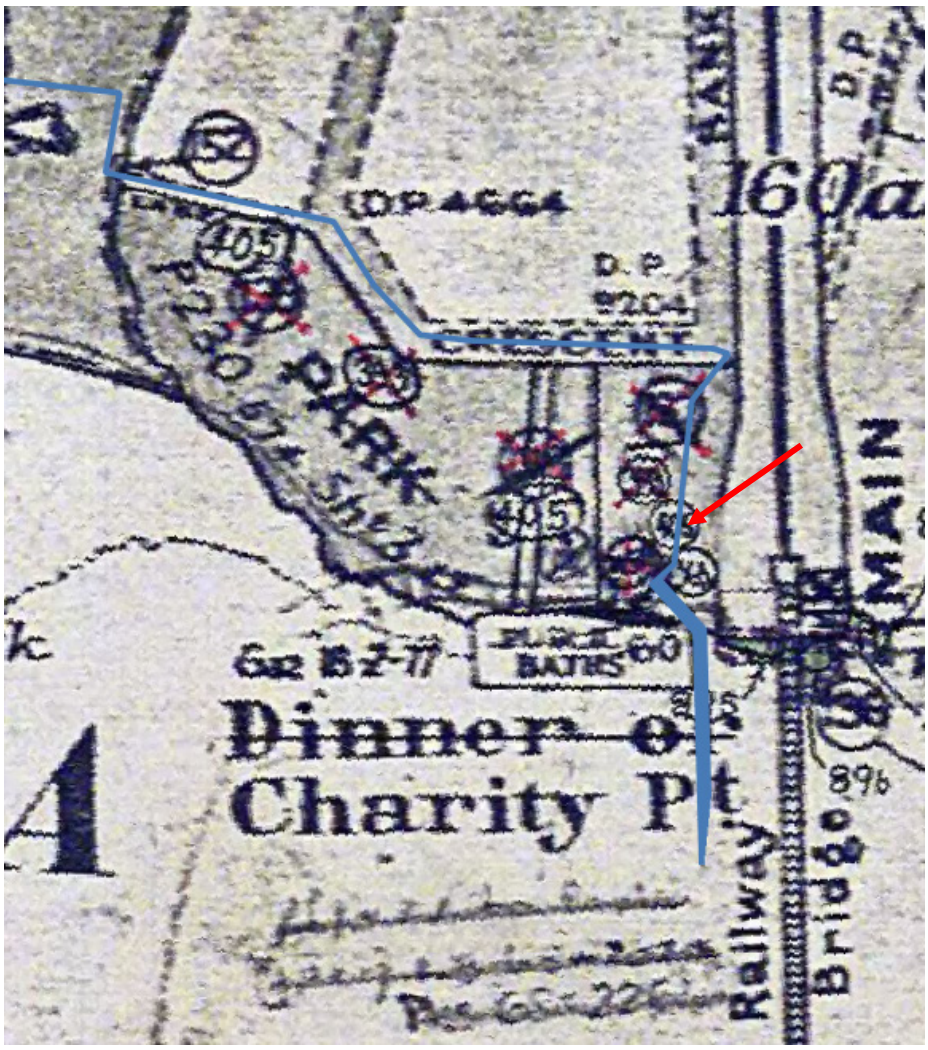
Plate 6.40 1970 aerial of Meadowbank Memorial Park showing terracing



With indicative pipeline alignment. Red circle showing location of unknown ‘public recreation’ structure.

Source: NSW Historical Imagery.

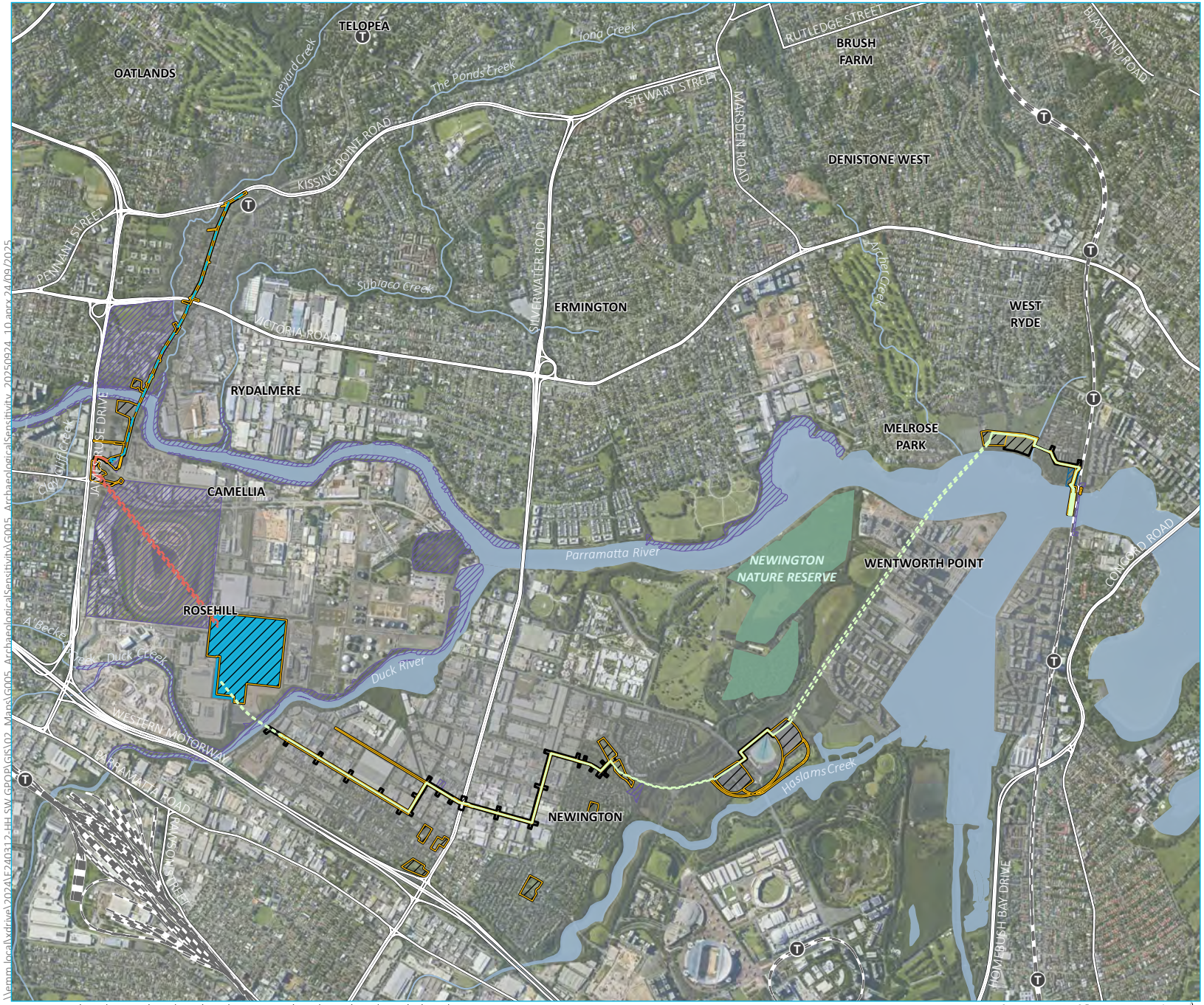
Plate 6.41 1955 aerial of Meadowbank Memorial Park showing terracing



With indicative pipeline alignment. Red arrow pointing to the label referring to the site as ‘public recreation’.

Source: HLRV

Plate 6.42 1961 Hunters Hill Status Branch Charting Map



KEY

- Impact assessment area
- River release pipeline - HDD (Trenchless)
- River release pipeline - Open trench
- Brine pipeline
- Transfer pipeline - HDD (Trenchless)
- Transfer pipeline - Open trench
- Impact area
- WRRF

Archaeological potential

- Unlikely potential
- Moderate potential

Existing environment

- Train station
- Rail line
- Major road
- Named watercourse
- Named waterbody
- NPWS reserve

Source: EMM (2025); DCSSS (2024); GA (2009); MetroMap (2025); DPE (2024); Jacobs (2025)

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GDA2020 MGA Zone 56

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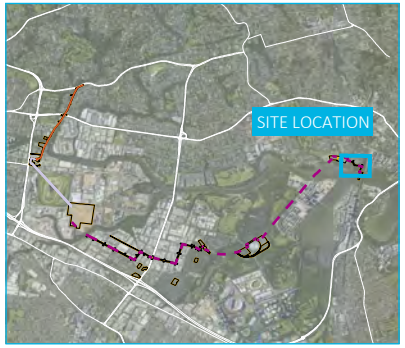
Archaeological sensitivity

Sydney Water GPOP
Statement of Heritage Impact
Figure 6.1

EMM creating opportunities



KEY

- Park boundary
- Heritage feature
- Barometric loop

Archaeological potential

- High
- Moderate
- Low

LEP listing

- Item - General

Existing environment

- Rail line
- Minor road
- Named watercourse
- Impact area

INSET KEY

- Major road
- Impact assessment area
- Impact area
- Brine pipeline
- Transfer pipeline
- River release pipeline

Archaeological Potential of Meadowbank Memorial Park

Sydney Water GPOP
Statement of Heritage Impact
Figure 6.2

EMM creating opportunities

Source: EMM (2025); DCSSS (2024); GA (2009); MetroMap (2024)

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6.4 Predictive model

Based on background research involving documentary sources, maps, plans, and aerial imagery, and field evaluation, a predictive model for identifying historic site types to facilitate the identification of potential sites that may be present in the impact area but not identified within a heritage site. This model is the result of an extensive analysis that includes:

- landscape features in the impact area and surrounds
- colonial period ecological conditions
- proximity to listed heritage items in the region
- examination of county, parish, Land Titles Office (LTO) charting maps and aerial imagery
- consideration of the historical context of the impact area.

The model undertook predictive analysis to assess the probability of the presence of historical sites occurring within the impact area. Based on the archaeological sites identified in the region, a review of historic plans and aerials and the environmental context, conclusions can be drawn regarding the potential presence of unrecorded sites within the impact area as summarised in Table 6.4.

Table 6.4 Potential historical sites within the impact area

Site type	Characteristics	Potential
Artefact deposits	The impact area has been in historical use since the 1790s and therefore there is the potential for an array of artefact deposits to be found. This could include building materials, personal objects, tools, etc. However, due to the impact assessment area's subsequent high disturbance levels, artefact deposits are likely to be of low potential.	Low
Early huts/structures	Subsequent high levels of disturbance in the impact, together with no recorded development along the pipeline alignment, indicates the archaeological potential for early huts or structures is low	Low
Previous road surfaces	Previous road surfaces are commonly identified under existing surfaces. These commonly take the form of earlier layers of bitumen, but can also include macadam, woodblocks and cobblestone. The earlier the road alignment, the more likely it is to have been resurfaced and therefore the higher the potential for earlier surfaces to be identified when trenching through roads.	High
Cisterns	As aforementioned, the pipeline alignment will primarily be traversing existing and historical roads, indicating the potential for unknown cisterns within the impact area to be low. There are no known cisterns according to the historical maps of the impact area.	Low
Previous pipelines/culverts	With the installation of new pipeline infrastructure and the repurposing of existing ones, there is a moderate potential for the discovery of previous pipelines and culverts. Particularly as the impact assessment area is traversing existing roads, which are commonly used for services.	Moderate

7 Assessment of significance

7.1 The significance framework

In NSW, historical value is ascribed to buildings, places, archaeological sites and landscapes modified in the Australian historical period for purposes other than traditional Aboriginal use. The assessment of heritage significance is based on the Burra Charter (Australia ICOMOS 2013) and further expanded upon in *Assessing Heritage Significance* (DPHI (2025). The guidelines for assessing heritage significance lists seven criteria to identify and assess heritage values that apply when considering if an item is of State or local heritage significance, which are set out in Table 7.1.

Table 7.1 NSW heritage assessment criteria

Criterion	Explanation
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) (*Historical Significance)*.
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) *(Historical Association)*.
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) *(Aesthetic/creative/technical achievement)*.
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. *(Social, cultural, spiritual Significance)*.
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) *(Research Potential)*.
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) *(Rarity)*.
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 (or a class of the local area's cultural or natural places; or cultural or natural environments) *(Representativeness).*

Source: *Assessing Heritage Significance* (DPHI 2025, p.21).

7.2 Listed site significances

The pipeline alignment will go through several different LGAs and area types, and thus, the various types of heritage items indicate differing levels of historic significance, with each demonstrating different narratives in the region's history.

Table 7.2 provides the significance assessment of the heritage items in the impact area. The significance assessments of the items within a 200 m buffer of the impact area are outlined in Table 7.3.

Table 7.2 Significance Assessment – listed items in impact area

ID	Item name	Applicable criteria	Statement of significance
SHR #00749, s170 #5000658, PLEP # I661.	*Rydalmere Hospital Precinct (former)*	A, C, D, E, F, G	The Female Orphan School Precinct as a component of the former Rydalmere Hospital is of outstanding cultural significance, primarily for its continued use and development, between 1813 and 1989 as a public welfare institution for the care and management of the disadvantaged. As the first purpose built orphan school in the colony, it illustrates a milestone in the establishment of national social welfare and education policies. The surviving original buildings, constructed between 1813 and 1818, provide evidence of the development policies of Governor Macquarie and illustrates the transfer of 18th century British architectural pretensions into the design and siting of functional buildings in New South Wales. The extant central block is the oldest three storey building in Australia. The site as a whole, and particularly the Orphan School precinct, has outstanding historical and social significance because of its continuous occupation as an institution since 1814. The original complex and its garden setting have outstanding rarity value. Its landscape is of exceptional significance for its development as a Colonial institution sited within the cultural landscape of the Parramatta River valley and influenced by Mrs Macquarie together with the continuing recognition of the heritage values of the place up to the present (Schwager Brooks, 1994). As such, this site is significant to both state and national levels. (State Heritage Inventory Online 2025f)
SHR #01643, s170 #4571724 and PLEP #I9	*Sewage Pumping Station 67*	A, C, D, E, F, G	SP0067 has cultural significance at the State level for its historical, associative, aesthetic, and technical values, and for its rarity. Constructed and made operational in 1930-1931, SP0067 played a major role in the enhancement of Parramatta's sewerage system which, in turn, contributed to improvements of public health in the area, and allowed for the growth of the western suburbs of Sydney during the Inter-War period by providing a high-capacity sewerage system that could serve the growing population. SP0067 is also of historical and associative significance for its role within the Northern Suburbs Ocean Outfall Sewer (NSOOS) system, one of Sydney's largest sewerage systems, and marks the period when the responsibility of designing and constructing the majority of Sydney's sewerage infrastructure was handed to the Metropolitan Water, Sewerage and Drainage Board; SP0067 was one of the first major low-level pumping stations that was designed and constructed in-house and provides evidence of an innovative and extensive response to the sewage management of Sydney during the Inter-War period. Aesthetically, the superstructure of SP0067 is a good example of a substantial, relatively intact Federation Free style industrial building, and is representative of a public utility building designed and constructed during the Inter-War period by the Metropolitan Water, Sewerage and Drainage Board. The aesthetic values are enhanced by the decorative details including gabled parapet with curvilinear apex, well considered proportions and quality materials, rendered string course and cornices, and brickwork detailing including the use of contrasting polychrome brickwork, tuckpointing and dentil courses. When constructed, SP0067 was the largest low-level sewage pumping station in Sydney, serving the City of Parramatta and parts of the Cumberland and Canterbury-Bankstown local government areas. It is still one of the largest within the Sydney Water network and while the technical composition of SP0067, consisting of a double walled circular substructure containing a wet-well and pumping machinery with a superstructure over, is not unique within Sydney's sewerage system, the capacity and area which the station serves is uncommon. Its continued use as a low-level sewage pumping station is tied to its significance. (Extent 2025).

ID	Item name	Applicable criteria	Statement of significance
RLEP #I72	*Memorial Park (including obelisk) and remnants of former Meadowbank baths*	A, B, C, D, E, F, G	The war memorial is of local historical significance as a commemoration of the involvement of locals in the first World War. The memorial has historical association with the local Meadowbank community who erected the monument. The monument has aesthetic significance as a fine stone monument, a focal point within Meadowbank Park in addition to the natural features of trees and plants. The monument has social significance as a war memorial which is the focus of yearly Anzac Day ceremonies and is important to the community's remembrance of past wars. The monument has research potential for information on the honour rolls, being the names of fallen locals commemorated. The monument is representative of First World War memorials erected in New South Wales and is rare in the Ryde area. (State Heritage Inventory Online 2025e)

Table 7.3 Significance Assessment – listed items within 200 m of impact area

ID	Item name	Applicable criteria	Statement of significance
S170 #4800212 and PLEP #I8/1695	*Clyde Carlingford Rail Bridge abutments*	A, C, G	Clyde Carlingford Rail Bridge is of significance for the local area for historical, aesthetic and representativeness reasons. Built c.1895, it is readily identifiable as a historic structure and strongly contributes to the townscape. While it is a relatively small bridge the brick detailing makes it one of the more elaborate of the early crossings and it forms an attractive historical feature of the river. The bridge also possesses the ability to demonstrate bridge building technology of the time. (State Heritage Inventory Online 2025b)
PLEP #I677	*Capral Aluminium*	A	The site of Capral Aluminium is of significance for the local Parramatta area for historical, associative, and reasons of representativeness. The site provides evidence of major local industry and manufacturing. This site was of prime importance during the Second World War, a role which emphasised the regional significance of Parramatta. It is also a fine example of a modern industrial building with all its facilities. (State Heritage Inventory Online 2025a)
PLEP #I703	*Earnest Fleming Pty Ltd Machinery Merchants*	A, C, F	This medium scale industrial building has local historic and aesthetic local significance for the evidence it provides of the early industrial development of Auburn municipality. The building is historically significant as it has, since construction, housed one of the municipality's medium scale industrial manufacturing plants. The building has aesthetic significance as it provides a representative example of an Inter / Post War industrial building. This significance is enhanced by the degree to which much of the original fabric and character of the building has been retained. (State Heritage Inventory Online 2025c)
PLEP #I291 and SEPP Item 87	*Explosives Store*	A	The former Building 87, a British World War II era explosives store that has strong local historical associations with the Newington Armament Depot, is an original part of the site but is not included in the State Heritage Register listing boundary. The building is in the middle of the suburb of Newington, on the south side of Avenue of Oceania. (Tanner Architects 2013: 70)
SHR #01189, s170 #4805744 and RLEP #I56	*Meadowbank Rail Bridge over Parramatta River*	A, C, E	The Meadowbank-Rhodes bridge is one of twelve double lattice girder bridges that survive substantially intact in the NSW railway system. As such it is of exceptional local and state heritage significance as evidence of a short lived but highly popular approach to bridge design in which the spanning girders were reinforced by a lattice of bars, adjusted to suit changing structural forces. This bridge is the largest double track lattice girder bridge to be prefabricated in England for export to Australia and has significant variations on the standardised design. The bridge is one of the most architecturally impressive nineteenth century Australian railway structures. A unity in design, lively detail, skilful use of materials and fine workmanship is displayed by the bridge and its abutments. The Meadowbank-Rhodes bridge is an exceptional piece of early Australian railway engineering. (State Heritage Inventory Online 2025d)
SHR #01133, s170 #4801051 and PLEP # I54	*Dundas Railway Station Group*	A, B, C, D, E, F, G	Dundas Railway Station is significant for its small timber platform building which is the only known example of its type, characterised by close eaves with a small platform awning. The building however has lost its integrity having been reconstructed in 2007 after the original timber structure was destroyed by fire. The station is evidence of the construction of the private Bennett and Simpson Railway under the Simpsons' Railway Act in 1893, which provided transport to the northern suburbs, including Baulkham Hills, Castle Hill and Dural. (Heritage NSW 2020a)

ID	Item name	Applicable criteria	Statement of significance
PLEP #i6	*Tram alignment*	A	The wide street alignment (tram alignment) is demonstrative of the former tramway line, an important private development associated with the river's use as a corridor and physical evidence remains in the alignment of Grand Avenue and in the remaining tracks along the eastern end of this road. (Heritage NSW 2004b)
PLEP #I7	*Grave of Eliner Magee & Child*	A, D, F	The grave of Eliner Magee and her infant son are of historical significance for Parramatta as a rare surviving early European grave site, one of the oldest in NSW. (Heritage NSW 2004a)
PLEP #I11	*Wetlands*	G	The wetlands along Parramatta River are of significance for Parramatta area as remnant representative areas of mangroves and salt marshes which once extensively lined the foreshores and tidal water flats of the region. (Heritage NSW 2004c)
PLEP I704	*Dwelling*	A, C	This site has local historic significance as a rare example of a suburban residence erected in the study area in the late nineteenth century on the new subdivision then being laid out. The site also, through its character and location, provides evidence of the influence of the transport routes and industrial development in the residential suburb of Auburn. It is aesthetically significant as it provides a good example of a Victorian Italianate residence, erected in the municipality during this phase of development. The original fabric of the building is intact and it has attractive and interesting decorative detail. (Heritage NSW 1996).

