

**WestConnex**



# M4 East

## Environmental Impact Statement

Appendices S-W

**Volume 2H**

**September 2015**

# Volume 2H

## Appendices

S .....	Non-Aboriginal heritage impact assessment
T .....	Biodiversity impact assessment
U .....	Detailed greenhouse gas calculations
V .....	Aboriginal heritage assessment
W .....	Climate change risk assessment framework



# Appendix

# S

Non-Aboriginal heritage impact assessment



# WestConnex Delivery Authority

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WestConnex M4 East

Non-Aboriginal Heritage Impact Assessment

September 2015

**Prepared for**

WestConnex Delivery Authority

**Prepared by**


*GML Heritage*

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# Document controls

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# Glossary of terms and abbreviations

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AA	Archaeological Assessment
AJC	Australian Jockey Club
CBD	Central business district
CCTV	Closed Circuit Television
CHL	Commonwealth Heritage List
CMP	Conservation Management Plan
Contributory item	Place within a Heritage Conservation Area that contributes to its heritage significance
DCP	Development Control Plan
DMR	Department of Main Roads (now Roads and Maritime Services)
DP&E	NSW Department of Planning and Environment
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning &amp; Assessment Act 1979</i> (NSW)
GML	GML Heritage Pty Ltd
HAMU	Historical Archaeological Management Units
HCA	Heritage Conservation Area
Heritage Act	<i>Heritage Act 1977</i> (NSW)
Heritage Council	Heritage Council of NSW
Heritage Division	NSW Heritage Division, Office of Environment and Heritage
Heritage item	Place listed on a statutory heritage register
HIA/HIS	Heritage Impact Assessment/Heritage Impact Statement
Intrusive item	Place within a Heritage Conservation Area that detracts from its heritage significance
ITS	Intelligent Transport System
LEP	Local Environmental Plan
LGA	Local Government Area
M4 East	WestConnex M4 East Motorway
National Trust Register	Register of the National Trust of Australia (NSW)
Neutral item	Place within a Heritage Conservation Area that does not contribute to or detract from its heritage significance
OEH	NSW Office of Environment and Heritage
Potential heritage item	Place identified in this report as potentially having heritage significance, which is not recognised on a heritage register
Roads and Maritime	Roads and Maritime Services
RTA	Roads and Traffic Authority (now Roads and Maritime Services)
Section 170 Register	State Agency Section 170 Heritage and Conservation Register
SEARs	Secretary's Environmental Assessment Requirements
SHR	State Heritage Register
SSI	State Significant Infrastructure
VMS	Variable Message Sign
WDA	WestConnex Delivery Authority

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# Executive Summary

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## Background

GML Heritage Pty Ltd has been commissioned on behalf of the WestConnex Delivery Authority (WDA) to prepare a non-Aboriginal Heritage Impact Assessment (HIA) of the M4 East project (the project). This non-Aboriginal HIA has been prepared to inform the environmental impact statement (EIS) for the project.

The project has been declared State significant infrastructure (SSI 6307). Secretary's Environmental Assessment Requirements (SEARs) for the EIS were released 16 June 2015. This HIA addresses the SEARs specific to non-Aboriginal heritage, including historical archaeology, as well as relevant agency comments received during the preparation of the SEARs.

## Summary of findings

The project is located within the Auburn, Strathfield, Canada Bay, Burwood and Ashfield local government areas (LGAs). The HIA is structured around the following four areas that would be subject to surface impacts along the project corridor:

- Area 1 – Homebush
- Area 2 – North Strathfield and Concord
- Area 3 – Cintra Park
- Area 4 – Haberfield and Ashfield.

It also addresses potential vibration impacts on heritage items and Heritage Conservation Areas (HCAs) above underground works.

## Built Heritage and Landscape

The report makes the following findings in regard to impacts of the project on built and landscape heritage:

### Area 1 – Homebush

Within Area 1 – Homebush, the project would have a minor visual impact on three heritage items and one Heritage Conservation Area (HCA) of local significance listed on the *Strathfield Local Environmental Plan 2012* (Strathfield LEP 2012). The heritage impacts would be able to be fully mitigated through implementation of the mitigation measures recommended in this HIA.

### Area 2 – North Strathfield and Concord

Within Area 2 – North Strathfield and Concord, there are 14 heritage items and one HCA of local significance listed on *Canada Bay Local Environmental Plan 2013* (Canada Bay LEP 2013) which would be affected by the project. Three of the heritage items would be demolished, four would be subject to partial demolition and seven would have visual impacts on their setting.

The project would impact on the heritage significance of the Powell's Estate HCA, resulting in the loss of a substantial part of its original subdivision and the demolition of a number of aesthetically distinctive and rare Victorian-era houses in the Canada Bay LGA, as well as intact representative examples of Federation and early post-war development in this area. Within the HCA, 10 contributory items (a place within a HCA that contributes to its heritage significance), including two heritage items, would be demolished for the Concord Road interchange component of the project. The project would therefore have a major adverse impact on the heritage significance of Powell's Estate HCA. This impact cannot be effectively mitigated by the project.

The proposed Concord Road interchange would have an adverse impact on the Wesley Uniting Church on Concord Road through removal of a section of its grounds along Concord Road, including the historic gate piers and sandstone cobble drive which relate to Thornleigh House, a property that occupied the site prior to the construction of the church. This impact could be partially mitigated.

The interchange would also require removal of approximately 16 to 18 street trees at the Concord Road ends of Sydney and Edward streets, which are listed as heritage items on Canada Bay LEP 2013. These impacts cannot be effectively mitigated.

Visual impacts of the project on three heritage items in the vicinity of the Concord Road interchange could be fully mitigated.

### **Area 3 – Cintra Park**

Within Area 3 – Cintra Park, five mature fig trees and a set of gates along the Loftus Street boundary of Concord Oval are listed as a heritage item of local significance on Canada Bay LEP 2013. The hockey field within Cintra Park is not a heritage item. Two of the heritage listed figs are located in the carpark area and could potentially be affected by the temporary use of this area for workforce parking; however, these impacts could be avoided by providing protection to the trees in accordance with the advice of a suitably qualified and experienced arborist.

There are no other heritage items or HCAs in the immediate vicinity of Concord Oval and Cintra Park.

### **Area 4 – Haberfield and Ashfield**

Area 4 – Haberfield and Ashfield contains a high number of heritage items and a HCA listed on *Ashfield Local Environmental Plan 2013* (Ashfield LEP 2013) and the Roads and Maritime Services Roads and Maritime) Section 170 Heritage and Conservation Register, as well as Yasmar, a mid-nineteenth century house and garden estate which is listed on the State Heritage Register.

Direct impacts from the project on Yasmar would be avoided. The alternative designs for the project (Options P1 and P2) that would have required removal of a substantial portion of Yasmar's State significant gardens are no longer under consideration. However, the proposed landscaping treatment along the northern side of the proposed Parramatta Road interchange would have a minor impact on the setting and landmark qualities of Yasmar. This impact could be minimised by a more sympathetic landscape treatment as proposed in the mitigation measures in **section 7.2.3** of this HIA.

Almost the entire suburb of Haberfield, from Dobroyd Canal (Iron Cove Creek) to Hawthorne Canal and northwest to Iron Cove, but excluding the properties along Parramatta Road, is listed as a HCA of local and potential state significance on the Ashfield LEP 2013. It is Australia's first fully planned and developed garden suburb and is highly intact, with the form, materials, scale and setbacks of the predominantly brick Federation and interwar period houses and their landscaped gardens, and the suburb's tree-lined streets providing consistent and aesthetically significant streetscapes.

The project would result in the demolition of 53 properties within the Haberfield HCA for the construction of new motorway infrastructure, including dive structures, cut-and-cover tunnels, tunnels and noise barriers around the Wattle Street interchange, a ventilation facility and ancillary facility near Parramatta Road, as well as construction ancillary facilities – the Wattle Street and Walker Avenue civil site (C9), temporary Northcote Street tunnel site (C7), and the Eastern ventilation facility site (C8). The properties to be demolished include 11 heritage items and 29 contributory items within the Haberfield HCA. Direct physical impacts would result from the demolition of these buildings, their gardens and street trees. Visual impacts would arise from new motorway infrastructure, including the ventilation facility and motorway facilities and noise walls, and the loss or reduction of significant streetscapes. Temporary visual impacts would also result from the establishment of the work sites (C7, C8 and C9) during construction.

The project would impact on the legibility of the original subdivision designed by Richard Stanton, evident in the existing street layout and the pattern of the freestanding and semi-detached houses. The project would effectively fragment the suburb, with the area north of Wattle Street separated from the remainder of the HCA, and interrupt the consistently-spaced street and subdivision pattern of this part of the HCA. The existing traffic volumes along Wattle Street have this effect on the conservation area to some degree, but the project would exacerbate the fragmentation and permanently remove a substantial portion of the built heritage items fronting Wattle Street. The proposed new landscaping around the Wattle Street interchange would not be consistent with the HCA's significant landscape character, which predominantly comprises brush box (*Lophostemon confertus*) street trees, and would also reinforce the motorway's fragmentation of the HCA. The landscape scheme for Haberfield would be further developed during detailed design with input from a heritage landscape specialist to ensure that new plantings would complement the historic streetscape plantings in the Haberfield HCA

in terms of layout and species in accordance with the management measures proposed in **section 7.2.3** of this HIA.

The new motorway infrastructure and associated elements would not be sympathetic to the existing built environment or landscape character of the conservation area. The orientation of the ventilation facility would be at odds with the established subdivision pattern, and its height and materials inconsistent with the architectural character of the HCA. The proposed location of these facilities at the Parramatta Road end of Walker Avenue to the edge of the HCA would, however, reduce their impact on the HCA to some extent.