7.3 Identified sites significance

The background research and site inspection identified archaeological potential in Memorial Park and a sandstone and brick feature in the Rydalmere Hospital precinct. The following sections assess the significance of these items.

7.3.1 Memorial Park archaeological potential

The background historical research identified archaeological potential in Meadowbank Memorial Park relating to the cottage of F. Whitham, the Meadowbank baths, and park related structures. The significance of this archaeological potential has not been previously assessed. Table 7.4 assesses the significance of the areas of archaeological potential.

Table 7.4 Significance assessment – Memorial Park archaeological potential

Criterion	F. Whitham cottage	Meadowbank baths	Land-side structures
a) An item is important in the course or pattern of NSW's (or the local area's) cultural or natural history (Historical Significance).	The F. Whitham cottage is unusual in that the land was subdivided and developed prior to the formal subdivision of the Blaxland Estate in 1905. However, as the cottage was built in the 1890s, the archaeology is unlikely to provide information that provides understanding about the differential pattern of subdivision at this location. While an interesting anomaly, the archaeology is unlikely to be important in understanding the course or pattern of development of the Blaxland Estate or the local area more broadly. This criterion is unlikely to be met.	The Meadowbank baths demonstrate the pattern of service provision to local residence. From a facility provided by a local residents' association, to the formalisation of that service by the local council, the progression demonstrates the formalisation of services as the local area grew. This criterion is met at a local level.	The land-side structures are of general interest, but do not substantially contribute to a knowledge of the course or pattern of local history. This criterion is not met.
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 (or the local area's) cultural or natural history (Associative Significance).	Limited information is available regarding F. Whitham's movements, business activities and social life indicating he is not a person of importance to the cultural history of the local area. This criterion is not met.	The baths were initiated by the local residents' association and transferred to the local council. However, the baths do not have a strong or special association with local council. This criterion is not met.	The land-side structures were constructed by local council, but do not have strong or special associations with the council's delivery of services to the local community. This criterion is not met.
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) (Aesthetic Significance).	The archaeology is likely to consist of foundations and piers associated with the cottages, with ancillary services such as a cistern or outhouse also possible. While archaeological sites may be of aesthetic significance or the construction of the elements may demonstrate creative or technical achievements, it is considered unlikely in this instance given the substantial disturbance assumed to have occurred during the terracing of the Memorial Park following the demolition of the cottage. The archaeology is unlikely to meet this criterion.	The baths consisted of upright timber piles and slats. This is not a creative or technical achievement, as the construction followed the known methods. The archaeological remains of the baths, if present, are unlikely to be of aesthetic significance. The archaeology is unlikely to meet this criterion.	The archaeology of the land-side structures is likely to be a concrete slab or other foundation. It is considered unlikely that such features would demonstrate a high degree of creative or technical achievement. The archaeology is unlikely to meet this criterion.

Criterion	F. Whitham cottage	Meadowbank baths	Land-side structures
d) An item has a strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons (Social Significance).	The archaeology of F. Whitham's cottages may be of interest to the local community, should substantial and intact evidence be uncovered, but the association is unlikely to be strong or special. The archaeology is unlikely to meet this criterion.	The archaeology of Meadowbank baths may be of interest to the local community, should substantial and intact evidence be uncovered, but the association is unlikely to be strong or special. The archaeology is unlikely to meet this criterion.	The archaeology of land-side structures may be of interest to the local community, should substantial and intact evidence be uncovered, but the association is unlikely to be strong or special. The archaeology is unlikely to meet this criterion.
e) An item has the potential to yield information that will contribute to an understanding of NSW's (or the local area's) cultural or natural history (Research Significance).	Archaeological investigation of F. Whitham's cottage has the potential to provide an understanding of the development of the local area, particularly the date of construction and relationship to Blaxland Estate, which may provide insight into the early development of Meadowbank that is not available from documentary sources. However, the location of the cottage is thought to have been substantially disturbed during the terracing of Memorial Park and the later formation of the car parking spaces along Meadow Cresent where the front (north) of the cottage is anticipated. It is therefore considered unlikely that substantial and intact archaeological features would be retained in this location. As archaeology is likely to be disturbed, it is unlikely to meet this criterion.	Should archaeological evidence of the bath be preserved, it may yield information regarding the construction of the baths and their ongoing maintenance. However, archaeological investigation is unlikely to yield information of great interest or import. The archaeology is unlikely to meet this criterion.	The anticipated slabs associated with the dressing shed and public recreation building are unlikely to yield information beyond their locations in the Park, which is largely available from the documentary sources. The archaeology is unlikely to meet this criterion.
f) An item possesses uncommon, rare or endangered aspects of NSW's (or the local area's) cultural or natural history (Rarity).	The archaeology of the F. Whitham cottage it is unlikely to be significant under this criterion as the potential archaeological resources present are unlikely to present information on the area, subdivisions, or the Blaxland Estate that is not known from other sources. In addition, the archaeology of 1890s cottages in Sydney is not considered a rare or uncommon archaeological site type. Furthermore, it is considered probable that the archaeology is highly disturbed and would not therefore present as a rare preserved example of a 1890s cottage. The archaeology is unlikely to meet this criterion.	Baths were a common feature during the period and more substantial baths survive into the present (EJE Landscape 1994). The archaeological investigation of baths is not known to have been undertaken in NSW, however, as assessed under criterion e, it is considered unlikely that such investigation would yield information of import. The archaeology is unlikely to meet this criterion.	The anticipated slabs associated with the dressing shed and public recreation building are not considered to be uncommon, rare or endangered. This criterion is not met.

Criterion	F. Whitham cottage	Meadowbank baths	Land-side structures
g) An item is important in demonstrating the principal characteristics of a class of NSW's (or the local area's) cultural or natural places or environments (Representativeness).	The archaeology of F. Whitham's cottage is unlikely to demonstrate the principal characteristics of archaeological sites of it's type, being substantially disturbed during the terracing of Memorial Park and the later formation of the car parking spaces along Meadow Cresent. The archaeology is unlikely to meet this criterion.	The archaeological remains of the baths would not demonstrate the principal characteristics of such baths, being incomplete. This criterion is not met.	The anticipated slabs associated with the dressing shed and park recreation building are unlikely to be representative of such structures. This criterion is not met.

i Statement of significance

The Meadowbank baths and land-side park structures are unlikely to yield information of importance and are not considered to be of heritage significance.

The archaeology of F.Whitham's cottage, if present, is unlikely to provide a deeper understanding of the local area's development or demonstrate differential patterns of subdivisions of the Blaxland Estate at the time that is not already available from other sources. Additionally, the cottage has been substantially disturbed during the terracing of the Memorial Park and formation of the car parking spaces. Therefore, the potential remnants of the F.Whitham cottages are unlikely to be of local significance.

7.3.2 Sandstone and brick feature

The site inspection identified a sandstone and brick feature in the Rydalmere Hospital Precinct. The significance of th is feature is assessed in Table 7.5 .

Table 7.5 Significance assessment – Sandstone and brick feature in Rydalmere Hospital Precinct

Criterion	Assessment
a) An item is important in the course or pattern of NSW's (or the local area's) cultural or natural history (Historical Significance).	The sandstone and brick feature is associated with the State significant Rydalmere Hospital Precinct. However, the feature is not a key component, the rough construction and reuse of building materials indicates it was of crude construction to fulfil a need that was not of central importance to the function of the Precinct. Furthermore, the concrete indicates it was formed outside of the key periods of development for which the site is of State significance. The sandstone and brick feature does not meet this 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 (or the local area's) cultural or natural history (Associative Significance).	The sandstone and brick feature is not known to have strong or special association with the life or works of a person or the Rydalmere Hospital operations. The sandstone and brick feature does not meet this 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) (Aesthetic Significance).	The sandstone and brick feature is of crude construction and does not demonstrate aesthetic characteristics or a high degree of creative or technical achievements. The sandstone and brick feature does not meet this criterion.
d) An item has a strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons (Social Significance).	The sandstone and brick feature is not known to have strong or special association with a particular community or cultural group or the Rydalmere Hospital operations. The sandstone and brick feature does not meet this criterion.
e) An item has the potential to yield information that will contribute to an understanding of NSW's (or the local area's) cultural or natural history (Research Significance).	Archaeological investigation of the sandstone and brick feature may yield information related to the purpose of the structure. It's late date of construction (i.e. likely to have been within the last 75 years) indicates that such information is unlikely to yield information that can substantially add to our understanding of the functioning of the Rydalmere Hospital Precinct. The sandstone and brick feature is unlikely to meet this criterion.
f) An item possesses uncommon, rare or endangered aspects of NSW's (or the local area's) cultural or natural history (Rarity).	The sandstone and brick feature is not considered to be uncommon, rare or endangered. The sandstone and brick feature does not meet this criterion.
g) An item is important in demonstrating the principal characteristics of a class of NSW's (or the local area's) cultural or natural places or environments (Representativeness).	The sandstone and brick feature is not considered to be representative of an important class of sites. The sandstone and brick feature does not meet this criterion.

i Statement of significance

The sandstone and brick feature does not meet any of the criteria and is not of heritage significance.

8 Heritage impact assessment

8.1 Background to assessing impacts

The assessment of a project's impacts to the heritage significance of a place or an item is to understand change; if it is beneficial to the place or item; and how changes can be managed to best retain significance. The historical landscape in Australia, be it rural or urban, is by social agreement, a significant aspect of our identity. That agreement is codified in legislation, the intent of which is to encourage the conservation of cultural heritage by incorporating it into development where feasible. In many situations avoiding impacts is impossible, but the aim is to reduce those impacts by either project re-design or managing the loss of information through methods that reduce and/or record significance before it is removed. The framework around assessing significance and therefore suitable levels of impact is to understand how the place or item came to be, how important it was (and may be still) in the development of the local area or the State (the colony at the time) and providing guidance on its management. This is what this report aims to do.

8.2 Types and sources of impact

This project involves the installation and repurposing of pipelines, construction of the WRRF, and upgrades to the Sewage Pumping Station 67, which has the potential to impact the heritage landscape of the impact area. This impact survey is based on the ground truthing survey conducted which indicates the main types of impact that may occur include:

- direct impacts involves the demolition or alteration of the fabric, remains or heritage significance of an item, place or artefact; and
- indirect impacts are those impacts that will not physically impact the item but could either:
    - Affect the views and the setting of the heritage landscape and nearby built items in and within the 200 m buffer of the impact area.
    - Cause damage indirectly through vibration associated with construction activities.
    - Cause subsidence.
    - Cause groundwater drawdown, resulting in changes to water available to ecosystems in the impact area.

Impacts arising from construction and operation of the project, such as temporary visual, noise and vibrational impacts, are expected to have minimal impact on heritage values that have been formalised through inclusion on statutory heritage registers and a minimal impact on the cultural landscape values in the construction and operational areas specific to the project. The proposed works will largely be constructed in previously disturbed areas, as the impact area intersects highly developed and urbanised regions of Sydney.

Sections 8.2.1, 8.2.2, and 8.2.3 outlines the activities that would potentially have direct and indirect impacts on heritage significance of the three directly impacted heritage items in the impact area.

8.2.1 Rydalmere Hospital Precinct

The following works are proposed within the SHR curtilage of the Rydalmere Hospital Precinct:

- Refurbishing an existing pipeline to transfer brine from SP0067 to the NSOOS (locating along the east edge of the curtilage).
- Access points for this refurbishment may need to be excavated in previously disturbed areas.
- Site will have several construction compounds along the pipeline.

8.2.2 Sewage Pumping Station 67

The following works are proposed within the SHR curtilage of the Sewage Pumping Station 67:

- Open trenching in the north-west corner of the curtilage for the construction of the transfer pipeline.
- Upgrades to external ancillary structures and the demolition of the transformer shed (moderate significance) and the garage shed (little significance) to be replaced with a new electrical switch room along the east boundary of the curtilage (Table 2.4).
- Potential requirement of minor penetrations into the station fabric for electric upgrades.
- Internal substructure pumping infrastructure upgrades.
- Potential removal of station roller door and cypress pines in north-west potion of the site
- Use of the site as a construction compound during the proposed works.

8.2.3 Memorial Park (including obelisk)

The following works are proposed within the RLEP curtilage of the Memorial Park:

- Construction of an 8 m tall barometric loop (located at the north-east corner of the park curtilage).
- Open trenching for the construction of the river release pipeline from the barometric loop to the Parramatta River. This alignment mostly follows the existing footpath at the site to minimise direct impacts to elements of the park.
- Compound located in the Bowden Street carpark to facilitate outlet structure.

8.3 Levels of impact

Under the *Material Threshold Policy* (Heritage NSW 2020b), the impact assessment must assess the proposed works against the listed criteria. The listed criteria are defined as the assessment against the heritage significance criteria in the SHR listing. For example, if a site is listed criteria a) historical, b) association, e) research potential and f) rarity, then the impact assessment needs to determine whether the project would erode (or impact) the ability of the item to demonstrate significance under those four criteria.

The impact definitions are reproduced from the *Material Threshold Policy* in Table 8.1.The *Material Threshold Policy* was developed for application to SHR listed items. When applied to local items, the word 'State' is to be replaced with 'local'.

Table 8.1 Scale of impact to heritage significance

Impact	Definition
Total loss of significance	Major adverse impacts to the extent where the place would no longer meet the criteria for listing on the SHR.
Adverse impact	Major (that is, more than minor or moderate) adverse impacts to State heritage significance.
	Moderate adverse impacts to State heritage significance
	Minor adverse impacts to State heritage significance
Little to no impact*	An alteration to State heritage significance that is so minor that it is considered negligible. * Little to no impact (as opposed to no impact) acknowledges that any change will result in some level of impact/alteration to State heritage significance.
Positive impact	Alterations that enhance the ability to demonstrate the State heritage significance of an SHR listed place.

Source: Heritage NSW 2020, p.4

To assist in determining what is a major, moderate or minor impact for the impact area, the following has been used as a guide.

- Major impact – Change to all or most significant aspects of the place, such that its heritage significance against the listed criteria are substantially reduced or destroyed.
- Moderate impact - Change to some significant aspects of the place, such that some of its heritage significance is partially reduced.
- Minor impact - Minor change to significant aspects of the place, such that some of its heritage significance is slight.

8.4 Assessment of impacts

The physical impacts on the heritage items in the impact area and within a 200 m buffer varies, given the different areas require differing installation methods (refurbishment, trenchless, open trench, etc).

8.4.1 Direct Impacts

As outlined in Table 4.1, the impact area will directly intersect with three heritage items: *Rydalmere Hospital Precinct (former)* (SHR #00749, s170 #5000658, PLEP # I661), the *Sewage Pumping Station 67* (SHR #01643, s170 #4571724 and PLEP #I9), and the *Memorial Park (including obelisk) and remnants of former Meadowbank baths* (RLEP #I72). This section expands upon these three heritage items, providing each with an assessment of the matters of consideration and levels of impact to each in their respective subheadings. These are provided in sections i, ii, and 0 respectively.

Note that visual impacts are classified as an indirect impact and are addressed in Section 8.4, but alterations to the landscape through the addition or removal of elements is considered a direct impact and is addressed in this section.

i *Rydalmere Hospital Precinct (former)* (SHR #00749, s170 #5000658, PLEP # I661)

In summary, the project will result in **little to no impacts** to the heritage significance Rydalmere Hospital Precinct.

Table 8.2 Rydalmere Hospital Precinct (former) – Matters for consideration

Matter	Discussion	Impact assessment
Fabric and spatial arrangements	The works intersecting with this curtilage will be the refurbishment of an existing pipeline. While the refurbishment will require some new access points to be created via excavation, none of these works will be in the proximity of the structures of heritage significance and thus will have little to no impact on the heritage fabric. No changes to the spatial arrangements would result from the project as the project would not move or add buildings or above ground infrastructure to the site.	Little to no impact.
Setting, views and vistas	The heritage elements of the site are located over 100 m (Plate 5.8) from the construction activities and there are intervening non-heritage buildings and vegetation. It is not anticipated that there would be changes to the setting, views and vistas during construction. As all infrastructure will be below ground, no ongoing impacts would occur to this matter.	Little to no impact.
Landscape	There will be no permanent change to the landscape in the curtilage as the works would reline existing infrastructure and only impacted previously disturbed areas, with no vegetation removal anticipated. The landscape gardens associated with the original hospital precinct will not be directly impacted by the proposed works, being located over 100 m away.	Little to no impact.
Use	The current use of University Western Sydney Parramatta campus will continue. No impact is identified.	Little to no impact.
Demolition	There is no planned demolition within the curtilage of this heritage item. No impact on this matter.	Little to no impact.
Curtilage	The project would not alter the listed curtilage of Rydalmere Hospital Precinct. No impact would occur.	Little to no impact.
Moveable heritage	No moveable heritage has been identified in the vicinity of the project's construction activities. No impact identified under this matter.	Little to no impact.
Historical archaeology	No archaeological potential has been identified in this part of the curtilage. Furthermore, construction in this section of the pipeline will only impact previously disturbed ground as the existing infrastructure will be refurbished with some excavation occurring within the pipeline alignment to expose the existing pipeline.	Little to no impact.
Aboriginal cultural heritage	An Aboriginal cultural heritage assessment (ACHA) has been prepared for the project. Please refer to the ACHA for an assessment of the potential impacts to Aboriginal cultural heritage, if any.	
Natural heritage	There are no proposed works that include the removal of trees or vegetation at this site. Therefore, little to no impacts anticipated on this matter.	Little to no impact
Conservation areas	This heritage item does not sit in a conservation area.	Not relevant
Conservation management plan	The policies of the CMP associated with this site are primarily concerned with mitigating impacts to the structures and landscape of the north and south gardens associated with the original Rydalmere Hospital Precinct (Conybeare Morrison International 2008). The proposed works within this curtilage are in compliance with these policies as the impact area is confined along the east side of the curtilage, and not in proximity to any of the structures or landscape elements of heritage significance.	Little to no impact

Matter	Discussion	Impact assessment
Other heritage items in the vicinity	There are no heritage items in the vicinity of this site that will be impacts from the proposed works.	Not relevant.
Commonwealth / National heritage significance	There are no items of Commonwealth or National heritage significance at this site.	Not relevant
World heritage significance	There are no items of World heritage significance at this site.	Not relevant

ii *Sewage Pumping Station 67* (SHR #01643, s170 #4571724 and PLEP #I9)

In summary, the project will result in an **overall minor adverse impact** to the heritage significance of Sewage Pumping Station. However, this is offset by the proposed works upgrading the site for continued operation, an integral part of the site's heritage significance.

Table 8.3 *Sewage Pumping Station 67* – Matters for consideration

Matter	Discussion	Impact assessment
Fabric and spatial arrangements	The primary feature of heritage significance in this item's curtilage is the Pumping Station structure itself, which the CMP grades as being of exceptional significance (Extent 2025). While minor and discreet penetrations may be required for electrical works, this is permitted under the CMP to maintain the station's operation (CMP Policy 8.6) (Extent 2025). If the recommended management measures for penetrations are complied with (Table 9.2), little to no impacts to significance are anticipated from the proposed works. There are external works involving open trenching and the use of the site as a construction compound. The open trenching and construction compound will be situated in parts of the grounds of the pumping station graded as holding exceptional significance as the openness permits views towards the station building (Plate 2.2) (Extent 2025). The works and use of this area will result in temporary adverse impacts, enclosing views, however these will not be obscured once the proposed works are completed. The fabric of the concrete that will be removed as part of the open trenching is graded as being of little significance. Nevertheless, management measures have been included to replace this exterior concrete with like for like materials once open trenching is completed to minimise impacts to the spatial arrangement. Further external works include the demolition of the existing garage sheds along the east boundary, identified as being of little heritage significance (Extent 2025: 81-82). The garage sheds will be replaced by a new electrical switch room. As elements of little significance from the 1980s, their removal will not negatively impact the overall significance of the site. The transformer yard proposed for demolition and replaced with new infrastructure is graded as moderate significance. The yard was installed in 1967, with modifications in the 1990s, and is comprised of the transformer and its housing which is a contemporary shed (Extent 2025). As an element of moderate significance, retention of the transformer yard during detailed design is recommended. However, if retention is not, the demolition will result in minor adverse impacts and construction of the new transformer infrastructure should be sympathetic to the overall heritage significance (Table 9.2). While the fabric of these elements are not of high significance, their removal will result in permanent changes to the spatial arrangement of the east portion of the site, indicating minor adverse impacts to the overall heritage significance of the curtilage.	Minor adverse impacts

Matter	Discussion	Impact assessment
	The noise and vibrational impact assessment for GPOP recommends replacing the station's roller door with an acoustic roller door (AECOM 2025: 58). The roller door has been graded as fabric of moderate heritage significance, thus its retention is recommended (Extent 2025). However, if its retention is not feasible, it is recommended that it is relocated without damage to its fabric and the replacement should have design input from a heritage specialist to ensure it is sympathetic to the site's overall significance (Table 9.2). If the replacement of the roller door is required, it would result in minor adverse impacts as an element of original fabric and moderate significance would be removed from the exceptionally significant station structure. There are also planned internal upgrades for the pumping station in the substructure including the removal of redundant pipework, breaking out of concrete flooring to facilitate new pumps and pipework, and the installation of new pipework, housing and pumps. The pumps being upgraded are of moderate significance and will be majorly upgraded by these proposed works to maintain operation of the site (Plate 2.3) (Extent 2025). In doing these upgrades, it is likely the steel floor plates in the machinery chamber of the substructure will be removed to undertake the pump upgrades. These steel floor plates are graded with high significance, and temporary removal is permissible for the proposed works, but should be placed back once completed, with the corroded floor plates repaired (Extent 2025: 103) (Table 9.2). Part of these upgrades will require the removal of portions of the concrete flooring in the substructure. While the substructure itself has been graded as exceptional significance, it has some tolerance for change as the significance is derived primarily from the overall form and layout rather than its fabric (Extent 2025: 88). As the proposed works will not be changing the overall form but upgraded for continued use, which is integral to the heritage significance of the site, and will introduce new infrastructure and changing existing elements. Therefore, the proposed works will result in minor adverse impacts with the installation of new infrastructure permanently changing the substructure equipment's spatial arrangement and removal of concrete impacting the fabric. These works are designed to continue operation of the site and will not directly impact the brick station building. While there will be direct changes to fabric and spatial arrangement in the curtilage, the fabric of highest significance (the exceptionally significant brick station structure with the least tolerance for change) will have an anticipated little to no impact for this matter. To further minimise unintentional impacts, management measures have been recommended (Table 9.2). The CMP for this site prioritises the continuing operation of the station, and the proposed works will maintain its ongoing use, while preserving the heritage significant fabric. Therefore, there will be an overall minor adverse impact to the heritage significance of the fabric and spatial arrangement of the site.	
Setting, views and vistas	There will be temporary indirect impacts to the setting and views during the external construction works at this site. This will be caused by the machinery and fencing required during construction and the site being used as a construction compound. With the removal of external sheds and their replacement with a new substation and transformer infrastructure, there will be permanent changes to the setting of this site, particularly east of the brick station structure. However, none of these changes will result in new elements that will obscure the brick station, the primary element of the site's aesthetic heritage significance, nor will any of the significant view lines of the site be adversely impact (Extent 2025: 61-63). Additionally, the potential removal of the cypress pines will have little impact to the views of the site as these are later plantings and are not identified as contributing to the aesthetic significance of the site. The potential removal of the station roller door would result in a permanent change to aesthetic view of the station's west side. If the roller door removal is required, management measures have been included to ensure the new roller door is sympathetic to the overall aesthetic significance of the site (Table 9.2). As the aesthetic significance of this site is derived from the external views of the brick structure, the internal substructure upgrades will not impact the setting or views. Therefore, little to no impacts are anticipated for this matter as while there will be permanent changes to the setting and views of this site, none of these changes will result in adverse impacts to the overall setting or obscuring of significant views of the station building.	Little to no impact.

Matter	Discussion	Impact assessment
Landscape	The removal of cypress pines in the northwest corner of the curtilage may be required during the open trenching. As these pines have been graded as moderate significance, their retention is recommended. However, if retention is not feasible, the recommended management measure of replanting like for like trees has been included to mitigate further impacts (Table 9.2). Little to no impacts are anticipated on this matter.	Little to no impact.
Use	The proposed works within this curtilage will facilitate continual operation and function of the Pumping Station. The continued use of the site as a pumping station is an integral aspect of the site's heritage significance. Therefore, the proposed works will result in a positive impact under this matter for consideration.	Positive impact
Demolition	The demolition of the transformer shed and a garage shed are part of the proposed works at this site, both located in the east portion of the curtilage (Plate 6.16 – Plate 6.17). The transformer yard is graded as moderate significance and the garage shed is graded as little significance (Extent 2025). As the garage sheds are from the 1980s, their removal will not negatively impact exceptional significant fabric or the overall significance of the site as it graded as having the most tolerance for change (Extent 2025). The transformer yard was installed in 1967, with modifications in the 1990s, and housed in a contemporary shed (Extent 2025). As an element of moderate significance, retention of the transformer yard is recommended. However, if retention is not feasible for the electrical upgrades, the demolition will result in minor adverse impacts and construction of new transformer infrastructure should be sympathetic to the overall heritage significance (Table 9.2). Therefore, while the planned demolition of the transformer and garage shed will result in minor adverse impacts, the demolition will facilitate the continued operation of the site.	Minor adverse impacts
Curtilage	The project would not alter the listed curtilage of the item. No impact would occur.	Little to no impact.
Moveable heritage	According to the CMP, the location of previously identified moveable heritage items is unknown (Extent 2025: 61). While there may be other items of moveable heritage on site, including early tools, signs, and equipment, none have been listed as official moveable heritage. Therefore, little to no impacts are anticipated for this matter.	Little to no impact.
Historical archaeology	The potential for historical archaeology has been assessed as unlikely to low due to the extensive levels of disturbance at the site(Extent 2025, Truman Zaniol & Associates 2009). No impact identified under this matter.	Little to no impact.
Aboriginal cultural heritage	An ACHA has been prepared for the project. Please refer to the ACHA report for an assessment of the potential impacts to Aboriginal cultural heritage, if any.	
Natural heritage	As a highly disturbed and developed site, no natural heritage significance is identified.	Little to no impact.
Conservation areas	This heritage item does not sit in a conservation area.	Not relevant
Conservation management plan	See Table 8.4 for assessments of compliance to the relevant policies from the CMP (Extent 2025). The planned works in this item's curtilage are in compliance with the CMP guidelines (Extent 2025). The impact area will not be directly impacting the original station brick structure, which the CMP states to conserve as it is of exceptional significance. Additionally, the proposed works are designed to bolster the sites operational use and capacity, which is a major component of the site's heritage significance. As the proposed works are upgrading the site for continued use and with the recommended management measures, the proposed works will be in compliance with the CMP.	Little to no impact
Other heritage items in the vicinity	There are no heritage items in the vicinity of this site that will be impacted from the proposed works.	Not relevant

Matter	Discussion	Impact assessment
Commonwealth / National heritage significance	There are no items of Commonwealth or National heritage significance at this site.	Not relevant
World heritage significance	There are no items of World heritage significance at this site.	Not relevant

Table 8.4 Consistency with relevant conservation management plan policies

Policy 1 – Conserving heritage significance		Assessment of Compliance
1.1	Refer to conservation guidelines and manuals prepared by the NSW heritage authority, including the following documents: • The Burra Charter; • The NSW Heritage Manual; and • The Maintenance of Heritage Assets: A Practical Guide.	The SoHI has been prepared with reference to these guidelines and manuals. **Compliant**
1.2	The structures are to be managed and conserved so as to protect and enhance the features and characteristics that define their heritage significance.	The SoHI has been prepared to assess levels of impacts and mitigation measures to manage and conserve the heritage significance of the site. **Compliant**
1.3	The statement of significance and gradings of significance detailed in Part 5 of this report [CMP] should guide future planning and works proposed.	The SoHI has referred to Part 5 of the CMP and assessed the impacts on the basis of the information therein. **Compliant**
Policy 2 – Legislative requirements		
2.1	The following legislations apply to SP0067: • Heritage Act 1977 (NSW); • The Heritage Regulation 2012; and • Parramatta Local Environmental Plan 2023.	Reference is made to the legislation that is relevant to the project. **Compliant**
2.2	As the site is on the State Heritage Register, 'Division 3 Applications for approval' under the Heritage Act 1977 (NSW) must be considered for obtaining approvals. Specifically, the following sections of the act are relevant to the site: • section 57(1) – notification of controlled or minor activities. • section 57(2) – minor or exempt activities. • section 60 – application for major activities. • section 63 – approval for major activities. • section 170 – heritage management by state agencies	This project is SSI and the approval pathway differs but safeguards the heritage significance of the site. **Compliant**
2.3	As the site is listed on the State Heritage Register any works not assessed as falling within the Standard Exemptions or the Sydney Water State Agency Exemptions are subject to a statutory approval from Heritage NSW.	Heritage NSW will provide comment on the SSI application. **Compliant**
2.4	As the site is listed on the Parramatta Local Environmental Plan, works to the site which are other than 'minor or inconsequential' must be notified to Council in accordance with clause 2.11 of the State Environmental Planning Policy (Transport and Infrastructure) 2021.	Notification and consultation will occur through the SSI process. **Compliant**

Policy 3 – Statutory approval		
3.1	All relevant statutory approvals must be obtained prior to commencing any works, as required by the NSW Heritage Act 1977.	Work will not commence until relevant statutory approvals have been obtained. **Compliant**
3.2	A statement of heritage impact is required for works affecting significant values and fabric within the site. Such documents must be prepared in accordance with NSW Heritage Council guidelines.	This SoHI fulfils this policy and has been prepared in accordance with *Guidelines for preparing a statement of heritage impact* (DPHI 2023b). **Compliant**
3.3	Project planning must allow adequate time for required heritage approvals.	Adequate approval time has been factored into the project program. **Compliant**
Policy 5 – On-going maintenance requirements		
5.1	Sydney Water is responsible for the conservation and maintenance of SP0067.	Sydney Water has commissioned this SoHI to be prepared in order to provide impact assessment and mitigation measures that will aid the conservation and maintenance of the site. **Compliant**
5.2	The management of the place is to ensure its State heritage values as an important water supply, industrial heritage and recreational place are protected and enhanced.	The project is complimentary to the State heritage values as its continued use as an integral part of the growth of Sydney's water network while avoiding major adverse heritage impacts. **Compliant**
Policy 6 – Document use		
6.1	This CMP must be made available to all relevant people and agencies involved in maintenance, operation, management, and future works to SP0067.	The CMP was made available to EMM to complete this SoHI. **Compliant**
Policy 7 – Conservation activities		
7.1	Ongoing preservation, maintenance, and repair of original and significant fabric must be carried out using appropriate methods and materials, and the assessed significance of the elements affected.	Measures for preservation and maintenance of significant fabric is provided in this SoHI's mitigation measures. **Compliant**
7.2	Works to significant fabric are to be undertaken by tradespeople and contractors with demonstrated skills and experience in working with historical fabric and construction techniques.	Commitment should be made to ensure compliance to this policy.
7.3	Heritage fabric of SP0067 is to be managed, protected, maintained, and conserved in accordance with the graded levels of heritage significance identified in this CMP.	All works, levels of impacts, and management measures are in accordance with the CMP's significance gradings. **Compliant**
7.4	Heritage induction should be included in the general site induction prior to commencement of construction works, so that all personnel involved are aware of heritage and archaeological requirements.	Heritage inductions have been included in the CEMP as a management measure in this SoHI to ensure compliance (Table 9.2).
7.5	Seek professional advice and assistance when seeking approvals for any works to the site. It is recommended that proposed works be subject to long-term planning that avoids adverse heritage impacts of incremental change.	This SoHI has been prepared by heritage professionals and constitutes Sydney Water's professional advice and assistance. **Compliant**

Policy 8 – Conserving elements of exceptional significance		
8.1	Elements and components identified as being of exceptional significance are recommended to be retained and conserved in situ. Any work that affects these items is to be confined to preservation and restoration as defined by the *Burra Charter*.	As per the impact assessment for this site (Table 8.3), there will be no direct impacts to the exceptional significance of the brick station structure. There will be impacts to the fabric and spatial arrangement of the substructure, however, these are in compliance with the tolerance for change from the CMP (Extent 2025). Management measures have been included to prevent unintentional impacts to the elements of exceptional significance (Table 9.2). **Compliant**
8.2	Elements of exceptional significance should not be obstructed by new works, structures, or services unless no operationally feasible alternative exists.	There are no proposed works that would result in permanent obstructions to the elements of exceptional significance at this site. **Compliant**
8.3	Where elements of exceptional significance have failed or been damaged, they must be repaired using traditional methods and with sympathetic materials in preference to replacement.	Management measures have been included in this SoHI to ensure repairs to elements of exceptional significance will have a heritage specialist input in the detail designs. **Compliant**
8.4	Where elements of exceptional significance are missing or concealed, effort is to be made to restore them.	Commitment should be made to ensure compliance to this policy.
8.5	Maintain the overall siting of elements of exceptional significance as part of the overall	The proposed works will not result in adverse impacts to the overall siting of elements of exceptional significance. Management measures have been included in this SoHI to prevent unintentional changes to this. **Compliant**
8.6	Essential changes required to maintain operations at the site will be designed, planned and executed to minimise impacts to fabric of exceptional significance insofar as possible.	The proposed works at this site are designed to maintain operational use of the site and management measures have been recommended to minimise further impacts during construction (Table 9.2). **Compliant**
Policy 9 – Conserving elements of high significance		
9.1	Elements and components identified as being of exceptional significance are recommended to be retained and conserved in situ. Any work that affects these items is to be confined to preservation, restoration or reconstruction as defined by the Burra Charter.	The only site element of high significance that may be impacted are the steel floor plates situated in the internal substructure. These may need to be removed to facilitate the proposed substructure upgrades and it is recommended to return them insitu and the corroded steel plates should be repaired in accordance with the CMP's operational requirements (Extent 2025: 103).
9.2	Elements of high significance should not be obstructed by new works, structures, or services unless no operationally feasible alternative exists.	There are no proposed works that would result in permanent obstructions to the elements of high significance at this site. **Compliant**
9.3	Elements of high significance must be clearly visible and interpreted as part of any new works.	There are no proposed works that would result in elements of high significance not becoming clearly visible. **Compliant**

9.4	Where elements of high significance have failed or been damaged, they must be repaired using traditional methods and with sympathetic materials in preference to replacement.	Commitment should be made to ensure compliance to this policy.
9.5	Maintain the overall siting of elements of high significance as part of the overall site.	The proposed works will not result in adverse impacts to the overall siting of elements of high significance. Management measures have been included in this SoHI to prevent unintentional changes to this. **Compliant**
9.6	Minor changes or alterations to elements of high significance are permissible, where changes are relatively minor, elements are not obscured, changes are reversible, and the cultural significance is conserved.	The only element graded as high significance which will require minor changes are the substructure's floor steel plates. The minor changes would include moving them for the duration of the substructure upgrades, something that is easily reversable. **Compliant**
Policy 10 – Conserving elements of moderate significance		
10.1	The elements graded as moderate significance are recommended to be retained in situ; however, adaptation, relocation, or alteration to these elements is acceptable provided that the cultural significance of the item is conserved.	In discussions of the works proposed to impact elements of moderate significance, retention is firstly recommended (Table 8.3). If retention of these elements is not feasible, management measures have been recommended to ensure the alterations and new elements are appropriate to the site's significance. Commitment should be made to ensure compliance to this policy.
10.2	Changes to elements of moderate significance are to be minor in nature unless the work can be shown to have a minor heritage impact overall.	The proposed works relating to elements of moderate significance include; demolition of the transformer yard, upgrades to the substructure pumps, potential relocation of roller door, and potential removal of cypress pines. This SoHI has assessed these proposed works to result in an overall minor adverse impact level to the heritage significance of the site, and these works are required to maintain site operation which is integral to the site's significance (Table 8.3). **Compliant**
10.3	Change to elements of moderate significance must not adversely affect the values of elements of exceptional or high significance or compromise the overall significance of the place.	This SoHI has assessed these proposed works to elements of moderate significance to not result in adverse impacts towards the elements of exceptional or high significance (Table 8.3). Management measures have also been provided to further minimise potential impacts to these significant elements during construction (Table 9.2). **Compliant**
10.4	Undertake sympathetic repair works where necessary.	Commitment should be made to ensure compliance to this policy.
10.5	Where possible, the relationship of the element within the overall site is to be maintained.	The proposed works involving impacts to moderate significant elements are designed to be replacing them with new similar functioning elements to maintain site operation. This suggests the relationship of the new elements will be maintained within the overall site.