Although localised in the section of the HCA around Wattle, Northcote and Wolseley streets, the impact of the proposal on the heritage significance of the Haberfield HCA and individual heritage items within it would be significant and unable to be effectively mitigated.

In Ashfield, the project would result in the demolition of two heritage items of local significance on Chandos Street, listed on Ashfield LEP 2013, for the Parramatta Road civil site (C10) and the Parramatta Road interchange. The works would also require the demolition of four potential heritage items along the south-western side of Parramatta Road. Although the proposed works are not located within a HCA, the impact on the individual items cannot be effectively mitigated.

The construction works and the permanent motorway infrastructure, including dive structures, cut-and-cover tunnels, driven tunnels and noise barriers, would have minor visual impacts on three heritage items in the vicinity, in addition to possible damage from the effects of construction vibration. These impacts could be mitigated. Impacts on Ashfield Park proposed in previous options for the Parramatta Road interchange are avoided entirely in the concept design the subject of the EIS and this assessment.

### **Historical access arrangements**

The project will alter existing historical access arrangements to heritage listed properties to varying degrees. In particular, the historical access arrangements to Yasmar, 185 Parramatta Road, Haberfield, Wesley Uniting Church and Hall, 81 Concord Road, Concord will be altered to some extent as a result of the proposal.

The demolition of residential properties associated with the development of the Concord Road interchange and the Wattle Street interchange would also result in the truncation of Concord Lane at North Strathfield and Allum Street at Haberfield. This would have a minor impact on the historical arrangement of these streets within the Powell's Estate and Haberfield HCAs.

### **Potential vibration, settlement and noise impacts**

Heritage items, potential heritage items and HCAs above the proposed tunnels and in the vicinity of construction works may be subject to vibration impacts. Vibration could affect the condition of heritage fabric through cracking and settlement and, in the worst case scenario, compromise a heritage item's structural integrity.

Vibration impacts depend on a range of variables such as the type of construction activity, separation distance, ground conditions, and the condition of property impacted. For the majority of its length the tunnelling work for the project would be undertaken at depths of between 20 and 50 metres below ground, which is unlikely to adversely affect structures above the tunnels. Areas of sensitivity are likely to include tunnel dives, cut-and-cover sections and tunnel ramps which occur closer to ground level. Settlement of the ground could have an impact where the tunnelling is below or close to heritage items. There is also the potential for vibration associated with surface works such as building construction and road works. The tunnelling work would be undertaken in generally favourable sandstone and shale geological profiles. Appropriate vibration criteria would be established to avoid/minimise impacts and building condition surveys of potentially impacted properties would be undertaken.

The architectural noise treatment options proposed to mitigate the potential noise impacts of the project are likely to be relatively non-intrusive, and include upgrading door and window seals. However, heritage advice would be sought if the treatments have the potential to impact on the heritage significance of a property, for example where it would require removal of significant fabric or prevent under-floor and cavity wall ventilation from functioning properly and therefore having potential long-term impacts on significant fabric.

Ground movement caused by groundwater drawdown and tunnel-induced movement could also have impacts on heritage items. The Groundwater Impact Assessment for the project (**Appendix R** of the EIS) identifies that potential ground movement may result in 'slight' to 'very slight' impacts (cosmetic damage) to buildings above the tunnels. These potential impacts should be managed in accordance with the mitigation measures detailed in Chapter 18 of the EIS, which require further assessments and condition surveys prior to construction works commencing.

## Historical archaeology

This HIA has assessed historical archaeology across the project construction footprint, allocating Historic Archaeology Management Units (HAMU) to each project area according to historical phases, archaeological potential, proposed impacts and management requirements. There are 11 HAMUs within the four areas of the project – three in Area 1 (Homebush), four in Area 2 (North Strathfield and Concord), one in Area 3 (Cintra Park) and three in Area 4 (Haberfield and Ashfield).

The archaeological potential across all HAMUs has been assessed to be of local significance, except for where there is potential for relics of State significance to be present at Cintra Park. However, the potential for these is low. Remains associated with the Longbottom Stockade are not anticipated within the Cintra Park tunnel site (C6) as historical maps and records indicate that there are no previously recorded structures associated with this era in this area; rather, structures associated with the stockade were located within the land now occupied by Concord Oval, near Loftus Street.

Historical records indicate that agricultural activities such as grazing of animals took place within the land that is now Cintra Park. Therefore it is possible that any archaeological evidence within the boundaries of the Cintra Park tunnel site (C6) may include ephemeral post holes and artefacts such as horse shoes or other belongings, but if extant these would be of local significance. Works to the carpark on the northern side of Concord Oval may impact structural remains near Loftus Street. The works could include sealing and linemarking the carpark; however, ground disturbance works in this area should be avoided.

The project would therefore predominantly impact on potential historical archaeological resources with local heritage significance. Locally significant archaeological resources, while still important, are able to be managed in a greater variety of ways and are less likely to require any redesign of the project to avoid or mitigate proposed impacts, depending on the extent, nature and intactness of the resource found.

The identified level of significance for areas of archaeological potential will influence the degree of impact that may be acceptable or the level of investigation and recording that may be required. Consequently, the management guidelines and recommendations have been formulated in accordance with the heritage significance of the potential archaeological resources.

For this project, archaeological test excavation would not alter the outcome of the assessment in terms of identifying previously unknown and unassessed archaeological relics, and is not recommended at this stage.

## Cumulative heritage impacts

The proposed future stage of WestConnex (the M4–M5 Link) could potentially have further impacts on the Haberfield HCA. The proposed scope of works would include tunnels underneath the Haberfield HCA and, while detailed information is not yet available, further surface works and additional demolitions may be required for construction compounds. All ramps, interchanges, ventilation and ancillary facilities for the western end of the M4–M5 Link are being constructed as part of the project. This will avoid the need to undertake further works in the Haberfield HCA in association with key M4–M5 Link infrastructure.

Given the major adverse impact of the project on the Haberfield HCA as assessed in this HIA, further impacts associated with the development of construction compounds for the M4–M5 Link may have a severe cumulative impact on its heritage significance. Therefore, if possible, further works within the Haberfield HCA should be avoided.

## Mitigation measures

**Section 7** of the HIA proposes a range of mitigation measures to avoid and/or minimise impacts on built and landscape heritage items and non-Aboriginal archaeology. The detailed design, documentation and construction of the project would be managed to ensure that, as far as possible, the identified potential heritage and archaeological impacts are minimised and/or avoided.

The following general measures would apply to the management of heritage impacts arising from the project:

- Where practical, heritage specialists (built and landscape heritage and historical archaeology) and qualified urban designers would provide input into the detailed design and documentation phase to assist in identifying opportunities to enhance the conservation options for heritage items and archaeological sites and ensure additional adverse impacts are avoided or minimised where reasonable and feasible
- Potential vibration impacts would be managed in accordance with the recommendations of the WestConnex M4 East Construction and Operational Road Traffic Noise and Vibration Impact Assessment (SLR 2015) (**Appendix J** of the EIS). Appropriate monitoring and protection of the physical fabric of heritage items to be retained would be provided during construction of the project
- New structures and their landscape settings would be of a high-quality, sympathetic design to minimise visual impacts on the setting of heritage buildings and landscapes
- The Construction Heritage Management Plan would detail how construction impacts on Aboriginal and historic heritage will be minimised and managed including training and induction processes for construction personnel. Inductions are to cover built heritage, landscape and historical archaeological sites and their management, and provide heritage guidance on how to avoid/manage impacts. The induction would be prepared in consultation with a suitably qualified heritage specialist and historical archaeologist
- An Interpretation Plan would be developed and implemented to identify and interpret the key heritage values and stories of the areas affected by the project, in accordance with the NSW Heritage Division guidelines. The Interpretation Plan would focus on the Powell's Estate HCA, Thornleigh House gates and driveway, Longbottom Stockade (Concord Oval) and the Haberfield HCA, and would include interpretive initiatives in new public reserves and walkways. Artefacts and archaeological remains would be considered for their interpretative value when identified or recovered by excavation
- Photographic recording would be undertaken of heritage items, contributory items, groups/streetscapes comprising combinations of heritage items and contributory items, and potential heritage items that would be directly impacted by the project. The recording methodology would be generally in accordance with the NSW Heritage Office guidelines *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006), but the detail of the recording required would be determined by the significance of the items/groups/streetscapes
- During demolition, where practical, recycle elements of heritage fabric from items of heritage significance using recycling agents
- In undertaking the project, impacts to built heritage, heritage landscapes and historical archaeological sites, shall to the greatest extent practicable, be avoided and minimised. Where impacts are unavoidable, works shall be undertaken in accordance with the strategy outlined in the Construction Heritage Management Plan
- All archaeological mitigation measures including archaeological monitoring and salvage excavation, as required, would be undertaken in accordance with standards and processes stipulated by the NSW Heritage Division, Office of Environment and Heritage with respect to the archaeological resource



- As part of the Construction Heritage Management Plan, an overarching Historical Archaeological Research Design (HARD) would be prepared to commencement of construction. The HARD would describe clear significance thresholds to possible archaeological items that may be uncovered during works and designate when monitoring, or salvage and excavation should occur in relation to the project works and timing. Post-excavation reporting, including artefact analysis and additional historical research (where necessary), would be required for any historical archaeological investigations undertaken
- Where required by the HARD, and prior to the commencement of pre-construction and/or construction activities that will impact historical archaeological sites identified in the EIS, an archaeological excavation program in accordance with the Heritage Council of NSW Archaeological Assessment Guidelines (1996). This work will be undertaken by an appropriately qualified archaeological consultant
- If archaeological remains of State significance were identified (e.g. HAMU 8) during historical archaeological testing and/or monitoring, mitigation measures in accordance with State significance would be applied (see **section 7.2.2** below)
- Mitigation methodologies for the management of impacts on known and potential significant historical archaeological resources would be further developed at the detailed design stage, once key ground disturbance impacts have been finalised (in terms of exact depth, width, extent and type of impact). This would ensure that the archaeological mitigation strategies are streamlined and reduced in scope to target the key areas of unavoidable impact on significant archaeological resources
- The Roads and Maritime *Standard Management Procedure – Unexpected Heritage Items* (2015), would be applied in the event any other unanticipated archaeological remains are discovered during the project. The procedure covers identification of heritage items and archaeological sites; recording and reporting on items including guidelines for photography; key environmental contacts; and procedural information, for example on uncovering human remains
- If human remains were to be discovered during any phase of works associated with the project, works would cease immediately in the vicinity. The finding would be reported immediately to the NSW Coroner's Office and/or the NSW Police. Any investigation would be undertaken in accordance with the relevant guidelines as issued by the NSW Heritage Division, Office of Environment and Heritage. Works would not re-commence unless authorised by the Office of Environment and Heritage and/ or the NSW Police
- The Construction Heritage Management Plan would include detailed procedures/ strategies for the conservation and curation of any historical artefacts recovered during works.

# 1 Introduction

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## 1.1 Overview of the project

NSW Roads and Maritime Services (Roads and Maritime) is seeking approval to upgrade and extend the M4 Motorway from Homebush Bay Drive at Homebush to Parramatta Road and City West Link (Wattle Street) at Haberfield. This includes twin tunnels about 5.5 kilometres long and associated surface works to connect to the existing road network. These proposed works are described as the M4 East project (the project). The location of the project is shown in **Figure 1.1**.

Approval is being sought under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). The project was declared by the Minister for Planning to be State significant infrastructure and critical State significant infrastructure and an environmental impact statement (EIS) is therefore required.

The project is a component of WestConnex, which is a proposal to provide a 33 kilometre motorway linking Sydney's west and south-west with Sydney Airport and the Port Botany precinct. The location of WestConnex is shown in **Figure 1.2**. The individual components of WestConnex are:

- M4 Widening – Pitt Street at Parramatta to Homebush Bay Drive at Homebush (planning approval granted and under construction)
- M4 East (the subject of this report)
- New M5 – King Georges Road at Beverly Hills to St Peters (planning application lodged and subject to planning approval)
- King Georges Road Interchange Upgrade (planning approval granted and work has commenced)
- M4–M5 Link – Haberfield to St Peters, including the Southern Gateway and Southern Extension (undergoing concept development and subject to planning approval).

Separate planning applications will be lodged for each individual component project. Each project will be assessed separately, but the impacts of each project will also be considered in the context of the wider WestConnex.

The NSW Government has established the WestConnex Delivery Authority (WDA) to deliver WestConnex. WDA has been established as an independent public subsidiary corporation of Roads and Maritime. Its role and functions are set out in Part 4A of the *Transport Administration (General) Regulation 2013* (NSW). WDA is project managing the planning approval process for the project on behalf of Roads and Maritime. However, for the purpose of the planning application for the project, Roads and Maritime is the proponent.

## 1.2 Project location

The project is generally located in the inner west region of Sydney within the Auburn, Strathfield, Canada Bay, Burwood and Ashfield local government areas (LGAs). The project travels through 10 suburbs: Sydney Olympic Park, Homebush West, Homebush, North Strathfield, Strathfield, Concord, Burwood, Croydon, Ashfield and Haberfield.

The project is generally located within the M4 and Parramatta Road corridor, which links Broadway at the southern end of the Sydney central business district (CBD) and Parramatta in Sydney's west, about 20 kilometres to the west of the Sydney CBD. This corridor also provides the key link between the Sydney CBD and areas further west of Parramatta (such as Penrith and western NSW).

The western end of the project is located at the interchange between Homebush Bay Drive and the M4, about 13 kilometres west of the Sydney CBD. The project at this location would tie in with the M4 Widening project in the vicinity of Homebush Bay Drive.

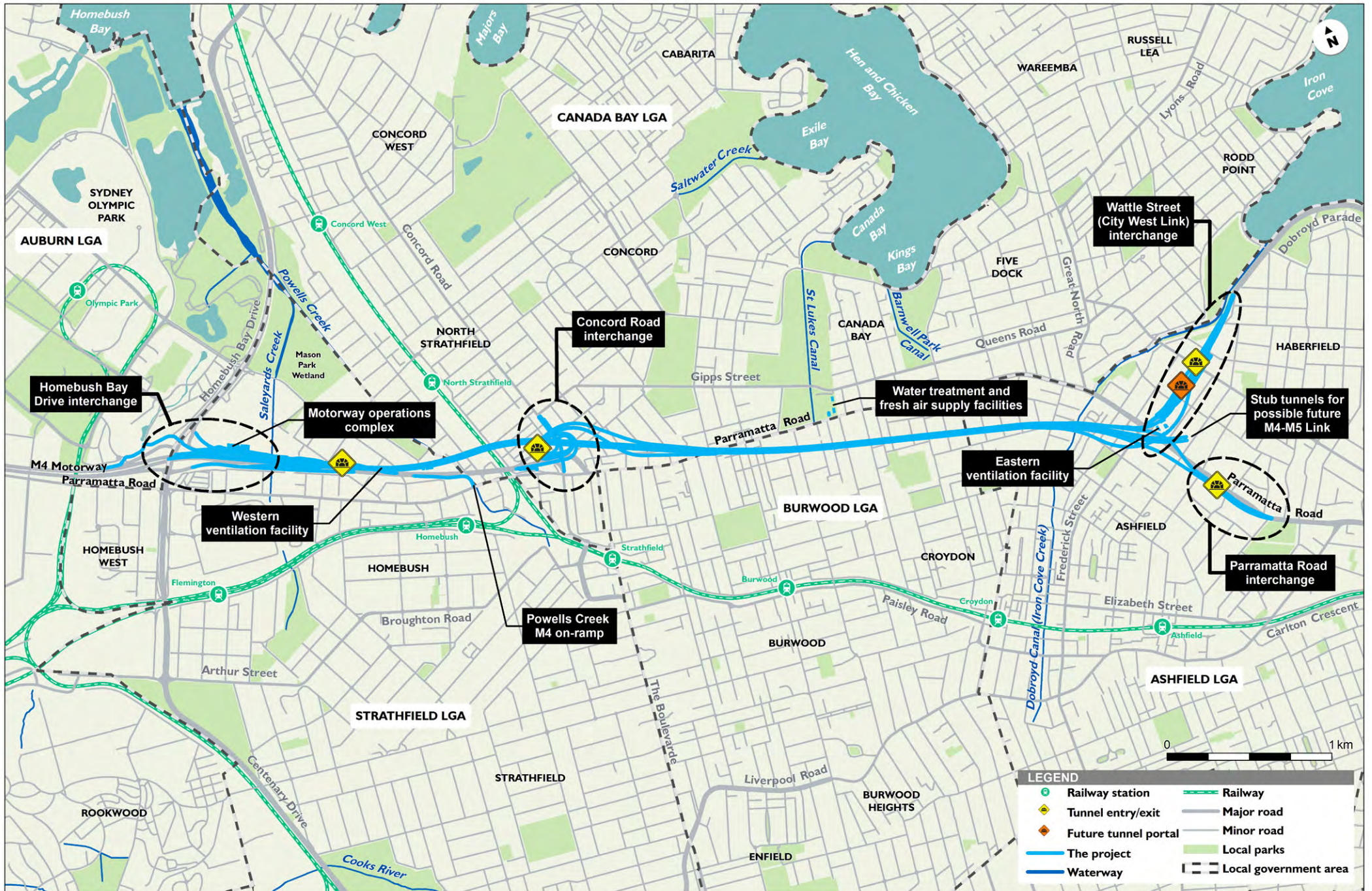


Figure 1.1 Local context of the project



Figure 1.2 WestConnex

The tunnel dive structures would start at the centre of the M4, west of the existing pedestrian footbridge over the M4 at Pomeroy Street, and would continue underground to the north of the existing M4 and Parramatta Road, before crossing beneath Parramatta Road at Broughton Street at Burwood. The tunnels would continue underground to the south of Parramatta Road until the intersection of Parramatta Road and Wattle Street at Haberfield. Ramps would connect the tunnels to Parramatta Road and Wattle Street (City West Link) at the eastern end of the project. The tunnels would end in a stub connection to the possible future M4–M5 Link (M4–M5 Link), near Alt Street at Haberfield.

The project would include interchanges between the tunnels and the above ground road network, along with other surface road works, at the following locations:

- M4 and Homebush Bay Drive interchange at Sydney Olympic Park and Homebush (Homebush Bay Drive interchange)
- Powells Creek, near George Street at North Strathfield (Powells Creek M4 on-ramp)
- Queen Street, near Parramatta Road at North Strathfield (Queen Street cycleway westbound on-ramp)
- M4 and Sydney Street, Concord Road and Parramatta Road interchange at North Strathfield (Concord Road interchange)
- Wattle Street (City West Link), between Parramatta Road and Waratah Street at Haberfield (Wattle Street (City West Link) interchange)
- Parramatta Road, between Bland Street and Orpington Street at Ashfield and Haberfield (Parramatta Road interchange).

### 1.3 Secretary's environmental assessment requirements

The NSW Department of Planning and Environment (DP&E) has issued a list of Secretary's Environmental Assessment Requirements (SEARs) that inform the environmental impact assessment. **Table 1.1** displays the SEARS that are specific to this Heritage Impact Assessment (HIA); and also provides a cross reference to the relevant section(s) of this report which address these requirements.

In addition, two agency letters, which accompany the SEARs and are applicable to this HIA, were issued by the NSW Heritage Council and Strathfield Council. **Table 1.2** provides details of the non-Aboriginal heritage requirements outlined in the agency letters and a cross reference to the relevant section(s) of this report which address these conditions.