Policy 11 – Conserving elements of little significance		
11.1	Changes to elements of little significance must not adversely affect the values of elements of exceptional, high or moderate significance, or compromise the overall significance of the place. Both retention and removal are acceptable options.	The elements of little significance being impacted have been assessed as not resulting in adverse impacts to other significant elements on site. **Compliant**
Policy 12 – Removal of intrusive elements		
12.1	While removal is preferable, works may alter intrusive elements as necessary to accommodate changes to the site.	There are no proposed works impacting or removing intrusive elements. **Compliant**
12.2	Work that replaces or modifies such elements must be sympathetic with the rest of the site.	
12.3	Demolition and removal of elements graded intrusive may be appropriate, provided it does not have a resulting adverse impact on fabric and elements that are contributory to the heritage values of the site.	
Policy 15 – Prioritise the conservation of significant fabric		
15.2	Materials such as concrete and metalwork that add to the character of the place must be managed using appropriate approaches and methodologies.	Commitment should be made to ensure compliance to this policy.
Policy 17 – Traditional methods		
17.1	Seek advice from a heritage expert prior to adoption or use of modern products and techniques.	Commitment should be made to ensure compliance to this policy.
Policy 18 – Painted finishes		
18.1	Avoid sandblasting or disc sanding to remove paint	The proposed works do not include changes to painted finishes at the site. However, should there be, commitment should be made to ensure compliance to this policy.
18.2	Graffiti should be removed immediately in accordance with established heritage guidelines or advice from a heritage paint specialist.	
18.3	Painted elements are to be maintained using an appropriate paint colour scheme. Paint colours could be selected from a palette of colours typical for the period of the building and applied to the appropriate parts of the building.	
18.4	Where new paint works are planned for historic structures on site, the proposed colour scheme must not have an adverse visual impact.	
18.5	Maintain records of all paint applications, locations, and colour schemes for future reference.	
Policy 19 – Cleaning significant fabric		
19.1	Avoid the use of harsh chemicals, solvents and acids for the purpose of cleaning on significant fabric throughout the site.	The proposed works do not the cleaning of significant fabric at the site. However, should there be, commitment should be made to ensure compliance to this policy.
19.2	A cleaning methodology should be tailored to the condition of the item and not result in damage to the building fabric.	
19.3	Where the impact of a particular cleaning method is uncertain, seek further advice prior to adopting the technique.	
19.4	The cleaning system should be tested on a small, discreet yet representative area prior to the undertaking of the works.	

Policy 20 – New work		
20.1	Any new work or upgrades are to be informed by this CMP and to respect the existing form, scale, design, and materials of SP0067.	This SoHI's impact assessment and management measures are informed by this CMP. Commitment should be made to ensure compliance to this policy.
20.2	New work is to be undertaken in a way that minimises impacts to significant fabric and heritage values.	This SoHI assesses the impact levels of the proposed works and provides management measures to further minimise impacts to significant fabric and heritage values. **Compliant**
20.3	Specialist heritage advice is to be sought for all proposals for new works that may affect the site.	Commitment should be made to ensure compliance to this policy.
20.4	Any new works must not interrupt significant views to or from the site.	This SoHI's impact assessment has anticipated there will be no permanent interruptions of significant views from the proposed works. **Compliant**
20.5	New buildings and structures must take into consideration: • The siting of altered or new elements within the wider landscape; • Buildings tolerance for change; • Materials and design; • Significant views and settings; and • Compatible uses.	This SoHI's impact assessment and management measures have taken these factors into consideration. Commitment should be made to ensure compliance to this policy.
Policy 21 – Incremental change		
21.1	Specialist advice should be sought for all proposals for new work that may impact the site.	This SoHI has been prepared by heritage professionals to assess the impacts to site. Commitment should be made to ensure compliance to this policy during construction detail design.
21.2	Temporary modifications or alterations to significant elements are to be reversible.	The use of the site as a construction compound and the recommended protective fencing is planned to be temporary for the period of construction. **Compliant**
21.3	Architectural detailed plans and drawings must form part of the critical project documentation for major projects.	Detailed design plans and drawings have been prepared for the proposed works and has informed this SoHI (Plate 1.1). **Compliant**
Policy 22 – Change of elements		
22.1	The alteration of operational sewage pumping site elements is acceptable where necessary to maintain operations, improve safety, or meet other essential requirements that retains the ongoing function of SP0067.	The proposed works involve altering the site to maintain and continue operations to retain ongoing function of the site. **Compliant**
22.2	Adaptation and alteration of significant elements to support ancillary functions, such as administrative or new uses, should be confined wherever possible to elements of lower significance, or new, purpose-built facilities.	The proposed works are predominantly impacting site elements graded as moderate and little significance. The only exceptional element being impacted, the substructure, has tolerance for change according to the CMP (Extent 2025). **Compliant**

22.3	Conceal new building services wherever possible and avoid new penetrations into significant fabric. Re-use existing or old service chases or conduits where feasible and possible to do so, in preference to establishing new penetrations into fabric.	This SoHI provides a management measure that ensures if minor or discreet wall penetrations are required, attempt to use existing penetration holes or penetrate through the mortar instead of brick (Table 9.2).
22.4	Any alteration of the superstructure internally should not obscure interpretation of the original spatial volume and character of the space.	There are no known alterations of the superstructure internally in the proposed works. **Compliant**
22.5	Additions to the front and side elevations of the superstructure should only be permitted if there is no feasible alternative.	There are no known permanent additions to the front and side elevations of the superstructure in the proposed works. **Compliant**
Policy 24 – Conservation of original equipment and machinery		
24.1	Where significant equipment or machinery has reached the end of its serviceable lifespan, new equipment should be designed on a like for like basis to minimise adverse heritage impacts.	If feasible, new equipment, such as new roller door and substructure pumps should be designed like for like to minimise adverse heritage impacts. Commitment should be made to ensure compliance to this policy.
24.2	Where feasible to do so, adapt rather than remove historic equipment.	To retain ongoing function of the site, adaptation of historic equipment that requires upgrades/replacement is not feasible. **Compliant**
24.3	Ensure archival recording of redundant equipment is undertaken before its alteration or removal.	A photographic archival recording has been recommended in the management measures of this SoHI to be undertaken prior to construction (Table 9.2).
24.4	Consider potential to retain historic equipment that is no longer operational as moveable heritage items with appropriate investigation, cataloguing and storage.	Commitment should be made to ensure compliance to this policy. If feasible, retention of substructure pumps and superstructure front roller door should be undertaken by relocating them.
Policy 25 – Access requirements		
25.2	Meeting access, safety, or security requirements may require creative solutions to minimise impacts to significant fabric.	Commitment should be made to ensure compliance to this policy.
25.3	Safety requirements should be balanced with heritage considerations to minimise impacts on heritage significance as a result of required safety measures.	Commitment should be made to ensure compliance to this policy.
Policy 26 – New fencing		
26.1	Fencing should be replaced on a like for like basis for visual consistency and a reduced heritage impact.	Commitment should be made to ensure compliance to this policy.
Policy 27 – Removal of hazardous materials		
27.1	Heritage specialist advice should be sought in advance to ensure removal does not detrimentally impact on significant fabric.	Commitment should be made to ensure compliance to this policy.
27.2	Hazardous materials that do not present a safety risk and are of heritage significance should remain in situ. Where removal is required, generally, they should be replaced with a modern similar safe equivalent or, where appropriate, visible surface texture reconstructed.	

Policy 28 – Tree management		
28.1	When significant trees reach the end of their natural life expectancy they should be replaced with trees of the same species, if possible, to retain the landscape significance of the place, provide amenity for staff, visitors and the community, and to minimise public safety risks.	Commitment should be made to ensure compliance to this policy. Management measures have been recommended to demarcate the significant trees to prevent unintentional damage. If retention of the cypress pines is not feasible, another measure has been recommended to replant like for like vegetation.
Policy 29 – Conserving significant views and setting		
29.1	Avoid new developments that would infringe on the setting of SP0067.	As per this SoHI, none of the proposed works will permanently adversely impact the setting or views of the site. **Compliant**
29.2	New development should not impact on significant views and retain the visual prominence of the item to Grand Avenue.	
Policy 30 - Curtilage		
30.2	Where Sydney Water is conducting works in or adjacent to the SHR curtilage which have the potential to affect heritage significance, those works will be undertaken in accordance with this CMP regardless of the legal ownership of the land.	This SoHI has been prepared for Sydney Water in accordance with this CMP. **Compliant**
Policy 33 – Photographic Archival Recording		
33.1	It is recommended that archival records are included in the ongoing management records of the site.	A photographic archival recording has been recommended in the management measures of this SoHI to be undertaken prior to construction (Table 9.2).
33.2	Copies of archival records are to be lodged with NSW Heritage Council as well as the Sydney Water and WaterNSW Historical Archives and Records Facility.	
Policy 34 – Heritage Induction		
34.1	The heritage induction should be prepared by a suitably qualified heritage consultant and reviewed by the Sydney Water heritage officer.	A heritage induction has been included in the management measures of the CEMP which will include heritage awareness and management training (Table 9.1).
34.2	The heritage induction must address the sites archaeological sensitivity when works involve ground disturbance.	

iii Memorial Park (including obelisk) and remnants of former Meadowbank baths (RLEP #I72).

In summary, the project will result in **minor adverse impacts** to the heritage significance of the Memorial Park.

Table 8.5 Memorial Park (including obelisk) and remnants of former Meadowbank Baths – Matters for consideration

Matter	Discussion	Impact assessment
Fabric and spatial arrangements	The pipeline open trenching would not impact the fabric or spatial arrangement of the primary heritage feature, the Memorial obelisk, as it is located outside of the impact area. While not included in the heritage listing, the 'Ryde Remembers' feature is in the impact area (Figure 6.2). This feature adds to the war memorial motif of the park, and its location in the impact area suggests there is likely to be minor adverse impacts onto this feature. For any potential remnants of the Meadowbank baths in the Parramatta River, it should be noted that the river release pipeline near the timber structure's former location will be within the reclaimed land of the carpark and the outlets are planned to be placed on the riverbed with concrete blankets over the top, making it unlikely that surviving resources would be uncovered or impacted by this project. Therefore, there will be no adverse impacts onto the fabric or spatial arrangements of the heritage listed items at this site, but potential minor adverse impacts onto a related feature.	Minor adverse impacts
Setting, views and vistas	Open trenching will require the removal of vegetation along the pipeline. Although these trees and bushes are not included in the heritage listing, their removal will have a temporary impact of the Park's setting and views. As this impact can be managed through replanting and the trees are not specifically mentioned in the listing, this impact is considered to be a minor adverse impact. Additionally, there will be a permanent visual impact from the installation of the barometric loop, with dimensions being approximately 8 m tall and 3 m wide. Sydney Water is investigating the exact location of the barometric loop in consultation with City of Ryde Council. The barometric loop may be incorporated into, or co-located with, or adjacent to, the existing toilet block. If required, the toilet block replacement or upgrade design would be developed through detailed design in consultation with City of Ryde Council, as owners of the facility.The loop will be located in the north-east corner of the park's curtilage and will not obscure any notable views. There will also be temporary indirect impacts to the settings and views of the Memorial Park during construction, with temporary fencing creating a visual barrier.	Minor adverse impact.
Landscape	The removal of vegetation along the pipeline will directly impact the landscape of the Park, however, the plants themselves are not included in the heritage listing but contribute to the setting of the park, resulting in a minor adverse impact on this matter. The pipeline alignment traversing south was chosen to follow the path in order to limit the overall impacts to the park, including the memorials, vegetation, and public use during construction.	Minor adverse impact
Use	Once the pipeline installation is complete, the area will continue being used as a public park; no permanent impact to this matter is identified.	Little to no impact.
Demolition	There is no planned demolition in this heritage item; no impact to this matter.	Little to no impact.
Curtilage	The project would not alter the listed curtilage of the item. No impact would occur.	Little to no impact.
Moveable heritage	No moveable heritage has been identified on this heritage site; there is no impact to this matter.	Little to no impact.

Matter	Discussion	Impact assessment
Historical archaeology	While the impact area will be traversing directly through the known location of the original F.Whitham cottage, this structure has been assessed as not holding local significance and is likely to have undergone high levels of disturbance. As the potential archaeological resources are unlikely to hold heritage significance, they are not relics under the Heritage Act 1977 and do not require management. Additionally, while there is moderate archaeological potential for remnants of the Meadowbank baths in the Parramatta River, the impact area primarily avoids the original location and the archaeological resources are similarly not of heritage significance. Therefore, there is little to no impacts to this matter.	Little to no impact.
Aboriginal cultural heritage	An ACHA has been prepared for the project. Please refer to the ACHA report for an assessment of the potential impacts to Aboriginal cultural heritage, if any.	
Natural heritage	The is no natural heritage values associated with this heritage item.	Not relevant
Conservation areas	This heritage item does not sit in a conservation area.	Not relevant
Conservation management plan	There is no conservation management plan associated with this site.	Not relevant
Other heritage items in the vicinity	There are no heritage items in the vicinity of this site that will be impacts from the proposed works.	Not relevant
Commonwealth / National heritage significance	There are no items of Commonwealth or National heritage significance at this site.	Not relevant
World heritage significance	There are no items of World heritage significance at this site.	Not relevant

8.4.2 Indirect Impacts

All the heritage items in the impact area and within a 200 m buffer have potential to be indirectly impacted

i Visual impacts

Project activities that would result in changes to the visual settings of the heritage items include:

- construction of the WRRF
- repurposing of brine pipeline infrastructure
- construction and installation of wastewater transfer and river release pipeline infrastructure
- upgrades to the Sewage Pumping Station
- construction of the barometric loop
- movement and use of compounds for construction equipment and vehicles.

Table 8.6 Potential indirect visual impacts to items of historical heritage within 200 m of the impact area

Site ID	Site name	Anticipated visibility impact discussion	Likely impact
SHR #00749, s170 #5000658, PLEP # I661.	*Rydalmere Hospital Precinct (former)*	The primary heritage elements of the site are located over 100 m from the construction activities and there are intervening non-heritage buildings and vegetation. It is not anticipated that there would be changes to the setting, views and vistas of the key heritage elements of the site during construction. There will be visual impacts during construction from work's equipment and the movement of vehicles, however these will only be temporary. As all infrastructure will be below ground, no permanent impacts would occur.	Little to no impact
S170 #4800212 and PLEP #I8/1695	*Clyde Carlingford Rail Bridge abutments*	Indirect temporary visual impact during construction. Temporary visual impact will not impact the functioning of the site or reduce the heritage significance.	Little to no impact
SHR #01643, s170 #4571724 and PLEP #I9	*Sewage Pumping Station 67*	Indirect temporary visual impact during construction. Temporary visual impact will not impact the functioning of the site or reduce the heritage significance. As the proposed works at this site are either underground or internal, there will be no permanent visual impacts to the aesthetic significance of this site or the Pumping Station building.	Little to no impact
PLEP #I677	*Capral Aluminium*	Indirect temporary visual impact during construction. Temporary visual impact will not impact the functioning of the site or reduce the heritage significance. While there will be permanent visual impacts of the sightlines from this curtilage due to the creation of the WRRF, the area is already an industrial area and will not have any permanent adverse impacts onto the aesthetic significance of the structures (in particular the Moderne office building) within this curtilage.	Little to no impact
PLEP 2023 #I703	*Earnest Fleming Pty Ltd Machinery Merchants*	Indirect temporary visual impacts during construction. Temporary visual impact will not impact the functioning of the site or reduce the heritage significance.	Little to no impact
PLEP #I291 and SEPP Item 87	*Explosives Store*	The pipeline alignment traverses north of this curtilage. Indirect temporary visual impact during construction have been considered, however, there are no sight lines between the impact area and the explosives store due to the regenerated bush vegetation. Therefore, no visual impact is anticipated.	Little to no impact
RLEP #I72	*Memorial Park (including obelisk) and remnants of former Meadowbank baths*	There will be temporary indirect visual impact associated with construction, specifically fencing and vegetation clearance. Additionally, there will be the construction of a barometric loop creating a permanent visual impact, but this is to be placed besides the public toilets near Meadow Crescent in the north-east corner of the park's curtilage, and thus not in proximity to the primary features of heritage significance at this site. Although highly visible in a public park, as the visual impacts of the construction will be temporary, the impact is considered minor.	Minor adverse impact
SHR #01189, s170 #4805744 and RLEP #I56	*Meadowbank rail bridge over Parramatta River*	Indirect temporary visual impact during construction. Temporary visual impact will not impact the functioning of the site or reduce the heritage significance.	Little to no impact
SHR #01133, s170 #4801051 and PLEP # I54	*Dundas Railway Station Group*	Indirect temporary visual impact during construction. Temporary visual impact will not impact the functioning of the site or reduce the heritage significance.	Little to no impact

Site ID	Site name	Anticipated visibility impact discussion	Likely impact
PLEP #i6	*Tram alignment*	Indirect temporary visual impact during construction. Temporary visual impact will not impact or reduce the heritage significance.	Little to no impact
PLEP #I7	*Grave of Eliner Magee & Child*	Indirect temporary visual impact during construction. However, this site is already located in an area that is not accessible by the public indicating the already lacking sightlines are unlikely to be impacted. This will not impact the site or reduce the heritage significance.	Little to no impact
PLEP #I11	*Wetlands*	Indirect temporary visual impact during construction. Temporary visual impact will not impact or reduce the heritage significance.	Little to no impact
PLEP I704	*Dwelling*	Indirect temporary visual impact during use of adjacent compound at Deakin Park. Temporary visual impact will not impact the functioning of the site or reduce the heritage significance.	Little to no impact

ii Vibration impacts

Vibratory impacts that may be used for construction of the project, together with the recommended exclusion zones from heritage items are outlined in Table 8.7. If these minimum working distances are complied with, no adverse impacts from intensive works are likely in terms of cosmetic or greater damage.

Table 8.7 Minimum working distances of vibration intensive equipment to be used

Plant	Rating/description	Cosmetic Damage		Human Response
		Residential/commercial	Heritage and other sensitive structures	
Vibratory roller	< 50 kN (typically 1-2t)	5 m	14 m	15 m
	< 100 kN (typically 2-4t)	6 m	16 m	20 m
	< 200 kN (typically 4-6t)	12 m	33 m	40 m
	< 300 kN (typically 7-13t)	15 m	41 m	100 m
	> 300 kN (typically 13-18t)	20 m	54 m	100 m
	> 300 kN (> 18 t)	25 m	68 m	100 m
Small hydraulic hammer	300 kg – 5 to 12T excavator	2 m	5 m	7 m
Pile boring	≤ 800 m	2 m (nominal)	40 m	4 m

Source: adapted from *Camellia Rosehill Water Resource Recovery Facility Noise and Vibration Impact Assessment* (AECOM Australia Pty Ltd 2025)

Heritage items Capral Aluminium and Dundas Railway Station Group extend further than the minimum distances in Table 8.7 and are unlikely to be impacted by vibration. The Noise and Vibration Assessment undertaken for this project recommended when construction is located within the minimum distances, smaller plant is selected to reduce the likelihood of vibration impacts Where this is not reasonable or feasible, vibration monitoring to determine the site specific minimum distances should be undertaken. For any structures still remaining within the site specific minimum distances the following will occur:

- condition survey before and after vibration intensive works, and
- vibration monitoring during vibration intensive activities. The vibration monitor should notify the work supervisor when vibration levels reach or exceed the criteria.