**Table 1.1 How SEARs have been addressed in this report**

<b>SEARs</b>	
<b>Heritage (State and local historic)</b>	
<b>Requirement</b>	<b>Section where addressed in EIS</b>
<ul style="list-style-type: none"> <li>impacts to State and local historic heritage (including conservation areas, built heritage landscapes and archaeology) should be assessed. Where impacts to State or locally significant historic heritage are identified, the assessment shall:</li> </ul>	<b>Sections 5 and 6</b>
<ul style="list-style-type: none"> <li>outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with the guidelines in the NSW Heritage Manual (Heritage Office and Department of Urban Affairs and Planning 1996),</li> </ul>	<b>Section 7</b>
<ul style="list-style-type: none"> <li>be undertaken by a suitably qualified heritage consultant(s) with relevant heritage expertise (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria),</li> </ul>	<b>Section 3.8</b>
<ul style="list-style-type: none"> <li>include a statement of heritage impact for all heritage items (including significance assessment), This should include detailed mapping of all heritage items and how they are affected by the proposal,</li> </ul>	<b>Section 6</b>
<ul style="list-style-type: none"> <li>include details of any proposed mitigation measures (architectural and landscape),</li> </ul>	<b>Section 7</b>
<ul style="list-style-type: none"> <li>consider impacts from vibration, demolition, archaeological disturbance, altered historical arrangements and access, landscape and vistas, and architectural noise treatment,</li> </ul>	<b>Section 6</b>
<ul style="list-style-type: none"> <li>develop an appropriate archaeological assessment methodology, including research design, in consultation with the Department and the Heritage Council of New South Wales, to guide physical archaeological test excavations and include the results of these excavations, and</li> </ul>	<b>Section 5</b>
<ul style="list-style-type: none"> <li>provision of future mitigation strategies for all identified archaeological impacts that would arise from the project.</li> </ul>	<b>Section 7</b>

**Table 1.2 How agency comments have been addressed in this report**

<b>Agency letters</b>	
<b>Heritage Council of NSW</b>	
<b>Requirement</b>	<b>Section where addressed in EIS</b>
<ul style="list-style-type: none"> <li>The Heritage Division notes the large scale impact that the project will have on heritage items, conservation areas and historic buildings, structures, landscape and public domain elements (mature street trees, milestones, sandstone kerbs). Measures must be taken to avoid and minimise demolition and significant impacts to these intact historic settings and their intangible cultural heritage values.</li> </ul>	<b>Section 6</b>
<ul style="list-style-type: none"> <li>Where portals, acoustic walls and new roads will adjoin heritage properties, appropriate materials, treatments and finishes will be required to minimise impact and complement heritage areas. Such details shall form part of the EIS.</li> </ul>	<b>Section 7</b>
<ul style="list-style-type: none"> <li>The necessary and relevant assessments shall be carried out to ensure that vibration, excavation and works will not cause any damage or structural issues to nearby items. The alignment should be modified to avoid such impacts and mitigation and management measures outlined and implemented.</li> </ul>	<b>Sections 6 and 7</b>
<ul style="list-style-type: none"> <li>The appropriate archaeological assessment shall be carried out and submitted with the EIS. If they exist, archaeological zoning plans or archaeological management plans shall be consulted.</li> </ul>	<b>Section 5</b>
<ul style="list-style-type: none"> <li>The archaeological assessments shall include future mitigation strategies for all identified archaeological impacts that would arise from the project.</li> </ul>	<b>Sections 5 and 7</b>
<ul style="list-style-type: none"> <li>The EIS shall include detail on the use of Concord Oval as a construction site and potential impacts on archaeology associated with the 1838–1843 Longbottom Convict Stockade.</li> </ul>	<b>Section 5</b>
<ul style="list-style-type: none"> <li>The Heritage Division concurs with the proposed further assessments outlined in section 4.8.3 of the SSI report</li> </ul>	Noted
<ul style="list-style-type: none"> <li>In particular, a systematic field survey in the project area shall be carried out. This should include any buildings, works, relics (including relics underwater), gardens, landscapes, views, trees or places of non-Aboriginal heritage significance. A statement of significance and an assessment of the impact of the proposal on the heritage significance of these items should be undertaken. Any policies/measures to conserve their heritage significance should be identified. This assessment should be undertaken in accordance with the guidelines in the NSW Heritage Manual</li> </ul>	<b>Sections 5 and 6</b> <b>Appendix A</b>
<ul style="list-style-type: none"> <li>The field survey and assessment should be undertaken by a qualified practitioner/consultant with historic sites experience</li> </ul>	<b>Section 3.8</b>

<b>Agency letters</b>	
<ul style="list-style-type: none"> <li>The EIS shall include a Heritage Impact Statement addressing the heritage significance of all affected sites and an assessment of any impacts the development may have upon this significance. This assessment should include natural areas and places of Aboriginal, historic or archaeological significance. It should also include a consideration of wider heritage impacts in the area surrounding the site</li> </ul>	<b>Sections 5 and 6</b> <b>Appendix A</b> Aboriginal heritage addressed in separate report
<ul style="list-style-type: none"> <li>The EIS shall include detailed mapping of all affected heritage items (and conservation areas etc) and those in the vicinity and how they are affected by the proposal. Draft items shall also be included and identified. The proposed road layout shall be superimposed on the heritage map</li> </ul>	<b>Section 6</b>
<ul style="list-style-type: none"> <li>The Heritage Council maintains the State Heritage Inventory which lists items protected under the Heritage Act 1977 (including those listed on the NSW State Heritage Register) and other statutory instruments. This register can be accessed through the Heritage Division website. It should be noted that the legal standing of items listed on the State Heritage Register can also be provided by applying for a section 167 Certificate through the Heritage Branch home page</li> </ul>	Noted
<ul style="list-style-type: none"> <li>You should consult lists maintained by the Office of Environment &amp; Heritage, the National Trust of Australia (NSW), the Australian Government under the Environment Protection and Biodiversity Conservation ACT 1999 and the local council in order to identify any identified items of heritage significance in the area affected by the proposal. Please be aware, however, that these lists are constantly evolving and that items with potential heritage significance may not yet be listed.</li> </ul>	<b>Sections 5 and 6</b>
<b>Strathfield Council</b>	
<b>Requirement</b>	<b>Section where addressed in EIS</b>
Provide a Heritage Impact Assessment to safeguard and protect items of Heritage Significance. There are a number of local listed items in the proximity of the project area and located along Council's section of Parramatta Road.	This report

## 1.4 Purpose of this report

The purpose of this report is to assess the non-Aboriginal heritage impacts of the project.

This HIA has been prepared in response to the SEARs issued on 16 June 2015 by the NSW Department of Planning and Environment for the WestConnex M4 East project (Application No. SSI 6307).

In particular, the report addresses the heritage impacts of the project on items of State and local heritage significance and outlines the proposed mitigation and management measures, including an evaluation of the effectiveness of the mitigation measures. In addition, it provides an overview of the historical archaeological potential in areas where ground disturbance is proposed and establishes a set of mitigation measures for the management of any impacts on potential or known significant archaeological resources.

## 1.5 Structure of this report

The report is set out as follows:

- **Section 1**– Introduction
- **Section 2**– Proposed project
- **Section 3**– Methodology
- **Section 4**– Historical overview
- **Section 5**– Historical archaeological assessment
- **Section 6**– Built and landscape heritage
- **Section 7**– General and specific mitigation measures.

**Sections 4, 5 and 6** are set out according to the following areas that would be subject to surface works, as described in **section 2.3**:

- Area 1 – Homebush
- Area 2 – North Strathfield and Concord
- Area 3 – Cintra Park
- Area 4 – Haberfield and Ashfield.

**Section 6** also assesses the impact of the project on heritage items and conservation areas that would not be subject to surface works, but would be above the tunnels.



## 2 Proposed project

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### 2.1 Project features

The project would comprise the construction and operation of the following key features:

- Widening, realignment and resurfacing of the M4 between Homebush Bay Drive and Underwood Road at Homebush
- Upgrade of the existing Homebush Bay Drive interchange to connect the western end of the new tunnels to the existing M4 and Homebush Bay Drive, while maintaining all current surface connections
- Two new three-lane tunnels (the mainline tunnels), one eastbound and one westbound, extending from west of Pomeroy Street at Homebush to near Alt Street at Haberfield, where they would terminate until the completion of the M4–M5 Link. Each tunnel would be about 5.5 kilometres long and would have a minimum internal clearance (height) to in-tunnel services of 5.3 metres
- A new westbound on-ramp from Parramatta Road to the M4 at Powells Creek, west of George Street at North Strathfield
- An interchange at Concord Road, North Strathfield/Concord with on-ramps to the eastbound tunnel and off-ramps from the westbound tunnel. Access from the existing M4 to Concord Road would be maintained via Sydney Street. A new on-ramp would be provided from Concord Road southbound to the existing M4 westbound, and the existing on-ramp from Concord Road northbound to the existing M4 westbound would be removed
- Modification of the intersection of the existing M4 and Parramatta Road, to remove the left turn movement from Parramatta Road eastbound to the existing M4 westbound
- An interchange at Wattle Street (City West Link) at Haberfield with an on-ramp to the westbound tunnel and an off-ramp from the eastbound tunnel. The project also includes on- and off-ramps at this interchange that would provide access to the M4–M5 Link. In addition, the westbound lanes of Wattle Street would be realigned
- An interchange at Parramatta Road at Ashfield/Haberfield, with an on-ramp to the westbound tunnel and an off-ramp from the eastbound tunnel. In addition, the westbound lanes of Parramatta Road would be realigned
- Installation of tunnel ventilation systems, including ventilation facilities within the existing M4 road reserve near Underwood Road at Homebush (western ventilation facility) and at the corner of Parramatta Road and Wattle Street at Haberfield (eastern ventilation facility). The eastern ventilation facility would serve both the project and the M4–M5 Link project. Provision has also been made for a fresh air supply facility at Cintra Park at Concord
- Associated surface road work on the arterial and local road network, including reconfiguration of lanes, changes to traffic signalling and phasing, and permanent road closures at a small number of local roads
- Pedestrian and cycle facilities, including permanently re-routing a portion of the existing eastbound cycleway on the northern side of the M4 from west of Homebush Bay Drive to near Pomeroy Street, and a new westbound cycleway on-ramp connection from Queen Street at North Strathfield to the existing M4
- Tunnel support systems and services such as electricity substations, fire pump rooms and tanks, water treatment facilities, and fire and life safety systems including emergency evacuation infrastructure
- Motorway operations complex on the northern side of the existing M4, east of the Homebush Bay Drive interchange
- Provision of road infrastructure and services to support the future implementation of smart motorway operations (subject to separate planning approval)

- Installation of tolling gantries and traffic control systems along the length of the project
- Provision of new and modified noise walls
- Provision of low noise pavement for new and modified sections of the existing M4
- Temporary construction ancillary facilities and temporary works to facilitate the construction of the project.

An overview of the project at completion is shown in **Figure 2.1**.

The project does not include work required for reconfiguring Parramatta Road as part of the urban transformation program. The project does not include ongoing motorway maintenance activities during operation. These would be subject to separate assessment and approval as appropriate.

## 2.2 Construction activities

### 2.2.1 Overview

Construction activities associated with the project would generally include:

- Enabling and temporary works, including construction power, water supply, ancillary site establishment, demolition works, property adjustments and public transport modifications (if required)
- Construction of the road tunnels, interchanges, intersections and roadside infrastructure
- Haulage of spoil generated during tunnelling and excavation activities
- Fitout of the road tunnels and support infrastructure, including ventilation and emergency response systems
- Construction and fitout of the motorway operations complex and other ancillary operations buildings
- Realignment, modification or replacement of surface roads, bridges and underpasses
- Implementation of environmental management and pollution control facilities for the project.

The project assessed in this report does not include surveys, sampling or investigation to inform the design or assessment, such as test drilling, test excavations, geotechnical investigations, or other tests. It also does not include adjustments to, or relocation of, existing utilities infrastructure undertaken prior to commencement of construction. These would be subject to separate assessment and approval as appropriate.

### 2.2.2 Construction footprint

The total area required for construction of the project, including construction ancillary facilities, is referred to as the 'construction footprint'. The construction footprint would be about 65 hectares in total, comprising about 48 hectares at the surface and about 17 hectares below ground.

In addition to below ground works, surface works would be required to support tunnelling activities and to construct surface infrastructure such as interchanges, tunnel portals, ventilation facilities, ancillary operations buildings and facilities, and new cycleway facilities near the Homebush Bay Drive interchange and Queen Street at North Strathfield.

The overall surface construction footprint generally aligns with the operational footprint, with the locations of future operational ancillary facilities being used to support construction work. Some additional areas adjacent to the operational footprint (around the portals and on- and off-ramps, and also at the tunnel mid-point) would also be required during the construction stage only to facilitate construction.

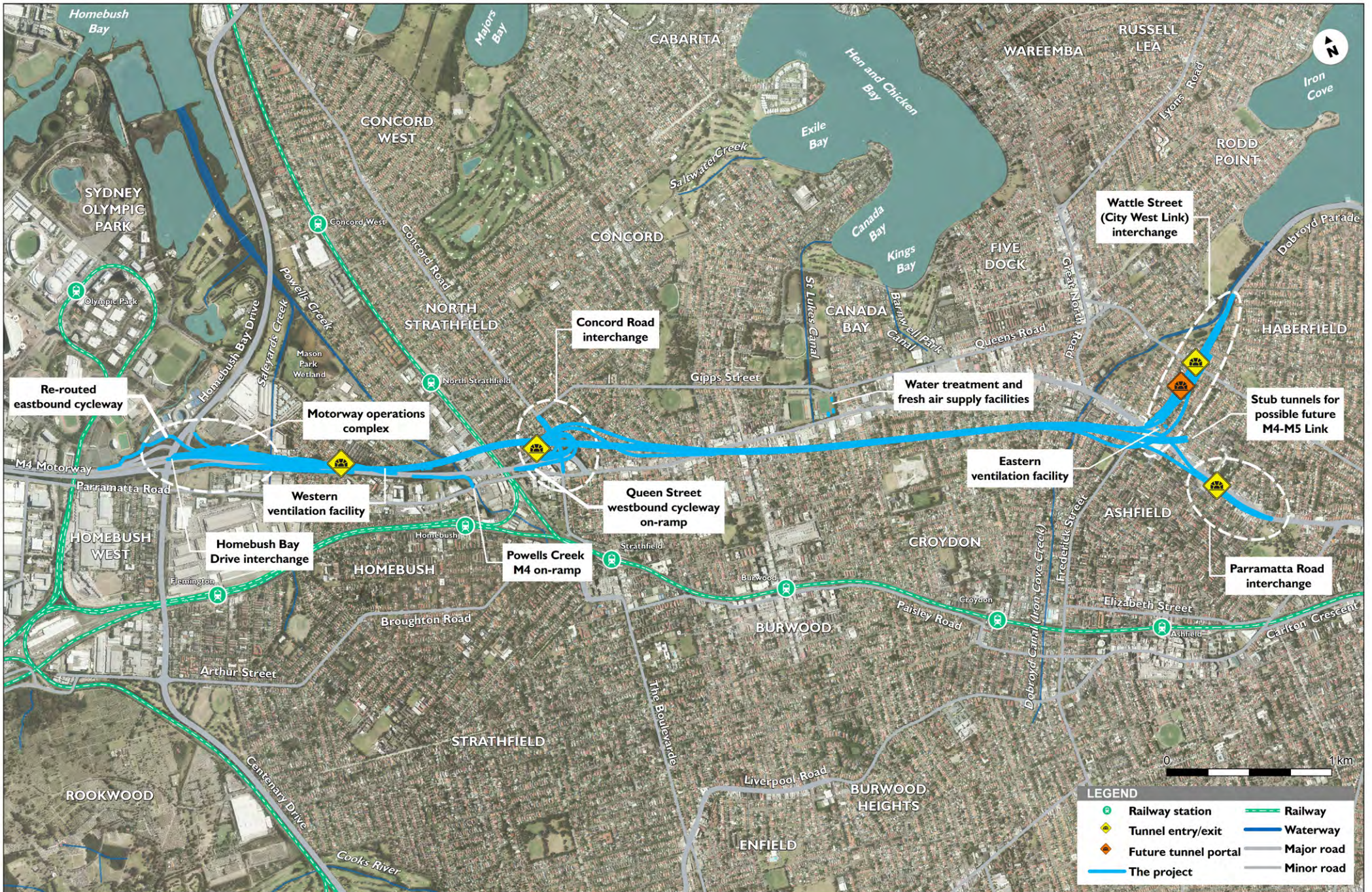


Figure 2.1 Overview of the project

Construction ancillary facilities currently proposed would be required at the following 10 locations:

- Homebush Bay Drive civil site (C1)
- Pomeroy Street civil site (C2)
- Underwood Road civil and tunnel site (C3)
- Powells Creek civil site (C4)
- Concord Road civil and tunnel site (C5)
- Cintra Park tunnel site (C6)
- Northcote Street tunnel site (C7)
- Eastern ventilation facility site (C8)
- Wattle Street and Walker Avenue civil site (C9)
- Parramatta Road civil site (C10).

An overview of the construction footprint is shown in .

The final size and configuration of construction ancillary facilities would be further developed during detailed design.

### 2.2.3 Construction program

Subject to planning approval, construction of the project is planned to start in the second quarter of 2016, with completion planned for the first quarter of 2019. The total period of construction works is expected to be around three years, including nine months of commissioning occurring concurrently with the final stages of construction. The indicative construction program is shown in **Figure 2.2**.

**Table 2.1 Indicative construction program overview**

Construction activity	Indicative construction timeframe											
	2016			2017			2018			2019		
Construction access excavation (all sites)												
Tunnelling (excavation)												
Tunnel drainage and pavement works												
Tunnel mechanical and electrical fitout works												
Tunnel completion works												
Homebush Bay Drive interchange												
M4 surface works												
Western ventilation facility												
Powells Creek on-ramp												
Concord Road interchange												
Wattle Street interchange												
Parramatta Road interchange												
Eastern ventilation facility												
Cintra Park fresh air supply facility												
Cintra Park water treatment facility												
Motorway operations complex												
Mechanical and electrical fitout works												
Site rehabilitation and landscaping												