(AECOM Australia Pty Ltd 2025)

Any heritage items that are outside of the 200 m buffer and not included in Section 4.3 are at a distance where vibrational impacts are considered negligible.

Table 8.8 Potential indirect vibration impacts to items of historical heritage within 200 m of the impact area

Site ID	Site name	Distance from impact area	Anticipated vibration impact discussion	Likely impact
SHR #00749, s170 #5000658, PLEP # I661	*Rydalmere Hospital Precinct (former)*	In impact area	The impact area intersects this item's curtilage, however, the proposed works in this curtilage involve refurbishing existing infrastructure. Additionally, the primary heritage structures and features are located over 100 m west of the impact area within this item's curtilage.	Little to no impact
S170 #4800212 and PLEP #I8/1695	*Clyde Carlingford Rail Bridge abutments*	Abuts east of the brine pipeline impact area.	While this item's curtilage abuts the impact area, it abuts the brine pipeline that is being refurbished meaning the vibrational impact will be contained to small areas of excavation used to access the pipeline. Management measures will be required to ensure there are no exceedances of the cosmetic damage screening criteria.	Little to no impact
SHR #01643, s170 #4571724 and PLEP #I9	*Sewage Pumping Station 67*	In impact area	The entirety of this site's curtilage forms the impact area. There will be works conducted in close proximity to the primary structure. Management measures will be required to ensure there are no exceedances of the cosmetic damage screening criteria.	Little to no impact
PLEP #I677	*Capral Aluminium*	Abuts south and west of WRRF impact area.	The main heritage feature of this item, the Moderne office building, is located approximately 130 m west of the WRRF, indicating it is outside of the Cosmetic Damage Screening Criteria zone.	Little to no impact
PLEP 2023 #I703	*Earnest Fleming Pty Ltd Machinery Merchants*	~10 north-east of the river release pipeline impact area.	Although this item is in proximity to the impact area, it already exists in an industrial area with constant movement of heavy vehicles and machinery suggesting it regularly experiences minor vibrational impacts. If the vibrational management measures are complied with, there is likely to be little to no impact. Management measures will be required to ensure there are no exceedances of the cosmetic damage screening criteria.	Little to no impact

Site ID	Site name	Distance from impact area	Anticipated vibration impact discussion	Likely impact
PLEP #I291 and SEPP Item 87	*Explosives Store*	~15 m south-east of river release pipeline impact area.	The river release pipeline in the vicinity of this item's curtilage is being installed via trenchless HDD methods. The closest impact area to this curtilage is for compounds (~15 m) and the nearest HDD pit is ~130 m north-west of this curtilage. Management measures will be required to ensure there are no exceedances of the cosmetic damage screening criteria.	Little to no impact
RLEP #I72	*Memorial Park (including obelisk) and remnants of former Meadowbank baths*	In impact area	The impact area will be traversing along this heritage curtilage. However, the primary site of heritage significance, the Memorial obelisk, is located over 40 m west of the impact area. Management measures will be required to ensure there are no exceedances of the cosmetic damage screening criteria.	Little to no impact
SHR #01189, s170 #4805744 and RLEP #I56	*Meadowbank rail bridge over Parramatta River*	~20 m east of the river release pipeline impact area.	While this heritage item is in proximity to the impact area, the closest sections to the impact area in the Parramatta River, where machinery will be minimally used Management measures will be required to ensure there are no exceedances of the cosmetic damage screening criteria.	Little to no impact
SHR #01133, s170 #4801051 and PLEP # I54	*Dundas Railway Station Group*	~60 m east of the brine pipeline impact area	The station may be subject to vibrational impacts. Management measures will be required to ensure there are no exceedances of the cosmetic damage screening criteria.	Little to no impact
PLEP #i6	*Tram alignment*	Abuts east of the brine pipeline impact area.	The west most portion of this curtilage abuts the impact area; however, this heritage curtilage traverses ~2 km east, further away from the impact area. Furthermore, the current wide street is merely demonstrative of the former tramway line, suggesting minimal impacts from indirect vibrational impacts.	Little to no impact
PLEP #I7	*Grave of Eliner Magee & Child*	~25 m east of the brine pipeline impact area.	The grave may be subject to vibrational impacts. Management measures will be required to ensure there are no exceedances of the cosmetic damage screening criteria.	Little to no impact
PLEP #I11	*Wetlands*	Abuts west of brine pipeline, ~60 m south-east of WRRF, and ~100 m north-west of river release pipeline impact areas.	The *Wetlands* abut the impact area to the north of the Parramatta River, where relining works are proposed. No exceedances of the cosmetic damage screening criteria are expected during these works and as a result, no impacts to this area of the *Wetlands* is expected. Construction of the river release pipeline would require HDD underneath the *Wetlands* at Silverwater. The depth of the HDD from the surface and the *Wetlands* curtilage's distance from the HDD pits (these are ~325 m north-west and ~150 m south-east of the *Wetlands*) indicate little to no impact from vibrational sources.	Little to no impact
PLEP I704	*Dwelling*	Abuts compound impact area at Deakin Park.	While this heritage item's curtilage is abutting the impact area, this area of the proposed works has been designated as a compound for vehicle and equipment. The closest portion of pipeline being installed is the open trenched river release pipeline ~350 m north-west of this item.	Little to no impact

iii Subsidence

Due to the depth the HDD will be tunnelling, the potential for subsidence risk is low. Therefore, subsidence has not been considered as a substantial impact risk.

iv Groundwater drawdown

While the primary sources of indirect impacts are visual and vibrational, there is potential for indirect impacts from groundwater drawdown near Parramatta River and Duck Creek to impact the *Wetlands* (PLEP #I11) heritage item. The mangroves protected in this listing form part of the broader Grey Mangrove River Mangrove Forest ecosystem. The groundwater assessment for the project (Jacobs Group 2025: 58) determined that the estimated drawdown extents will not have any impacts on any Groundwater Dependent Ecosystems or High Ecological Value Aquatic Ecosystems. No indirect groundwater drawdown impact to the Wetlands is identified.

8.5 Cumulative Impacts

Table 8.9 provides a summary of projects that may result in a cumulative impact to historical heritage in the vicinity of the impact area. These projects are being assessed as the respective construction and operation overlap with GPOP.

Table 8.9 Cumulative impact assessment

DA reference	Project name	Address	Project stage	Project description	Category of future project	Cumulative Heritage Impacts
SSD-77870968	Rosehill Resource Recovery Facility	12A Grand Avenue Rosehill NSW 2142	Prepare EIS	Construction and operation of a resource recovery facility (RRF) and concrete batching plant. The RRF has a proposed capacity of 250,000 tonnes per annum. The concrete batching plant is anticipated to produce 250,000 tonnes per annum of concrete	Project under assessment	None This project is located at the east most section of the *Tram alignment* (PLEP #I6) curtilage as GPOP's impact area is abutting the west most side. There will be no direct impacts from both projects so no cumulative impacts.
SSD-71558962	Mixed Use Development with In-fill Affordable Housing - Melrose Park South - East	112 Wharf Road, 30 and 32 Waratah Street, Melrose Park NSW 2114	Prepare EIS	Construction of a mixed-use development comprising approximately 98,619sqm, basement carparking and servicing, and landscaping and construction of 3 public open spaces including one new waterfront park.	Project under assessment	Potential cumulative visual impacts. While the project is in the vicinity of one of the many *Wetlands* (PLEP #I11) curtilages, there is unlikely to be any impacts other than indirect visual ones.
SSD-50894964	River Road West Build-to-Rent	10-12 River Road West, Parramatta	Prepare EIS	-	Project under assessment	Potential cumulative visual impacts. While the project is in the vicinity of one of the many *Wetlands* (PLEP #I11) curtilages, there is unlikely to be any impacts other than indirect visual ones.
SSD-65654458	SAMI - Camellia - Bitumen Plant Redevelopment	12 Grand Avenue, Camellia	Prepare EIS	Redevelopment of an existing bitumen storage and processing facility, with ancillary office and laboratory to service operations on the site.	Project under assessment	None. This project is located at the east most section of the *Tram alignment* (PLEP #I6) curtilage as GPOP's impact area is abutting the west most side. There will be no direct impacts from both projects so no cumulative impacts.
SSD-10459-Mod-3	Mod 3 - Changes to Reconomy Facility and additional waste input	6//DP1271928	Prepare Mod Report	Modifying the Reconomy facility to enable the reuse of waste in the asphalt making process and reduce the amount of waste bound for landfill. Additionally, modification is proposed to increase the variety of input recycled waste materials.	Change to existing project	None. While this project is located east of the WRRF, there are no heritage items nearby, thus little to no heritage impact.

DA reference	Project name	Address	Project stage	Project description	Category of future project	Cumulative Heritage Impacts
SSD-10459-Mod-4	Mod 4 - DSRRC throughput increase	6//DP1271928	Prepare Mod Report	Downer proposes to modify the consent to enable an increase in annual RAP processing from 250,000 to 375,000 tpa.	Change to existing project	None. While this project is located east of the WRRF, there are no heritage items nearby, thus little to no heritage impact.
SSD-72816207	9 Burroway Road, Wentworth Point - Mixed Use Development	9 Burroway Road, Wentworth Point	Response to submissions/more information required	Concept Proposal with Stage 1 subdivision for 42,800sqm of mixed use floor area, approx. 412 apartments with at least 15% affordable housing, parking, building envelope, new public plaza and shared zone and foreshore promenade.	Project under assessment	None. There are no known historical heritage items being impacts and it is not in the vicinity of any of GPOP's impact area's heritage items.
SSD-64916225	WSU Indigenous Centre of Excellence	171 Victoria Road, Parramatta	Response to submissions	A four-storey Indigenous Centre of Excellence at the Western Sydney University Parramatta South Campus on the site of the existing P1 Car Park, comprising arts, education, and community spaces.	Project under assessment	None. The proposed works of this project is located within the same heritage curtilage as the GPOP impact area. While these projects are in different locations within this heritage curtilage (this project will be located north of the precinct adjacent to Victoria Road and GPOP will be located following the east edge of the curtilage), there will likely be temporary indirect impacts by both projects' construction occurring at the same time. However, GPOP will result in little to no permanent impacts to the site and the construction of the WSU Indigenous Centre of Excellence will provide beneficial impacts to the heritage item's current use as an educational centre according to the prepared SoHI. (Curio Projects 2024)
SSD-31179510	Gregory Place Build-to-Rent	2A Gregory Place, Harris Park, 2150	Response to submissions	Proposed concept development for an affordable housing and build-to-rent development comprising approximately 483 dwellings within three freestanding four to eight storey buildings.	Project under assessment	None. While the prepared SoHI for this project identified heritage impacts, none are associated with or will have cumulative impacts with the heritage items relevant to GPOP's impact area. (GBA Heritage 2022)

DA reference	Project name	Address	Project stage	Project description	Category of future project	Cumulative Heritage Impacts
SSD-55522478	6 Grand Avenue Multi-Level Warehouse Rosehill	6 Grand Avenue, Rosehill	Determination	Construction and operation of a two level warehouse and distribution centre.	Approved project	None. This project is located south of the centre of the Tram alignment (PLEP #I6) curtilage as GPOP's impact area is abutting the west most side. There will be no direct impacts from both projects so no cumulative impacts. (Artefact Heritage Services 2023a)
SSD-53338465	Grand Avenue Data Centre Expansion, Rosehill	8 Grand Avenue, Rosehill	Determination	Construction and operation of an expansion to an existing data centre, with an overall height of 25.8 metres.	Approved project	None. This project is not in the vicinity of GPOP's impact area or any associated heritage items.
SSD-36464788	Boorea Street Warehouse & Distribution Centre	42 Boorea Street, Lidcombe	Determination	Demolition of the existing building, site remediation and construction of a multi level warehouse and distribution centre	Approved project	None. The EIS identified no heritage items in the study area. This project is not in the vicinity of GPOP's impact area or any associated heritage items. (Austral Archaeology 2022)
SSD-21356591	Sydney Olympic Park Sites 2A and 2B - Serviced apartment tower and commercial	2A and 2B Australia Avenue	Determination	Construction and use of three buildings, including a mixed-use 45 storey serviced apartment tower, a 12 storey commercial building and a 5 storey pavilion. Includes associated demolition, site preparation, public domain, road and services works.	Approved project	None. This project is not in the vicinity of GPOP's impact area or any associated heritage items.
SSD-71999463	Mixed-use development with affordable housing - Marquet and Mary Street, Rhodes	1-9 Marquet Street, Rhodes	Determination	Construction of a 42-storey mixed-use development with affordable housing and basement car parking	Approved project	None. The EIS did not identify any impacts to historical heritage. This project is not in the vicinity of GPOP's impact area or any associated heritage items. (Urbis 2024)
SSD-67424709	Mixed-use development including in-fill affordable housing - 9 Blaxland Road, Rhodes	9 Blaxland Road and 424 Concord Road, Rhodes	Determination	Construction of a 48-storey mixed use and in-fill affordable housing development including retail and commercial uses and 313 residential apartments including a 15% affordable housing contribution.	Approved project	None. The EIS identified acceptable impact on historical heritage significance. However, this project is not in the vicinity of GPOP's impact area or any associated heritage items.(NBRS 2024)

DA reference	Project name	Address	Project stage	Project description	Category of future project	Cumulative Heritage Impacts
SSD-68363729	Rhodes East Mixed Use Seniors Housing Development	15-17, 25-27 Blaxland Road and 440-442 Concord Road	Response to submissions	Mixed use proposal for seniors housing, shop top housing, commercial development, and fire station across two towers (south 17 storeys and north 21 storeys) on a shared podium and basement parking.	Project under assessment	None. The EIS identified minor impacts to nearby heritage items. This project is not in the vicinity of GPOP's impact area or any associated heritage items. (Biosis 2025)
SSD-67508739	Residential development with affordable housing – Llewellyn Street, Rhodes	43B - 57 Blaxland Road 2A, 2B, 2D Cavell Avenue 448 - 458 Concord Road 2A Llewellyn Street, Rhodes	Prepare EIS	Demolition of existing buildings and hardstand areas. Construction of four (4) residential flat buildings with infill affordable housing, ranging in height from 12 to 26 storeys with carparking and through site link.	Project under assessment	None. This project is not in the vicinity of GPOP's impact area or any associated heritage items.
SSD-67419241	Mixed-use development with in-fill affordable housing - Leeds Street, Rhodes	25-27 Leeds Street, Rhodes	Response to submissions	Demolition of existing buildings and hardstand areas. Construction of six mixed use residential towers with infill affordable housing, ranging in height from 10 to 18 storeys with carparking. Through site links, foreshore park and promenade.	Project under assessment	Potential cumulative visual impacts. The project is located south-east of the *Meadowbank rail bridge over Parramatta River* (SHR #01189, s170 #4805744 and RLEP #I56). This item will have temporary visual impacts from GPOP but permanent minor visual impacts from this project according to the prepared EIS. (Weir Phillips Heritage and Planning 2024)
SSD-67636458	Mixed-use development with affordable housing – 23-29 Marquet Street, Rhodes	23-29 Marquet Street, Rhodes	Prepare EIS	Construction of a 42 storey mixed-use development with affordable housing component, basement car parking and publicly accessible open space.	Project under assessment	None. This project is not in the vicinity of GPOP's impact area or any associated heritage items.
N/A	Camellia-Rosehill Place Strategy	Camellia Precinct	Finalised	The place strategy is a 20-year plan for the renewal of Camellia-Rosehill including a new town centre and enhanced entertainment precinct, new urban services precinct and land retained for heavy industry – all supported by improved transport connections and new public open spaces.	Approved project	Potential cumulative visual impacts. The finalised project strategies state that it is going ahead without loss of heritage items. Considering the overlap and view lines with GPOP's impacts area, there will be cumulative changes to the setting and sightlines of Rydalmere Hospital Precinct (former) (SHR #00749, s170 #5000658, PLEP # I661). (Hector Abrahams Architects 2022)

DA reference	Project name	Address	Project stage	Project description	Category of future project	Cumulative Heritage Impacts
N/A	SOPA Master Plan	Sydney Olympic Park	Draft	Master Plan 2050 proposes to deliver a total of up to 13,000 homes, 32,000 jobs, 5 to 10 % affordable housing, new hotel accommodation, more space for education and health, new community sports and leisure centres, a new library and community hub, a new cultural centre, 2 new school education sites, 7 new public spaces, 4 new sports fields and over 10 playgrounds.	Approved project	Potential cumulative visual impacts. The project involves mitigation measurements for many heritage items, but none that are in relation to the GPOP impact area's associated heritage items. (GML Heritage Pty Ltd 2024)
SSI-10035	Parramatta Light Rail Stage 2	Various lots	Determination	Construction and operation of an approx. ten-kilometre two-way light rail line connecting Stage 1 and the Parramatta CBD to Sydney Olympic Park via Camellia, Rydalmere, Ermington, Melrose Park and Wentworth Point.	Approved project	Potential cumulative visual impacts. The prepared EIS identifies many heritage items along the project site, however there are likely to be minor visual impacts for the Sewage Pumping Station 67 (SHR #01643, s170 #4571724 and PLEP #I9) and the Tram alignment (PLEP #I6). However, GPOP's visual impacts at these sites are only temporary while this project's will be permanent, albeit the scope is minor modifications to the light rail tracks in the vicinity. (RPS 2022)
SSI-22765520	Sydney Metro West - Rail infrastructure, stations, precincts and operations	Various lots including Clyde Stabling depot (Unwin Street)	Determination	Application for major civil construction (consisting of tunnel fit-out, station building and fit-out) and operation of the line between Westmead and Sydney CBD.	Approved project	Potential minor cumulative visual impacts. The only overlapping heritage items the prepared EIS discusses is the Wetlands (PLEP #I11) and Capral Aluminium (PLEP #I575). However, the prepared EIS identifies the impacts to both these items to be negligible to neutral. Nevertheless, due to the vicinity of both projects, there is likely to be minor cumulative temporary visual impacts from the construction phases. (Artefact 2022)

DA reference	Project name	Address	Project stage	Project description	Category of future project	Cumulative Heritage Impacts
N/A	Duck River Nature Trail	Various lots	Stage 1 determined	To be delivered in three stages, generous new boardwalks and pedestrian and cyclist paths along the eastern edge of Duck River, will create access to the foreshore and enhance the quality of our riverside landscapes.	Approved project	Potential cumulative visual impacts. Both projects intersect with the Wetlands (PLEP #I11) heritage item. However, this project will result in permanent changes to the site with the construction of a trail while GPOP will result in temporary visual impacts during construction. (City of Parramatta Council 2024)
N/A	Hill Road Project	Hill Road from Wentworth Point to Lidcombe, between Burroway Road to Haslams Marker (John Ian wing Parade)	Planning	TBC	Project under assessment	-
N/A	Placeholder: SOPA RW Networks	TBC	TBC	TBC	Project under assessment	-
TBC	Central Sydney Industrial Estate SSD 10459 Mod 5	TBC	To be submitted	TBC	Project under assessment	-
N/A	Meadowbank Bridge Remediation	Meadowbank Bridge (John Whitton Bridge)	Prepare EIS	Transport for NSW will repair and upgrade the heritage-listed Meadowbank bridge to maintain this vital pedestrian and cyclist corridor across the Parramatta River.	Project under assessment	Potential cumulative visual impacts. It is likely that this project will have temporary visual impacts during construction to and from the Meadowbank rail bridge over Parramatta River (SHR #01189, s170 #4805744 and RLEP #I56), which is the same as GPOP.