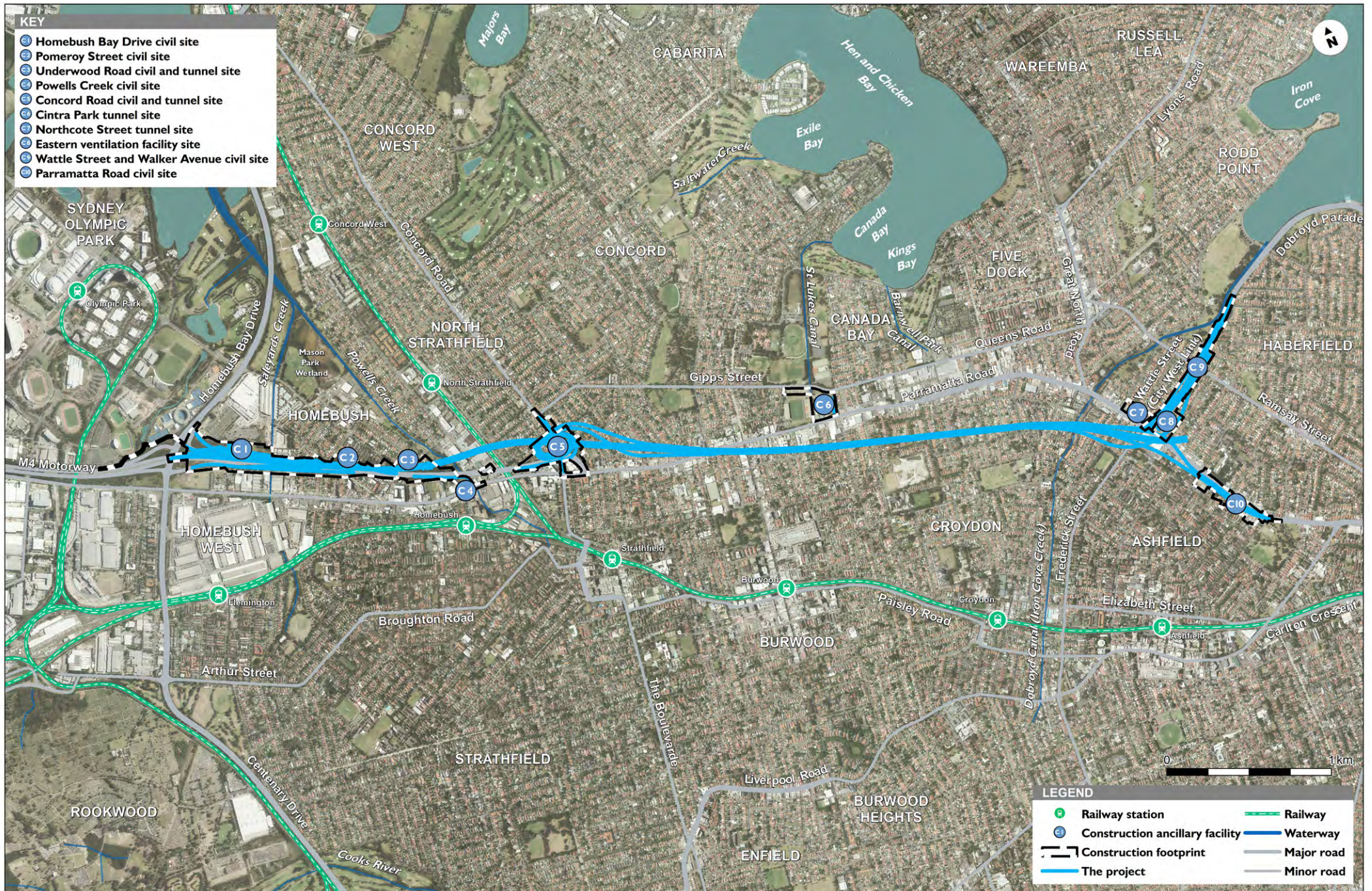


Figure 2.2 Overview of construction footprint and construction ancillary facilities

## 2.3 Specific aspects

The HIA is structured around the following four areas that would be subject to surface impacts for the project:

- Area 1 – Homebush
- Area 2 – North Strathfield and Concord
- Area 3 – Cintra Park
- Area 4 – Haberfield and Ashfield.

The study area for the HIA and the four key areas that were the focus of the assessment (as listed above) are shown in **Figure 2.3**.

The historical archaeological assessment in **Section 5.0** assesses the impact of the project on those areas that will be subject to surface works only. As the top of the mainline tunnels will be between 20 and 50 metres below ground level, they are not likely to impact historical archaeology.

The built heritage and landscape impact assessment in **Section 6.0** adopts a broader study area which includes the proposed construction footprint plus 100 metres on either side. This is to ensure that the assessment includes heritage items and Heritage Conservation Areas adjacent to the construction footprint that may be subject to visual or vibration impacts.

A description of these areas and the works proposed within them are set out below.

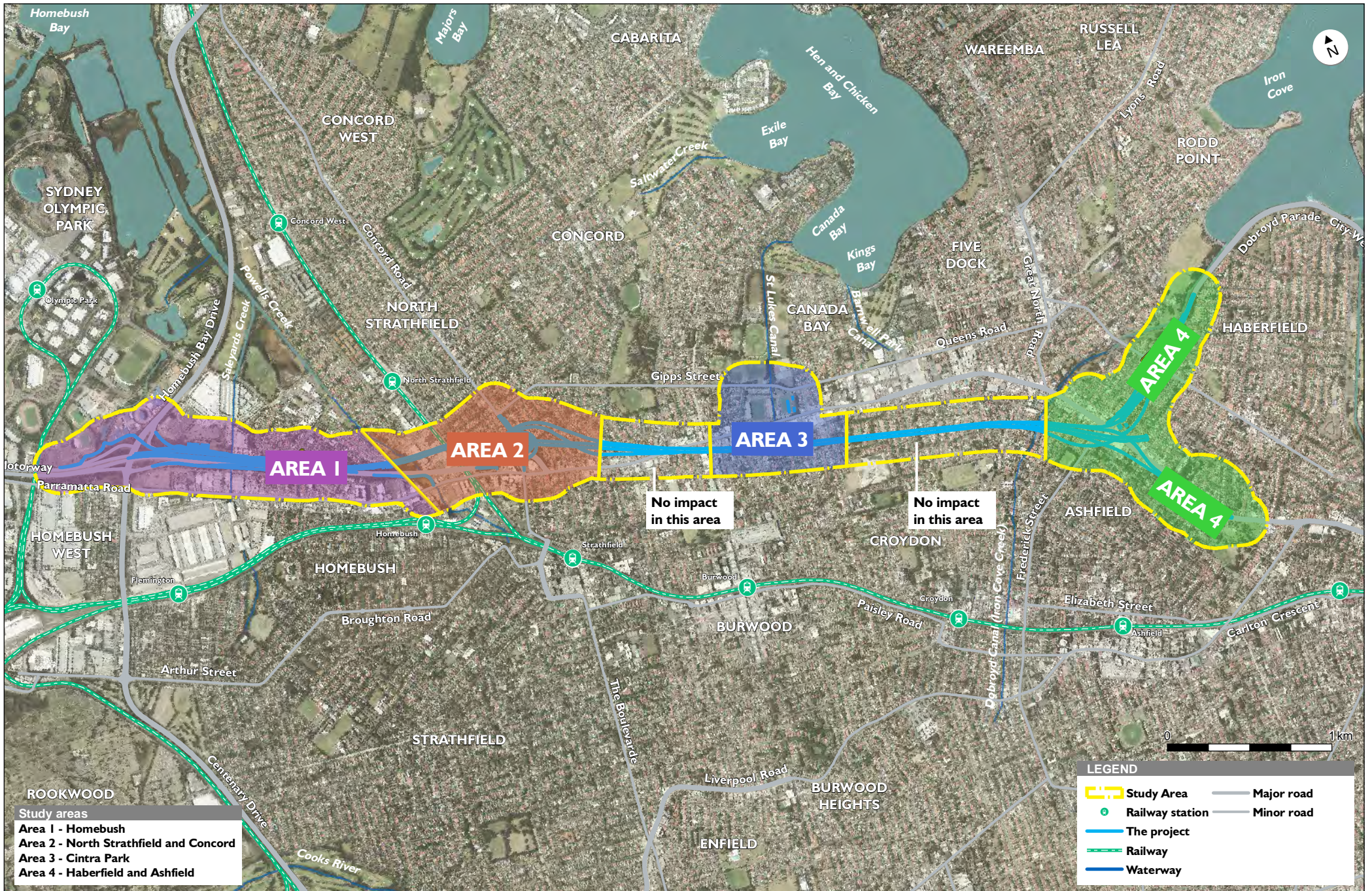
**Sections 6.10 and 6.11** of the HIA also address potential vibration and settlement impacts on heritage items and Heritage Conservation Areas (HCAs) located above the tunnels but which are not included within the four areas subject to surface impacts.

### 2.3.1 Area 1 – Homebush

Area 1 – Homebush comprises an area of land bounded by Sydney Olympic Park to the east, the northern railway to the west, and 100 metres on either side of the M4 East construction footprint to the north and south. The proposed works in Area 1 – Homebush comprise construction activities and permanent operational facilities. This includes: widening, re-alignment and resurfacing of the M4, upgrade of the existing Homebush Bay Drive interchange, modifications to the existing bridges and new bridge structures on the M4, and a new westbound on-ramp to the M4 at Powells Creek.

The construction of the Homebush Bay Drive interchange would require four temporary civil sites to facilitate construction (C1 to C4). The construction sites would be used for the modification and construction of bridges, widening of the existing motorway and the construction of the dive structures and cut-and-cover and driven tunnel sections. A vertical shaft would be provided at the Underwood Road civil and tunnel site to remove material from the main tunnel.

Permanent facilities in this area would comprise the motorway operations complex and maintenance facility on the northern side of the M4 near Homebush Bay Drive, Western ventilation facility adjacent to the Underwood Road, construction of a spill containment basin and water quality basin on the northern side of Homebush Bay Drive, substation, and fire pump room and water tanks. Civil earthworks including grading and the construction of retaining walls and noise walls would form part of this work.



### 2.3.2 Area 2 – North Strathfield and Concord

Area 2 – North Strathfield and Concord comprises an area within 100 metres of the boundaries of the proposed Concord Road interchange construction footprint around the intersection of Concord Road and Sydney Street, North Strathfield. The proposed works in Area 2 – North Strathfield and Concord comprise construction activity and permanent operational facilities. The construction of the Concord Road interchange would include the construction of dive structures and cut-and-cover tunnel sections and the construction of approach roads and ramps. The existing M4 would be realigned and bridge widening works undertaken at Concord Road. The construction site would be a stockpile area for spoil as well as for site amenities.