8.6 Considerations of alternatives

Sydney Water have used an iterative design method whereby EMM provided heritage constraints that were input into the design process. In this way, Sydney Water have arrived at a design that minimises historical heritage impacts, while also giving consideration to other constraints.

The only heritage site that required potential consideration of alternatives was the alignment at the *Memorial Park (including obelisk) and remnants of former Meadowbank baths* (RLEP #I72). The original mitigation measurement for this site was for the detailed design of the river release pipeline to be updated in order to avoid the areas of archaeological potential within this site. However, per communications with Sydney Water, the alignment was unable to be changed, as it has been selected to avoid impacting more significant vegetation and other memorials. Further research on this site and its subdivisions were conducted, particularly in relation to the occupation of the site by F. Whitham. The archaeological potential and significance of this item was assessed as not meeting the threshold for local significance, and therefore any potential archaeological resources are unlikely to meet the threshold to be defined as relics under the *Heritage Act 1977*.

8.7 Statement of heritage impact

The construction and operation of the project would result in little to no impact on of the Rydalmere Hospital Precinct and minor adverse impacts to and the Sewage Pumping Station 67 and Memorial Park.

Although the brine pipeline alignment is directly impacting the curtilage of the Rydalmere Hospital Precinct (SHR #00749, s170 #5000658, PLEP # I661), the planned works for this section of the pipeline is to refurbish the existing pipeline, which would require minor excavations within the previously disturbed footprint of the existing pipeline. The impact area is over 100 m east of the primary heritage features and structures of the heritage item. The CMP prioritises conserving the structures related to the original hospital precinct and the landscape gardens (at the north and south)(Conybeare Morrison International 2008). Thus, with no direct or indirect impacts to elements of heritage significance, the project would result in little to no impact to the heritage significance of the Hospital Precinct structures. Near the impact area, there is a sandstone and brick feature from the late 1800/early 1900s (Plate 6.35). The sandstone and brick feature has been assessed as holding no heritage significance and it is slightly outside the impact area (north-east of a compound), so there will be no direct impacts on the feature.

Regarding the Sewage Pumping Station 67 (SHR #01643, s170 #4571724 and PLEP #I9), the project will result in minor adverse impacts to the heritage significance of the site, primarily onto the matter of fabric and spatial arrangement. However, these impacts will result in the continued operation of the site, an aspect to the heritage item that is crucial to its significance. The primary feature of significance is the brick station structure at the centre of the site, which is assessed as being of exceptional significance (Table 2.4). However, minor penetrations for electrical work and upgrades may be required during the construction, but this remains in compliance with the CMP (Extent 2025).There are no proposed works that will result in direct impacts to the station structure itself. Internally, proposed works includes upgrades to the pumping infrastructure in the substructure. This will result in permanent changes to the fabric and spatial arrangement to the substructure which has been deemed of exceptional significance. However, the CMP determines the substructure to have tolerance for change as its shape and layout is what comprises its heritage significance, rather than the fabric planned to be impacted (Extent 2025). The external works include open trenching for the installation of a new pipeline in an open external area of exceptional significance. However, the significance of this area is based on the views of the aesthetic significance of the station structure, and these significance views will not be permanently altered by the proposed open trenching. Additionally, the proposed demolition of the transformer yard and garage shed for upgrades will result in permanent removal of the fabric and permanent changs to the spatial arrangement of the east portion of the site. As the transformer yard is of moderate significance, retention of this element is recommended. Nevertheless, these site elements are not of high significance, this demolition will result in minor adverse impacts to the overall heritage significance of the curtilage. There is also the potential in the proposed works for the removal of the station roller door and site cypress pine. Both elements are of moderate significance, therefore

retention is recommended, but if retention is not possible, it would result in minor adverse impacts. Considering the overall minor adverse impacts to the Sewage Pumping Station 67, management measures have been recommended to avoid further impacts (Table 9.2). Additionally, this level of impact is offset as the project would facilitate the continued operation of the site, an integral aspect of the site's heritage significance.

At the locally listed Memorial Park in Meadowbank (RLEP #I72), the river release pipeline will be installed using open trench methods , a barometric loop will be constructed near the public toilet facilities in the north-east corner of the site, and there will be the erection of temporary safety fencing to allow for construction, resulting in direct impacts to the heritage curtilage. The primary heritage feature of this item – the Memorial obelisk – is located over 45 m west of the impact area, and will not have any direct impacts. However, the 'Ryde Remembers' memorial feature is situated in the impact area. While this feature is not included in the heritage listing of the site, it strengthens the memorial motif of the park and will potentially have minor adverse impacts. There will also be temporary minor adverse impacts onto the setting and landscape of Memorial Park. Mitigation measures are provided in Section 9 to manage this. The Memorial obelisk and the Ryde Remembers memorial feature will be obelisk subject to temporary indirect visual impacts. Due to the temporary nature of the impact, the visual impact has been assessed as little to none.

Furthermore, the Park has been identified as containing three areas of archaeological potential, being F. Whitham's cottage, the 'public recreation' structure at the centre of the Park and the Meadowbank baths in the Parramatta River. The significance assessments for these sites of archaeological potential have deemed each to be unlikely to meet the threshold for local heritage significance, and therefore any potential resources uncovered are unlikely to be defined as relics under the *Heritage Act 1977*. Management measures are provided in Section 9 to address the residual archaeological risks.

Moreover, there will be direct impacts to the trees and bushes in the pipeline alignment in Memorial Park. According to available historical aerials from the 1940s and onwards(see Section 5.4), the vegetation is a more recent addition. Vegetation removal will not directly impact the heritage significance of the Park, but rather form an indirect impact to the obelisk and Ryde Remembers memorials by changing the setting. This is considered a temporary minor adverse impact as it can be managed through replanting following construction.

There are a number of heritage items within a 200 m buffer of the impact area that would be subject to indirect visual and vibrational impacts during construction. As these changes are temporary, the impact on the heritage significance of the items is assessed as being little to none.

In summary, there are little to no historical heritage impacts associated with proposed works with the exception of the Sewage Pumping Station 67 and the Memorial Park, which has anticipated minor adverse impacts. The implementation of the proposed management measures is recommended to further minimise the impacts.

9 Management measures

9.1 Heritage management objectives

The overriding objective in managing heritage significance is the avoidance of impacts. Avoidance removes the need for mitigation or amelioration and is in keeping with the philosophy of the *Burra Charter 2013* (Australia ICOMOS 2013). In all cases where significant heritage values may be affected by a project, it is prudent to take a precautionary approach. The Burra Charter (Australia ICOMOS 2013) advocates a cautious approach whereby as much as necessary is done to care for the item and make it useable but otherwise change it as little as possible so that its cultural significance is retained. With these principles in mind, the following management measures are proposed.

9.2 General heritage management measures

General measures for the management of each of the heritage items within the impact area is provided in Table 9.1.

Table 9.1 General heritage management measures

Management measures	Description	Timing	Purpose
Construction environmental management plan (CEMP)	Prepare a Heritage Management Plan as part of the CEMP. This would include: • a list of the identified heritage sites and their locations • Unexpected Heritage Finds Protocol • heritage awareness and management training for site induction processes including: – briefing on the heritage sensitivity of the impact area and moveable heritage within the Camellia pumping station – management measures – guidance on unexpected finds – obligations under the *Heritage Act 1977*.	Pre-construction Construction	To provide guidance during construction of the project to avoid and minimise impacts.
Selection of vibrational equipment	Where vibration intensive construction is required within the minimum working distances of heritage items, the use of alternative equipment should be considered. For structures still within the site-specific minimum distances the following should occur to avoid exceeding the Cosmetic Damage Screening Criteria (AECOM 2025): • Condition survey before and after vibration intensive works. • Vibration monitoring during vibration intensive activities. The vibration monitor should alert the supervisor when vibration levels reach or exceed the criteria.	Pre-construction Construction	To prevent unintentional vibrational impacts onto the heritage items in the impact area and its vicinity.

9.3 Item specific management measures

Section 8 has identified direct and indirect impacts to specific heritage items. Table 9.2 provides measures to manage the identified impacts.

Table 9.2 Item specific management measures

Item	Management measure	Timing	Purpose
Rydalmere Hospital Precinct (former) (SHR #00749, s170 #5000658, PLEP # I661.) **AND** *Sewage Pumping Station* (SHR #01643, s170 #4571724 and PLEP #I9)	All work to be undertaken within the requirements and policies of these sites' respective CMPs.	Pre-construction Construction	To ensure compliance with relevant CMPs to prevent unintentional impacts to the heritage significance of these sites.
Rydalmere Hospital Precinct (former) (SHR #00749, s170 #5000658, PLEP # I661.) **AND** *Sewage Pumping Station* (SHR #01643, s170 #4571724 and PLEP #I9)	Install fencing to demarcate between work areas and heritage fabric in proximity of the works. Relevant fabric includes: • The sandstone and brick feature at the Rydalmere Hospital Precinct (former) • Camellia pumping station at the Sewage Pumping Station 67.	Pre-construction Construction	To provide a buffer and avoid accidental direct impact to fabric items.
Sewage Pumping Station (SHR #01643, s170 #4571724 and PLEP #I9)	Utilise existing penetrations in brickwork where possible for new electrical connections. If not possible, prioritise drilling through mortar rather than brick to minimise damage to significant brickwork.	Construction	To avoid unexpected damage to brickwork at Camellia pumping station.
Rydalmere Hospital Precinct (former) (SHR #00749, s170 #5000658, PLEP # I661.) **AND** *Sewage Pumping Station* (SHR #01643, s170 #4571724 and PLEP #I9)	Take photographic records to systematically survey the site before construction for archival purposes, in line with the relevant CMP policies. Should damage unexpectedly occur, the relevant CMP owners are to be notified and develop a plan to rectify impacts as reasonably possible.	Pre-construction Construction	Photographic recording will systematically survey the site before construction for archival purposes. This will present plans for unexpected heritage impact that does not comply with policies and guidelines of CMPs for: • Female Orphan School • Camellia pumping station (Sewage Pumping Station 67)
Memorial Park (including obelisk) and remnants of former Meadowbank baths (RLEP #I72)	Minimise removal of vegetation in the curtilage where possible. Replant removed vegetation	Pre-construction Construction	This will prevent loss of vegetation in Memorial Park resulting in impacts to the aesthetic setting
Memorial Park (including obelisk) and remnants of former Meadowbank baths (RLEP #I72)	During detailed design, prioritise protecting and retaining the plaque in its original location. If this is not possible, consult with City of Ryde Council to temporarily store and reinstate the plaque on the completion of works, or relocate the plaque permanently	Pre-construction Construction	This will avoid damage to or destruction of the Ryde Remembers memorial

10 Conclusion

Sydney Water is proposing to build and operate a new water resource recovery facility (WRRF) at Camellia with associated infrastructure to provide wastewater services to the GPOP growth area.

The project comprises the construction of the WRRF and three pipeline sections with a total length of approximately 15 km. Most of the land within the impact area are major public roads and rail lines as well as Sydney Water owned land. The pipeline alignment will be intersecting public recreation spaces, residential neighbourhoods, commercial zones, education and transport infrastructure, and industrial estates. The pipelines cross essential infrastructure and natural features, such as the Parramatta River and Duck River, underscoring their critical role in the region's water management infrastructure.

During preliminary historical research and the field survey, a total of three heritage listed sites were identified in the impact area, representing an array of different features of the region's history, with potential direct impacts from the pipeline alignment. These heritage sites include:

- Rydalmere Hospital Precinct (former) (SHR #00749, s170 #5000658, PLEP # I661)
- Sewage Pumping Station 67 (SHR #01643, s170 #4571724 and PLEP #I9)
- Memorial Park (including obelisk) and remnants of former Meadowbank baths (RLEP #I72)

A further 10 heritage items were identified within a 200 m buffer (100 m on either side) of the impact area (Table 4.2). There will be no direct impacts onto these sites, and little to no indirect impacts from visual and vibrational sources to these items are anticipated if the recommended management measures are undertaken

The section of the brine pipeline alignment that will intersect the heritage curtilage of the Rydalmere Hospital Precinct will refurbish existing pipes. Little to no impacts to the significant heritage elements of the site are therefore anticipated. During the site survey, a sandstone and brick feature was identified. This feature is not anticipated to be directly impacted by the project, but regardless, a mitigation measurement to demarcate it with fencing has been recommended to prevent unintentional impacts.

The project will connect pipelines to the State significant Sewage Pumping Station 67. The project will result in permanent changes to the heritage item, however, these impacts are largely limited to areas with tolerance for change and elements of lesser significance. This level of impact are offset as the project would facilitate the continued operation of the site, an integral part of the site's heritage significance. Therefore, the impacts to this site are considered to have a minor adverse impact on the heritage significance of Sewage Pumping Station 67, and mitigation measures have been recommended to avoid impacts.

The project would involve open trenching in the locally listed Memorial Park at Meadowbank. The main heritage feature of the site – the Memorial obelisk, will not be directly impacted. However, the identified 'Ryde Remembers' is likely to be in the impact area, suggesting minor adverse impacts to this fabric. While this item is not listed in the heritage item, it adds to the memorial motif of the park, and recommended management measures are in place to prevent unintentional impacts onto the item. There has been three potential archaeological sites identified at the park that are likely to be impacted by the proposed works. However, these archaeological sites have been deemed to be unlikely of meeting the threshold for local significance. Finally, there is plans for vegetation removal during the project works, but this will only result in temporary indirect impacts. Thus, the works at the Memorial Park have been assessed to result in minor adverse impacts, but can proceed with the management measures.

All the heritage items identified within the impact area and a 200 m buffer has the potential for indirect visual impacts. These impacts can be managed and are considered to have little to no impact on the heritage significance of the heritage items by virtue of being temporary. Additionally, there is the potential for indirect vibrational impacts due to the vicinity all the discussed items to the impact area. However, the management measure of equipment selection can mitigate this.

In summary, there are minor or little to no historical heritage impacts associated with the project. With the implementation of the proposed management measures, the project may proceed. To manage potential impacts to the heritage listed items, the management measures are proposed in Table 9.1 and Table 9.2 of Section 9.

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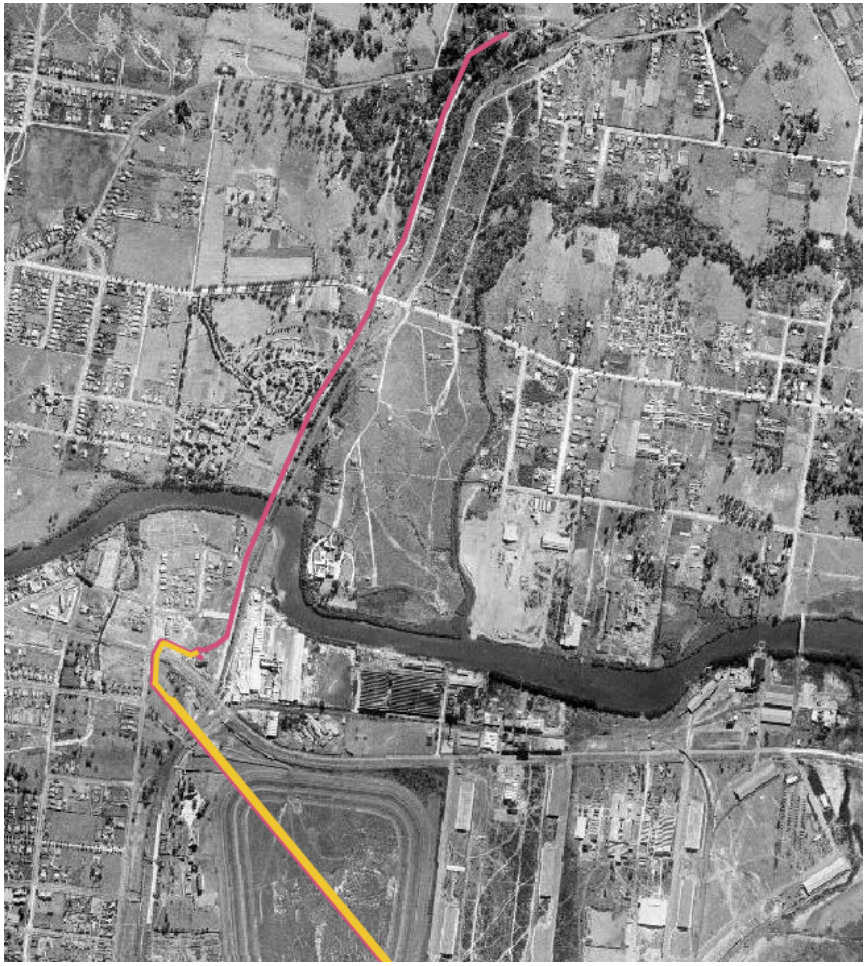
Appendix A
Historical Aerials Tiled

EMM
creating opportunities

A.1 1943



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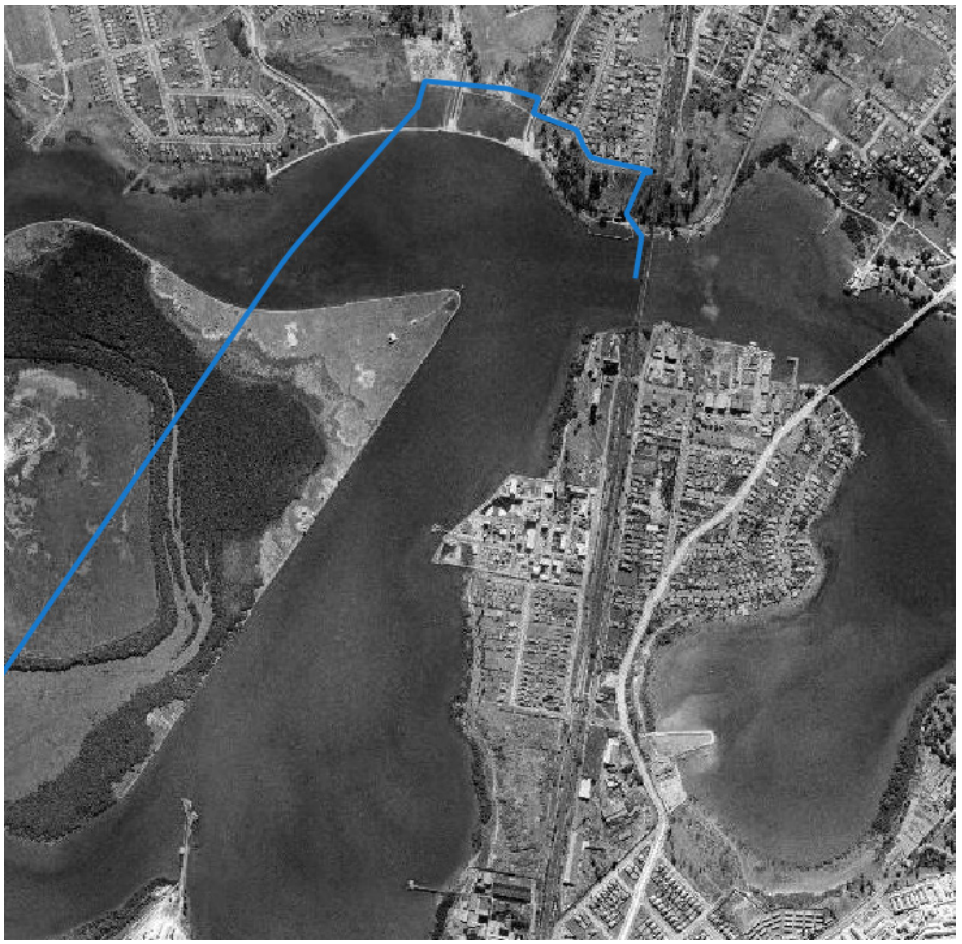
Camellia, Rosehill, and Duck River

Silverwater and Newington



Wentworth Point and Meadowbank

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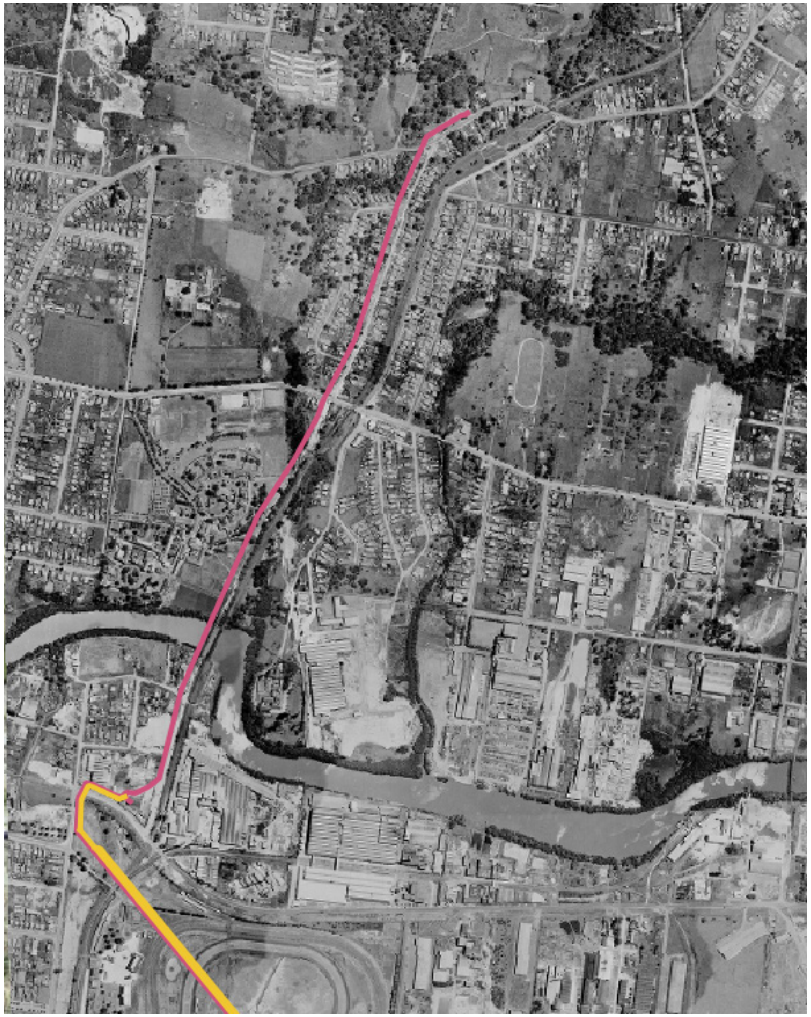
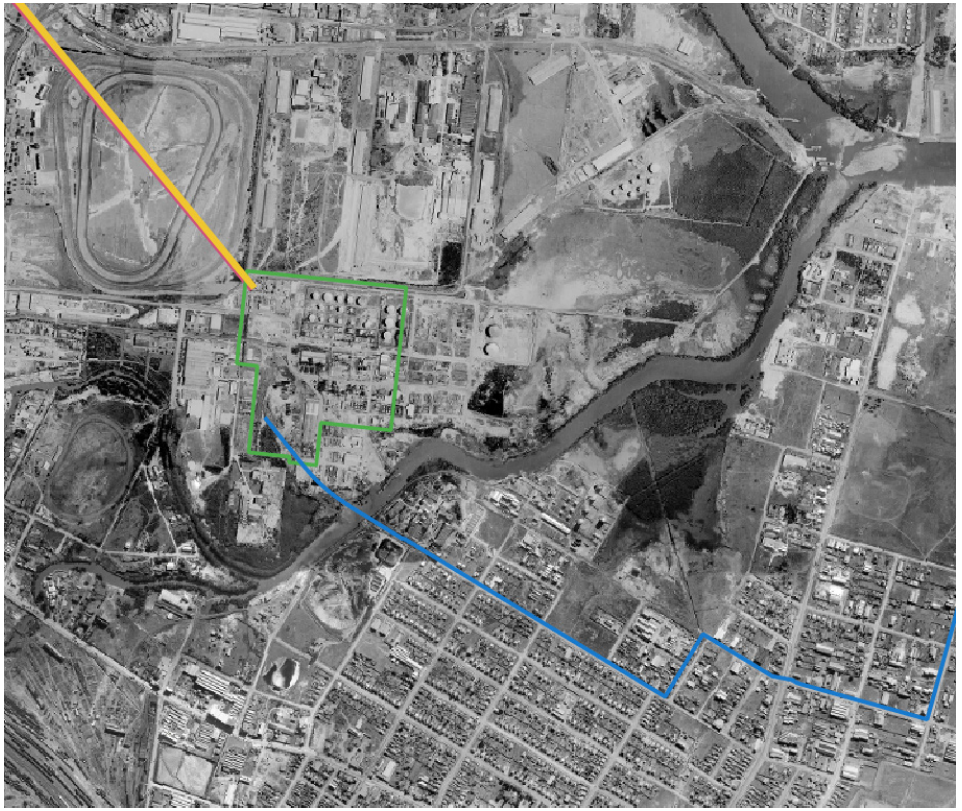


Rydalmere and Parramatta



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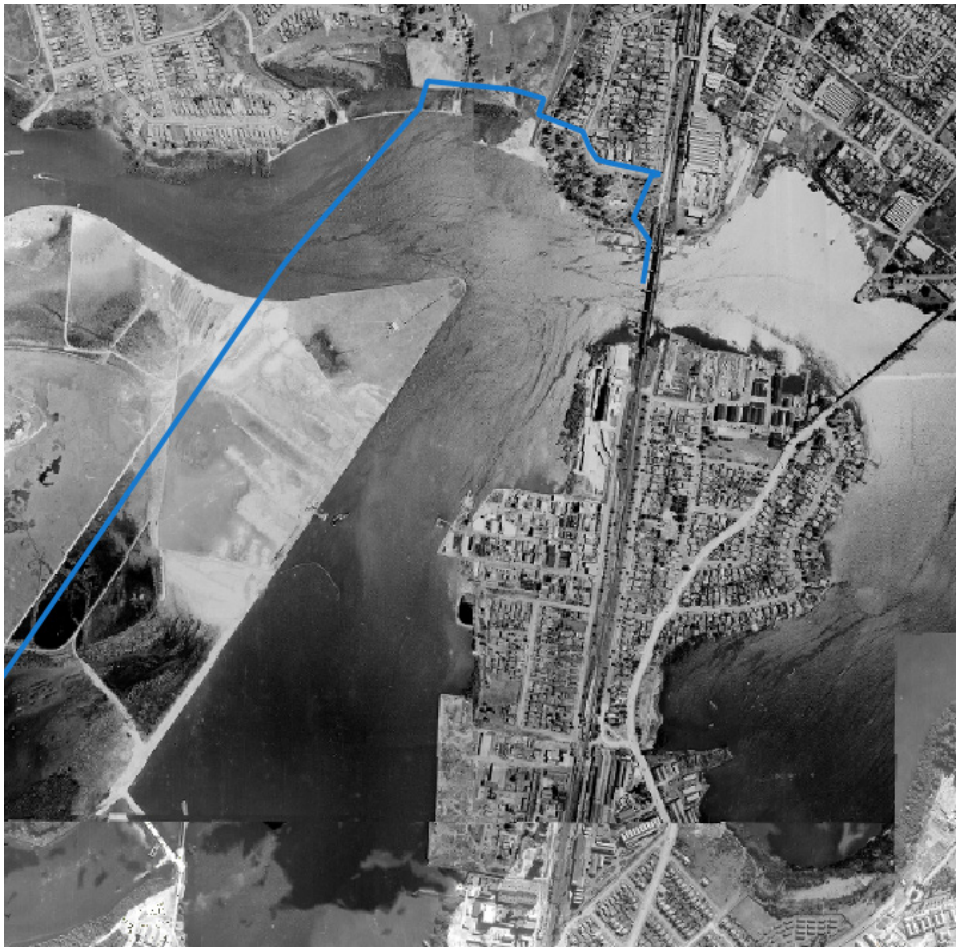
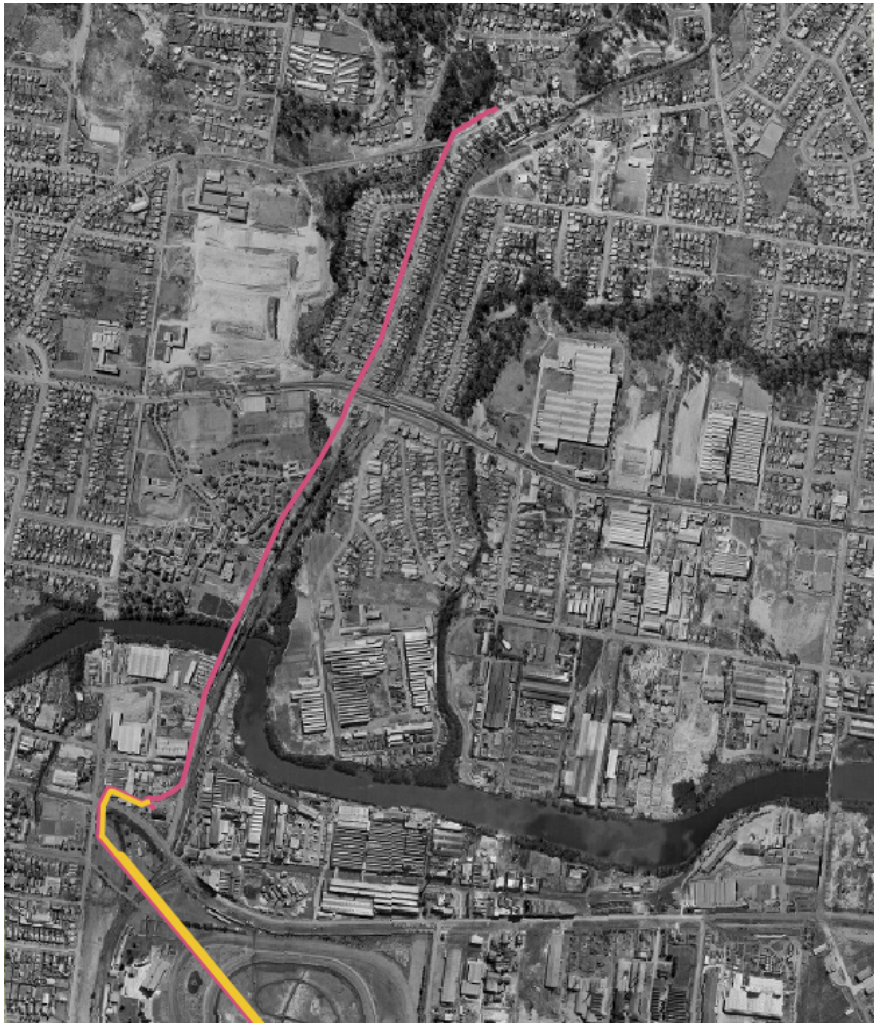
Silverwater and Newington



Wentworth Point and Meadowbank

A.3 1965



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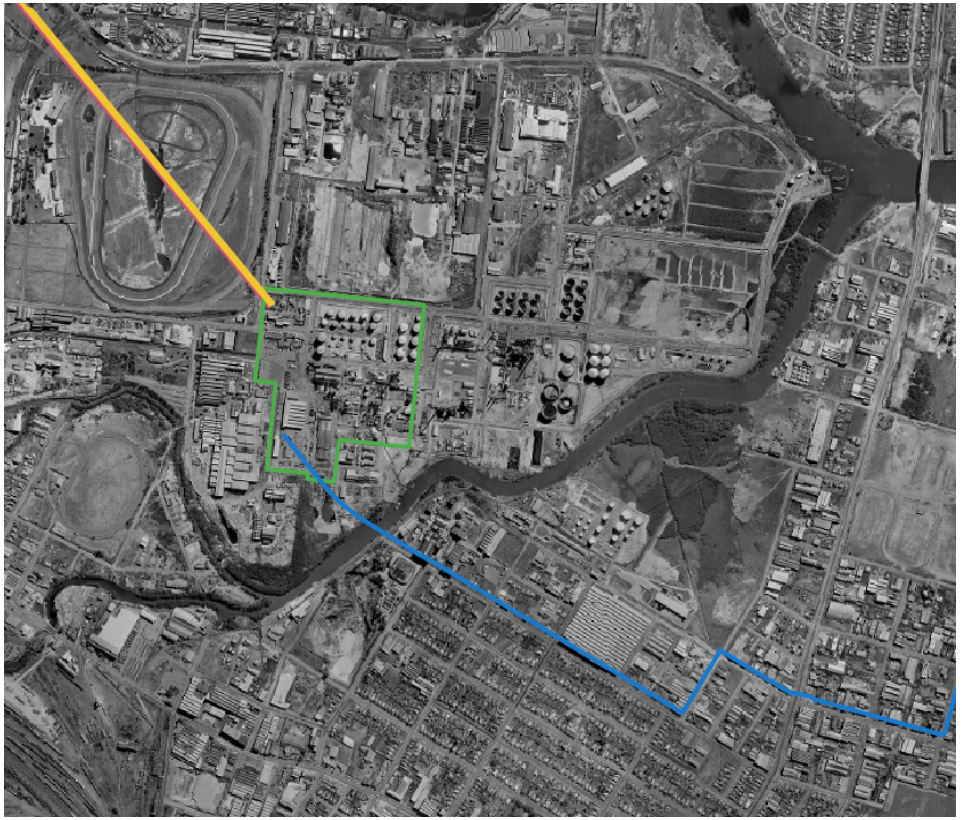

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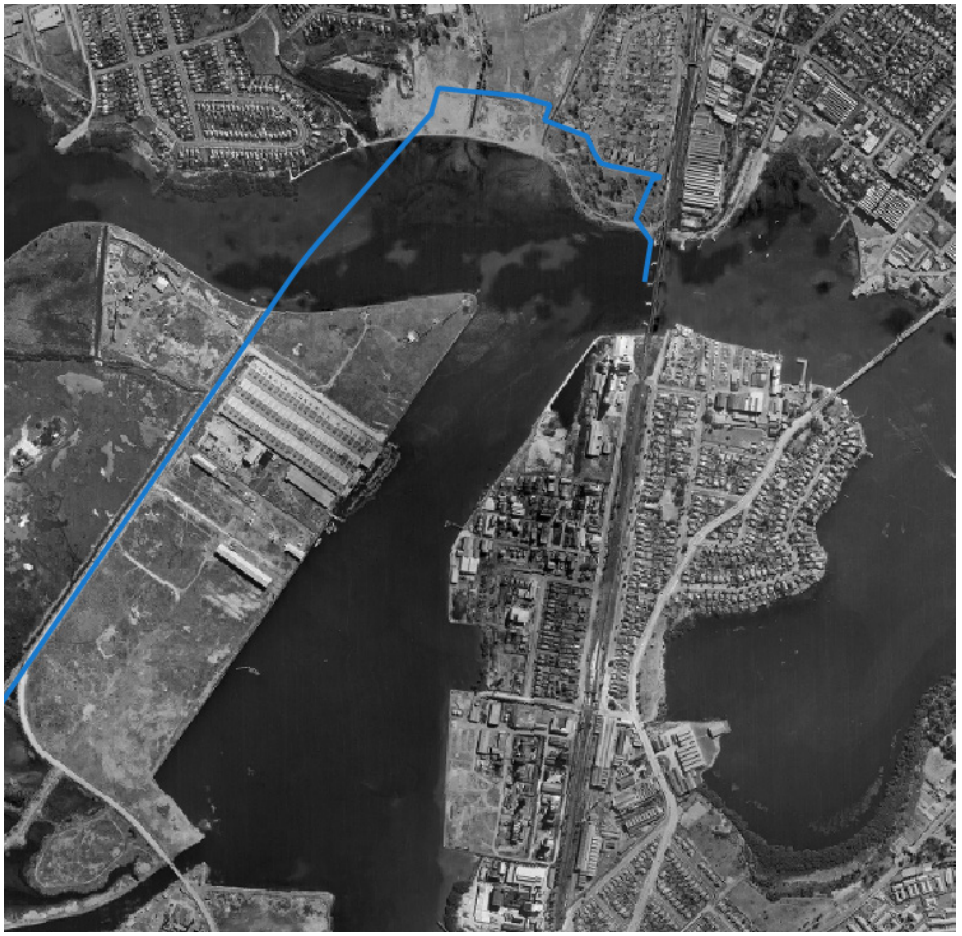
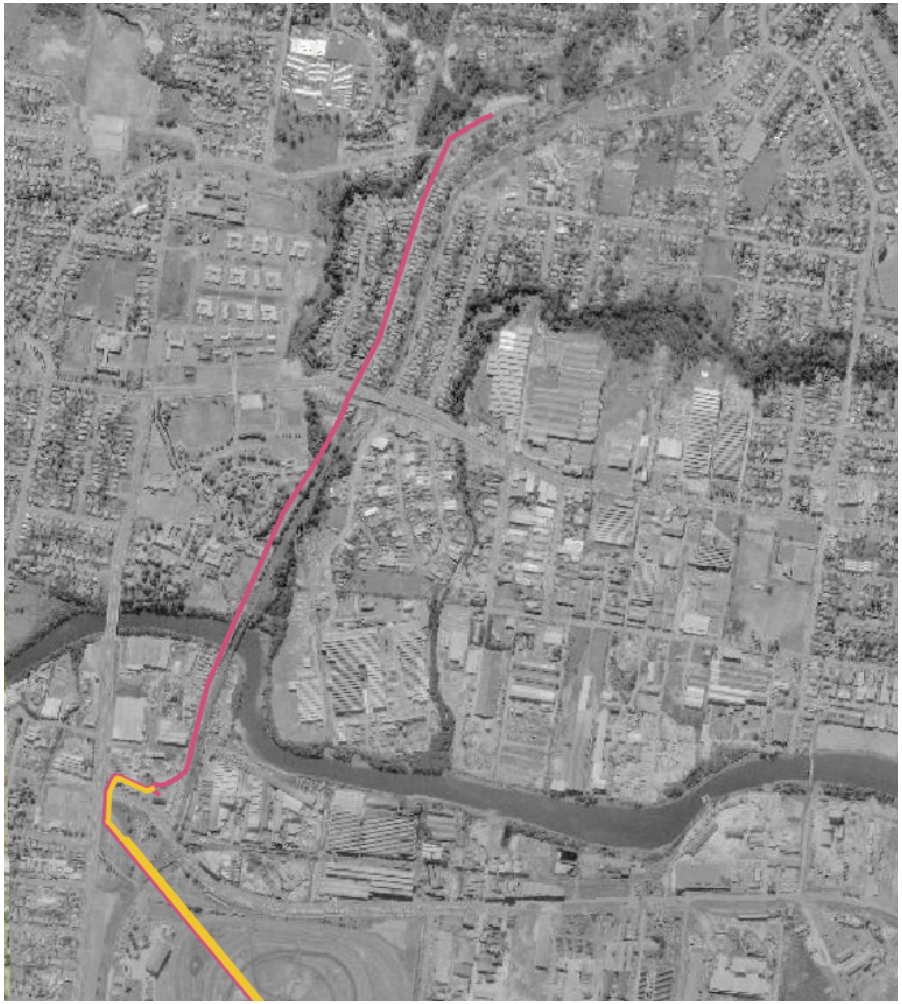
Silverwater and Newington