The Concord Road tunnel site (C5), proposed for the eastern side of Concord Road, would be the main tunnel site at the western end of the project. A decline tunnel would be established to allow for the removal of material from the newly formed tunnels as they are excavated. Permanent facilities in this area would comprise a substation to the west of Concord Road on Sydney Street. Civil works including grading and construction of retaining walls and noise walls would form part of this work. Landscaping, including tree planting, is also proposed in the centre of the Concord Road interchange.



**Figure 2.4 View of the proposed Concord Road interchange, looking east.**

### 2.3.3 Area 3 – Cintra Park

Area 3 – Cintra Park comprises Cintra Park and Concord Oval, Concord and an area within 100 metres of the construction footprint boundaries of the proposed Cintra Park tunnel site (C6).

The proposed works in Area 3 – Cintra Park comprise construction activities and permanent operational facilities. Cintra Park, immediately to the east of Concord Oval, would be the main midpoint tunnel site for the construction of the M4 East. This would include the excavation of a ventilation tunnel connecting Cintra Park (C6) to the mainline tunnels to allow for the removal of material from the mainline tunnels as they are excavated. Following the completion of tunnelling the site would be rehabilitated for use as a public reserve. Permanent facilities including fresh air supply facility, a water



treatment facility and substation would be constructed on the site of Cintra Park to support the operation requirements of the project.

### 2.3.4 Area 4 – Haberfield and Ashfield

Area 4 – Haberfield and Ashfield comprises a large area that includes the Wattle Street interchange, Parramatta Road interchange, the eastern ventilation facility, and the Northcote Street tunnel site (C7), the Eastern ventilation facility site (C8), the Wattle Street and Walker Avenue civil site (C9) and the Parramatta Road civil site (C10), and an area within 100 metres of the boundaries of the M4 East construction footprint.

The proposed works in Area 4 – Haberfield and Ashfield comprise construction activities and permanent operational facilities. The construction works around Haberfield and Ashfield would require four temporary civil and tunnel sites to facilitate construction (C7 to C10). The construction of the Wattle Street interchange and Parramatta Road interchange at Ashfield would include the construction of dive structures and cut-and-cover tunnel sections and the construction of approach roads and ramps for both the M4 East on- and off-ramps, as well as the M4–M5 Link on and off-ramps. The Northcote Street tunnel site (C7) and the Eastern ventilation facility site (C8) would both consist of a decline/ventilation tunnel to allow for the removal of material from the mainline and ramp tunnels as they are excavated. Permanent facilities in this area would comprise the eastern ventilation facility at the south-eastern corner of the Parramatta Road and Wattle Street intersection. Civil works including grading and construction of retaining walls and noise walls would form part of this work. Landscaping, including tree planting, is also proposed around the Wattle Street and Parramatta Road interchanges.



**Figure 2.5** View of the proposed Wattle Street interchange, Haberfield looking south.



**Figure 2.6** View of the proposed Parramatta Road interchange at Ashfield and Haberfield looking west.

Note: area between tunnel entry and exit portals is indicative only

## 3 Assessment methodology

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### 3.1 Key guidelines and policies

This HIA has referred to the following key guidelines and policies relevant to heritage management in NSW:

- Heritage Branch of the Department of Planning, 2009, *Assessing Heritage Significance for Historical Archaeological Sites and 'Relics'*
- NSW Heritage Office, 2006, *Historical Archaeology Code of Practice*
- NSW Heritage Office, 2003, *How to Prepare Archival Records of Heritage Items*
- Heritage Council of NSW, 2002, *Assessing Heritage Significance*, NSW Heritage Manual
- Heritage Council of NSW, 2002, *Statements of Heritage Impact*, NSW Heritage Manual
- NSW Heritage Office, 1996, *Archaeological Assessments: Archaeological Assessment Guidelines*
- Heritage Council of NSW, 1993, *Historical Archaeological Sites: Investigation and Conservation Guidelines*
- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013* (the Burra Charter).

### 3.2 Overview

The following methodology has been adopted in preparing this report:

- Review of statutory heritage lists, including the State Heritage Register, heritage schedules on Local Environmental Plans (LEPs), State Agency Section 170 Heritage and Conservation Registers and the National Heritage List (NHL) and Commonwealth Heritage List (CHL)
- Review of relevant heritage reports, archaeological zoning plans and archaeological assessments previously prepared for relevant items and areas along the route, as available
- Field survey of the four areas defined in **section 2.3** to inspect listed heritage items, heritage conservation areas and potential archaeological sites, and to identify potential heritage items that may be affected by the proposed project
- Desktop research and historical research to inform the impact assessment, including review of relevant conservation management plans (CMPs) and other plans of management
- Contact with heritage advisors at local councils and state agencies for further information regarding items on their heritage registers, where required.

### 3.3 Assessment of heritage significance

The statements of significance for the assessed heritage items have been drawn from the following state and federal statutory and non-statutory heritage registers:

- State Heritage Register
- NSW State Heritage Inventory database
- *Ashfield Local Environmental Plan 2013* (Ashfield LEP 2013)
- *Strathfield Local Environmental Plan 2012* (Strathfield LEP 2012)
- *Canada Bay Local Environmental Plan 2013* (Canada Bay LEP 2013)
- *Burwood Local Environmental Plan 2012* (Burwood LEP 2012)
- Section 170 Heritage and Conservation Registers for Sydney Water, Roads and Maritime, RailCorp and Ausgrid.

There are no heritage items in Auburn LGA within 100 metres of the construction footprint.

Additional information on significance, including heritage curtilages, has been drawn from conservation reports, such as conservation management plans, conservation plans and heritage impact statements, where available. These documents are cited in the footnotes to this report.

The methodology for assessments of heritage significance is based on the NSW heritage criteria as set out in the NSW Heritage Manual guideline *Assessing heritage significance*, prepared by the NSW Heritage Office in 2001.

### 3.4 Archaeological assessment

The evaluation of the historical archaeological potential associated with various phases of the study area's history is based on consideration of the physical evidence observed at the sites, identified areas of previous disturbance, historical information about the development and occupation of the sites and previous archaeological assessments and excavations. Consequently, a broad approach to the identification of the potential archaeological resource has been adopted and is based on a predictive model that assumes that historical archaeological remains are generally located close to occupation and activity areas.

The assessment of archaeological impacts has been primarily prepared based on the historical information presented in **section 4.0**, readily available secondary sources and a field survey.

The historical background and significance assessment of individual sites has been primarily based on previous historical archaeological assessment and excavations, as well as historical information gathered for this study from a range of primary and secondary sources. A field survey of sites along the study area has been undertaken to assess the general condition and locations of known and potential historical archaeological sites.

### 3.5 Assessment of heritage impact

This HIA has been prepared with reference to the guideline document *Statements of Heritage Impact*, (2002), prepared by the NSW Heritage Office and contained within the NSW Heritage Manual. It is also consistent with the relevant principles and guidelines of the Burra Charter.

In order to clarify the potential impacts of the proposed works, GML has developed a ranking for measuring the severity of potential impacts on heritage values. This methodology was developed for the CBD and South East Light Rail Heritage Impact Assessment, prepared by GML in November 2013, and is applied consistently in this report. The methodology used to rate the severity is explained below.

**Table 3.1 Ranking of heritage impact**

Rating	Definition
Major adverse	Actions that would have a severe, long-term and possibly irreversible impact on a heritage item. Actions in this category would include partial or complete demolition of a heritage item or addition of new structures in its vicinity that destroy the visual setting of the item. These actions cannot be fully mitigated.
Moderate adverse	Actions that would have an adverse impact on a heritage item. Actions in this category would include removal of an important part of a heritage item's setting or temporary removal of significant elements or fabric. The impact of these actions could be reduced through appropriate mitigation measures.
Minor adverse	Actions that would have a minor adverse impact on a heritage item. This may be the result of the action affecting only a small part of the place or a distant/small part of the setting of a heritage place. The action may also be temporary and/or reversible.
Neutral	Actions that would have no heritage impact.
Minor positive	Actions that would bring a minor benefit to a heritage item, such as an improvement in the item's visual setting.

Rating	Definition
Moderate positive	Actions that would bring a moderate benefit to a heritage item, such as removal of intrusive elements or fabric or a substantial improvement to the item's visual setting.
Major positive	Actions that would bring a major benefit to a heritage item, such as reconstruction of significant fabric, removal of substantial intrusive elements/fabric or reinstatement of an item's visual setting or curtilage.

### 3.6 Previous reports

GML has reviewed the following reports in the preparation of this HIA:

- Parsons Brinckerhoff and Sinclair Knight Merz, *WestConnex M4 East State Significant Infrastructure Application Report*, prepared for WestConnex Delivery Authority, November 2013
- Parsons Brinckerhoff and Sinclair Knight Merz, *WestConnex Strategic Environmental Review*, prepared for Sydney Motorways Project Office, Roads and Maritime Services, September 2013
- HASSELL, RMS Centre for Urban Design and WestConnex Delivery Authority, *WestConnex Motorway Urban Design Framework*, September 2013.

Heritage reports, such as CMPs and archaeological assessments, referred to in the preparation of this HIA are acknowledged in the endnotes for each section.

### 3.7 Limitations

Only those areas subject to surface works and their immediate vicinities were surveyed in the preparation of this HIA. GML inspected these areas in May 2014 and June 2015. As the majority of tunnelling for the project would be over 40 metres below ground, properties above these deep tunnels are unlikely to be directly impacted by the project. Where tunnels are closer to the surface – ie following on from or leading to cut-and-cover tunnels– there may be potential for possible damage from the effects of construction vibration. These impacts have been assessed by SLR Consulting Australia Pty Ltd (SLR) separately in the *WestConnex M4 East Construction and Operational Road Traffic Noise and Vibration Impact Assessment* (refer **Appendix J** of the EIS).