Wentworth Point and Meadowbank

A.4 1970



Rydalmere and Parramatta

Camellia, Rosehill, and Duck River

Silverwater and Newington

Wentworth Point and Meadowbank

A.5 1986

Rydalmere and Parramatta

Camellia, Rosehill, and Duck River

Silverwater and Newington

Wentworth Point and Meadowbank

A.6 1991

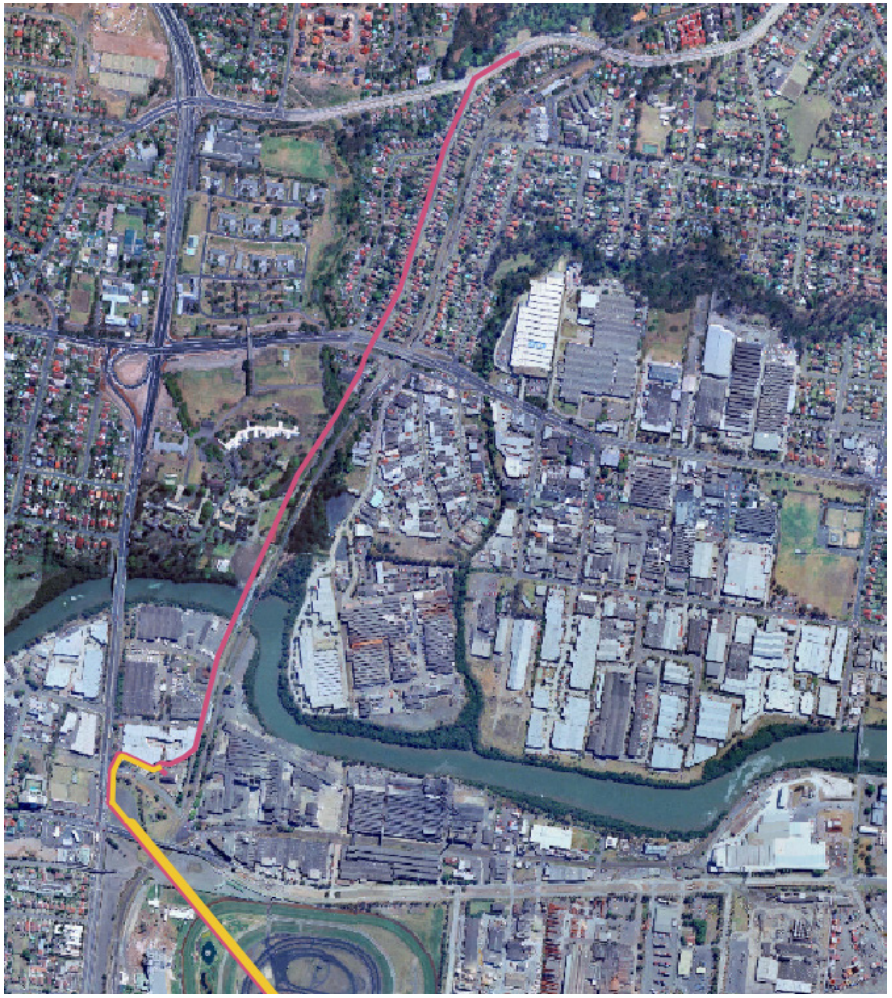
Rydalmere and Parramatta

Camellia, Rosehill, and Duck River

Silverwater and Newington

Wentworth Point and Meadowbank

A.7 1994



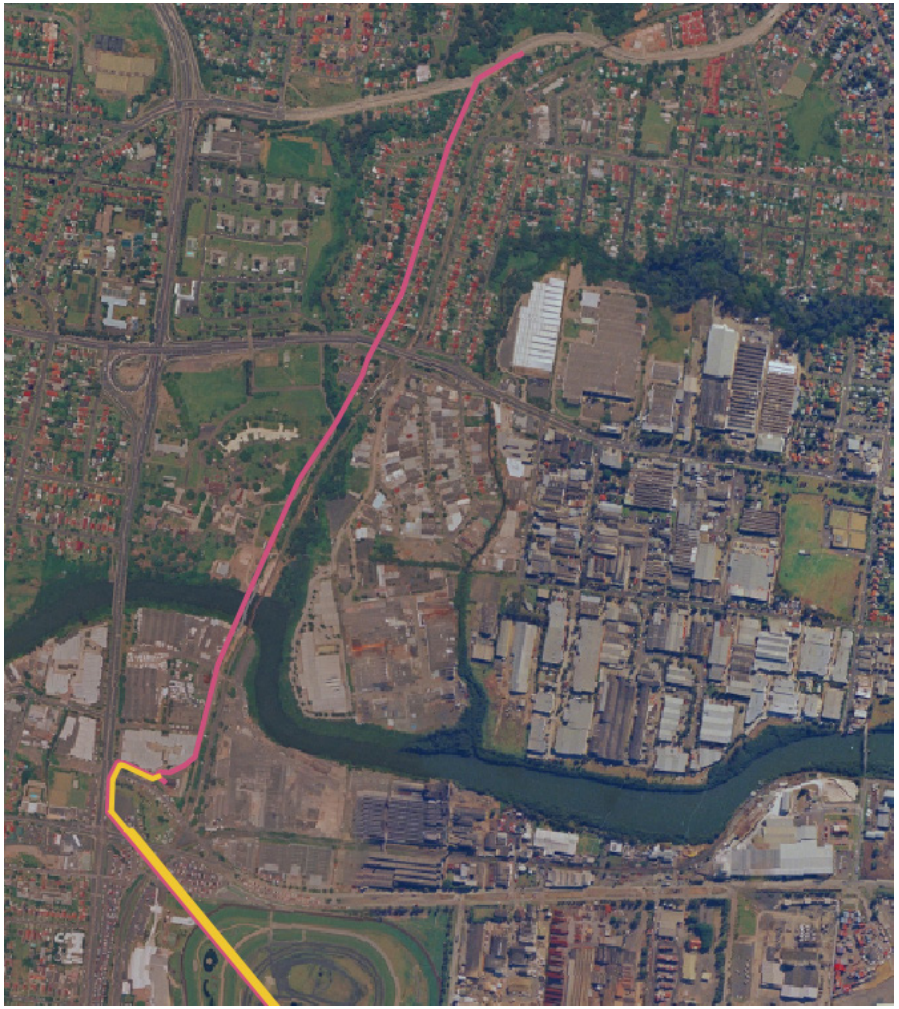
Rydalmere and Parramatta

Camellia, Rosehill, and Duck River

Silverwater and Newington

Wentworth Point and Meadowbank

A.8 1996



Rydalmere and Parramatta

Camellia, Rosehill, and Duck River

Silverwater and Newington

Wentworth Point and Meadowbank

A.9 2004

Rydalmere and Parramatta

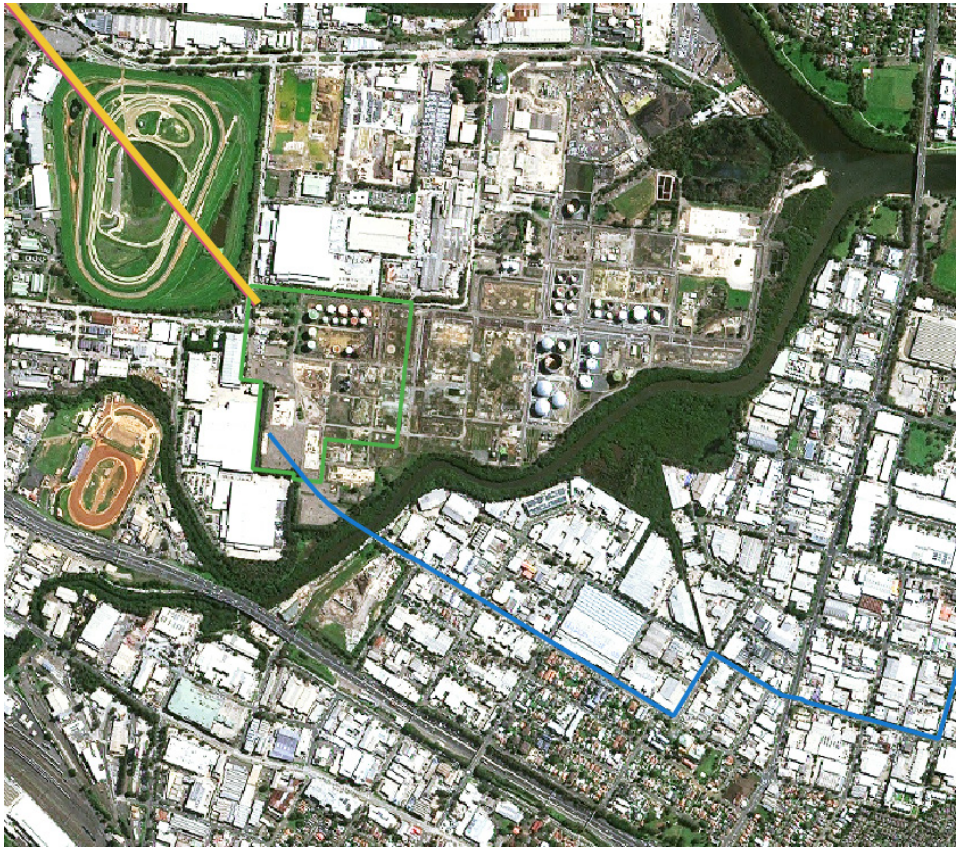
Camellia, Rosehill, and Duck River

Silverwater and Newington

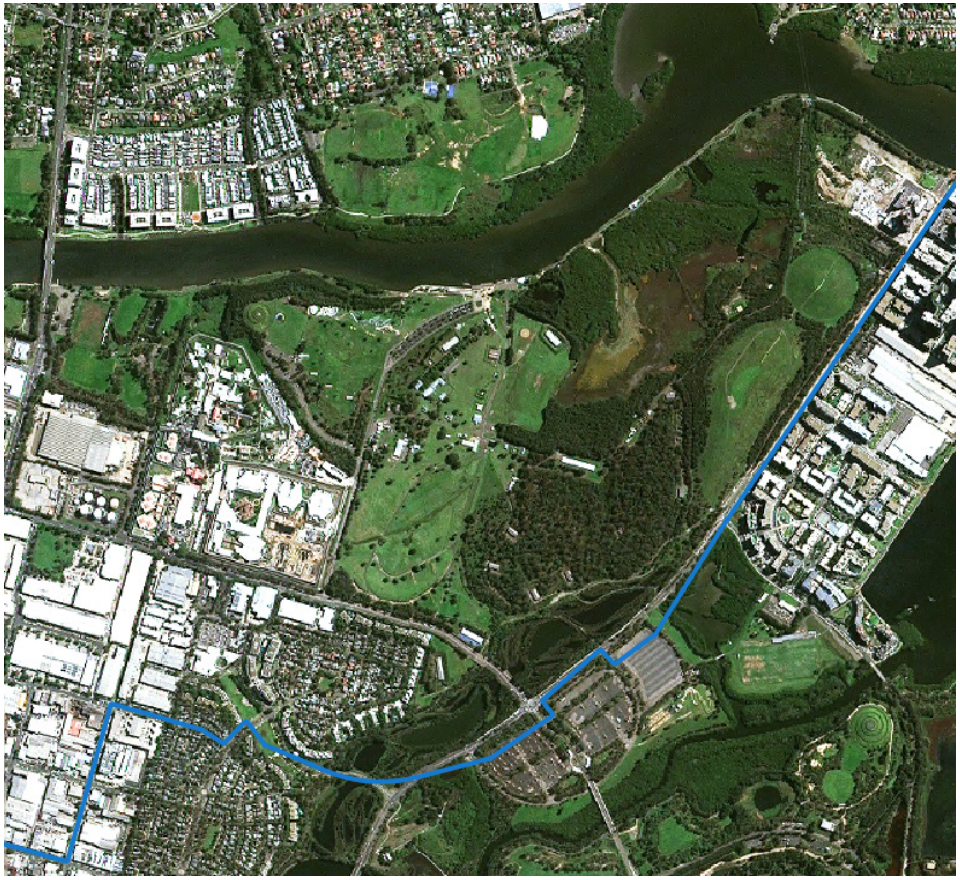
Wentworth Point and Meadowbank

A.10 2019

Rydalmere and Parramatta



Camellia, Rosehill, and Duck River

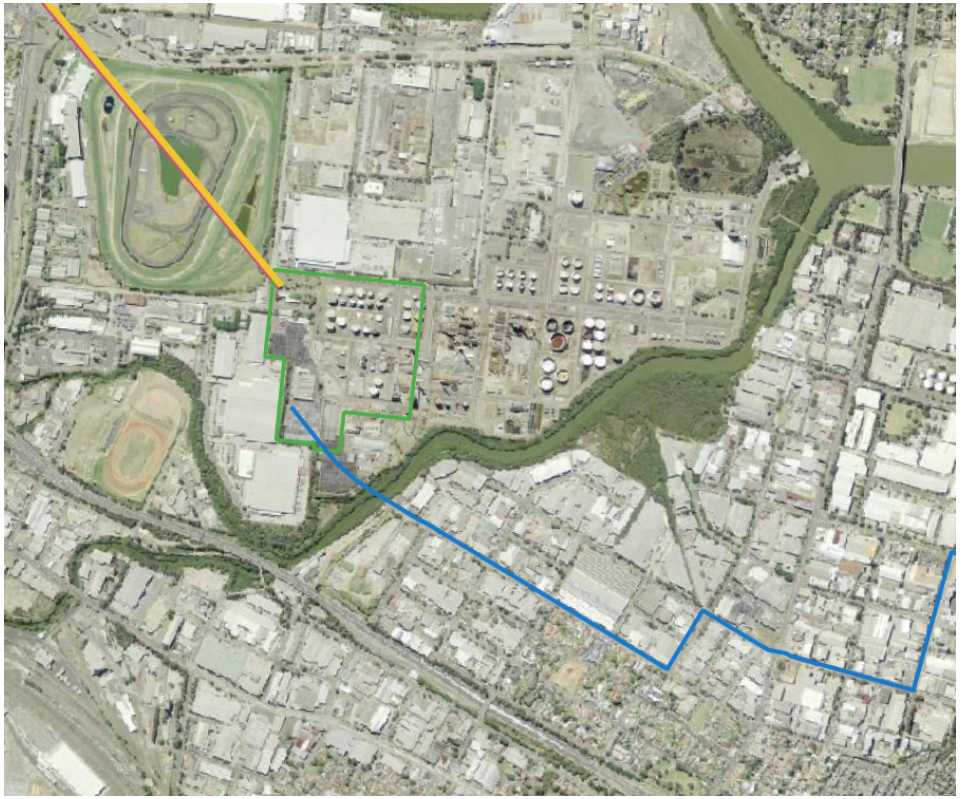


Silverwater and Newington

Wentworth Point and Meadowbank

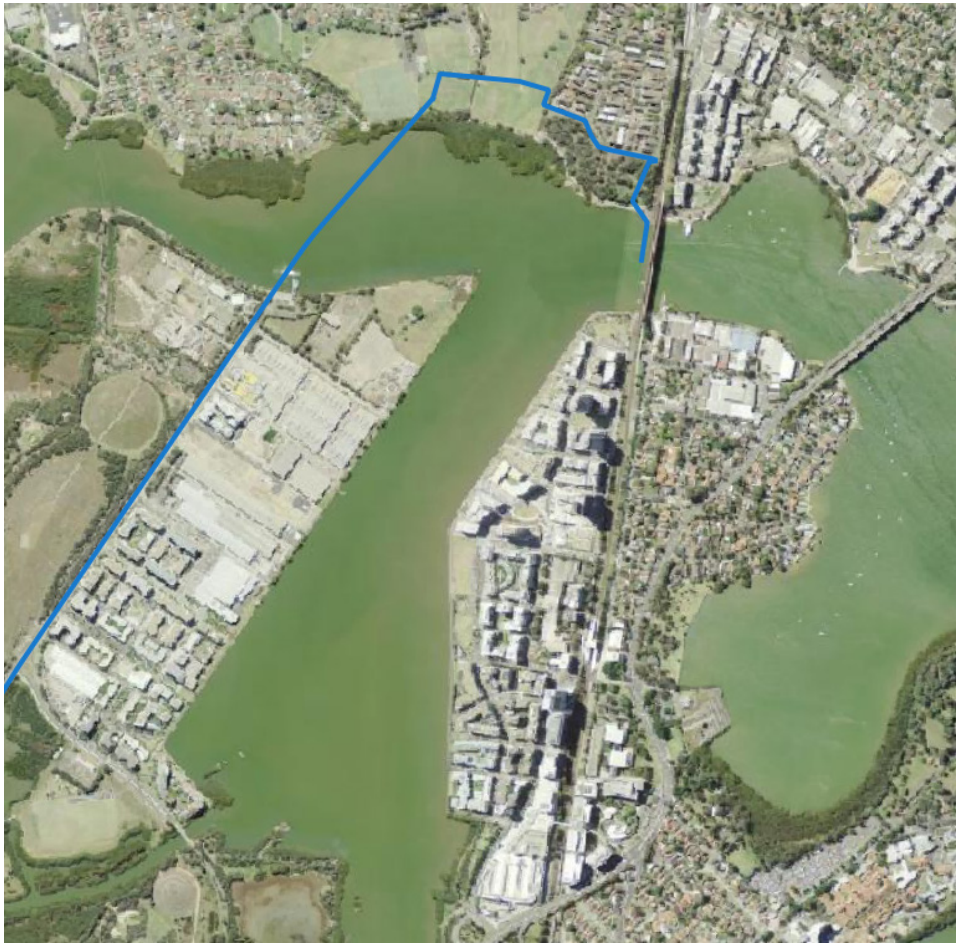
A.11 2023

Rydalmere and Parramatta



Camellia, Rosehill, and Duck River

Silverwater and Newington



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Canberra City ACT 2601

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