Properties that are proposed to be demolished for the project, which are not already listed as heritage items or within Heritage Conservation Areas, were subject to heritage significance assessments to identify whether they have potential heritage values.

### 3.8 Authors

This HIA has been prepared by the following GML consultants:

- Julia Dowling, Associate, who was the project manager and prepared the built heritage impact assessment
- Diana Cowie, Senior Consultant (Archaeologist), who prepared the historical archaeological assessment
- Steven Barry, Senior Consultant, who prepared the built heritage impact assessment
- Sinclair Croft, Senior Consultant, who assisted with the built heritage impact assessment
- Michelle Richmond, Senior Consultant (Historian), who prepared the historical overview
- Jane McMahon, Graduate Consultant, who assisted with the historical archaeological assessment
- Anita Yousif, Senior Associate (Archaeologist), who provided guidance for the historical archaeological assessment
- Peter Romey, Partner, who reviewed the report.

**Table 3.4 Consultant qualifications and experience**

<b>Consultant</b>	<b>Qualification</b>	<b>Experience</b>
Julia Dowling, Associate	MA (Human Geography), Macquarie University BArch (Hons), University of NSW	Julia is a built heritage specialist with 7 years' experience in heritage assessment, conservation management planning and heritage impact assessment, particularly for State significant sites and projects.
Diana Cowie, Senior Consultant	BA (Hons 1) (Archaeology and Palaeoanthropology)	Diana is an archaeologist with over 5 years' experience in the identification and assessment of Indigenous heritage and historical sites, both in Australia and abroad.
Steven Barry, Senior Consultant	Conservation of Traditional Buildings, University of Canberra, Donald Horne Institute for Cultural Heritage Grad Cert Heritage Conservation, University of Sydney BDesign (Architecture), University of Sydney	Steven has an architectural background in conservation and restoration. He has over 3 years' experience in twentieth-century built heritage assessment, building conservation and heritage impact assessment.
Sinclair Croft, Senior Consultant	B. Applied Science (Hons 1), Charles Sturt University Grad. Dip. Applied Science (Cultural Heritage Science), Charles Sturt University B. Urban and Regional Planning, University of New England	Sinclair has 4 years' experience as a heritage consultant providing heritage advice and preparing heritage reports and 10 years' experience working as a heritage planner and strategic planner in local government.
Michelle Richmond, Senior Consultant	M. Social Development, University of NSW BA (History Major), University of Sydney Dip. Teaching, Goulburn College of Advanced Education, (Charles Sturt University).	Michelle is an accredited professional historian with over 16 years' experience in the heritage consultancy field. She is a Professional Historian (Member of the Professional Historians Association NSW & ACT)
Jane McMahon, Graduate Consultant	BA (Hons), University of Sydney Certificate of Completion, Conservation Field School, Flinders University	Jane is a graduate consultant with 3 years' experience in historical archaeology and heritage interpretation.
Anita Yousif, Senior Associate	MPhil (Hons), University of Sydney BA, University of Belgrade, Yugoslavia	Anita is an archaeologist with over 20 years' experience. She has worked on archaeological excavations throughout Australia and internationally in Cyprus, Italy and Serbia as part of major redevelopment projects and within research contexts
Peter Romey, Partner	Elected Associate by the Royal Australian Institute of Architects BArch, NSW Institute of Technology	Peter has been a Partner of GML Heritage since 2006. He has worked in consultancy firms, government organisations and in private practice, and has more than 30 years' experience in heritage conservation.

# 4 Historical Overview

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## 4.1 Introduction

This section provides an overview history of the project area and then examines in more detail the historical development of the four key areas defined in **section 2.3**:

- Area 1 – Homebush
- Area 2 – North Strathfield and Concord
- Area 3 – Concord Oval
- Area 4 – Haberfield and Ashfield.

## 4.2 Overview history

### 4.2.1 Introduction

The proposed M4 East route relates directly to the history and development of Parramatta Road and the land along it. Parramatta Road is one of the oldest and most significant roads in NSW and is the earliest highway constructed in Australia. Since at least 1790, it has served as the main thoroughfare west out of Sydney and has instigated development along both sides of its 23 kilometre route. The route has been largely unaltered since its construction.

### 4.2.2 Parramatta Road

An initial track between the two settlements of Sydney and Parramatta became the basis for 'the road to Parramatta', which was laid out in 1797 under the direction of Surveyor-General Augustus Alt and measured 20 feet wide (6.1 metres).<sup>1</sup> It was remade in 1805, including the construction of 10 timber bridges,<sup>2</sup> and again in 1810 when Governor Macquarie's comprehensive plan saw the road reconstructed as a turnpike road with toll bars. Macquarie's plan also widened the road to 33 feet (10 metres) with forest cleared 66 feet (20 metres) back from either side. A gang of 20 convicts, as well as three bullock teams were assigned to complete this work.<sup>3</sup> In 1817, Macquarie employed three convict gangs to rough pave the road with broken stone and then cover it with earth and gravel, assisting with the prevention of rutting and providing stability.

The opening of the railway to Parramatta in 1855 saw funding maintenance for Parramatta Road decrease and traffic along it fall. From this time until the first decade of the twentieth century, little coordinated effort was expended on maintaining Parramatta Road – despite the efforts of the two road trusts who managed it.<sup>4</sup>

In 1847, horse-drawn omnibuses began to run along Parramatta Road to Glebe and by 1870 the service had extended to Concord. From the 1880s, these services were converted to government operated steam trams, with the lines electrified from 1901.

Local councils took over the maintenance of Parramatta Road within their boundaries from 1906, resulting in a variation of maintenance along the route.<sup>5</sup> As cars became more common from the beginning of the twentieth century, this increasingly became a problem. When, in 1920, the Public Works Department undertook to recondition the entire length of the road, the following different road conditions were revealed:

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1 Jervis, J 1927, 'The Road to Parramatta', *Journal of the Royal Australian Historical Society*, Vol XIII, Part II, p 69.

2 *Sydney Gazette and NSW Advertiser*, 8 September 1805, p 1.

3 Broomham, R 2001, *Vital Connections: A history of NSW Roads from 1788*, Hale & Iremonger, Sydney, p 25.

4 GML Heritage, WestConnex Revitalisation Project, Parramatta Road Corridor—Thematic History, draft report prepared for Urban Growth NSW, March 2014, pp10–11.

5 Kass, T 2006, *RTA Heritage and Conservation Register—Thematic History*, Roads and Traffic Authority NSW, p 22.

- Between Sydney city and Glebe, the road was in good condition with a combination of concrete base and a top dressing of asphalt or woodblocks
- From Annandale to Petersham and Leichhardt, the road was wood blocked on a concrete base laid as part of improvements for the tram tracks
- At Taverner's Hill, the road had been tarred in 1918 but was deteriorating
- From Summer Hill, the road was also tarred but in good order
- The remaining section from Ashfield to Parramatta consisted of a macadamed base with bitumen surface – with a section at Homebush having a central strip of concrete.<sup>6</sup>

As well as the varying condition, the width of the road changed along the route between 20 and 27 metres across.

In 1920 and 1921 the Department of Public Works Road Branch reconditioned the entire length of Parramatta Road.<sup>7</sup> Further work was undertaken between 1925 and 1929 which included the widening of the road to a standard 80 feet (24 metres).<sup>8</sup> From the 1940s, the width and alignment of Parramatta Road have remained largely unchanged. However, from the late 1930s until 1950, large sections of the road were rebuilt, with a cement concrete pavement replacing the bitumen surface.<sup>9</sup>

### 4.2.3 Early land holdings along Parramatta Road

Until the 1850s the route to Parramatta from Sydney ran through country estates and farm sites. There were scattered settlements and a few roadside inns with associated industries (coach builders and blacksmiths) surrounding the inns. The government's 700 acre Longbottom Farm and Longbottom Stockade were located halfway between Sydney and Parramatta near where Concord lies today. Here, from the 1790s until the 1850s, convict road gangs were housed and the farm supplied timber and vegetables for Sydney.

The main travellers on the road were merchants travelling between the two settlements; drovers bringing stock to and from the city sale yards; and the horses and carriages of the few local residents and their friends. The inns along Parramatta Road served as respite for travellers and were often located at intersections of major roads such as Liverpool Road, the Great North Road and Burwood Road. The inns also offered protection from bushrangers and some Aboriginal warriors who roamed Parramatta Road, especially in the Homebush area, in the early years of the colony.

Settlement by free settlers in the Homebush, Concord, and North Strathfield area was initiated in 1793 when small land grants were made by Major Francis Grose, Lieutenant Governor, to English farmers Thomas Rose, Thomas Webb, Edward Powell and Frederick Meredith.<sup>10</sup> These men were to develop farms which would provide food supplies for Sydney. This land was the first granted to free settlers in the colony and the area of the land grants was known as Liberty Plains. The grants were located on Parramatta Road, just west of the Longbottom Farm and Longbottom Stockade. The land was poor, the farms failed and the farmers eventually moved away, but their arrival initiated further grants in the area and a small community emerged. Grose was seeking to open up the land between the two settlements of Sydney and Parramatta to facilitate communications and farming, and to provide for the 'convenience and safety of the traveling public'.<sup>11</sup>

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6 Hall, G 1930, 'The Parramatta Road', *Main Roads*, Vol. 1, No. 4, p 82.

7 *Sydney Morning Herald*, 18 April 1921, p 10.

8 GML Heritage, WestConnex Revitalisation Project, Parramatta Road Corridor—Thematic History, draft report prepared for Urban Growth NSW, March 2014, p 13.

9 'Reconstruction of Parramatta Road, Ashfield: Battle Bridge to Rogers Avenue', *Main Roads*, Vol XVI, No. 2, December 1950, p 62.

10 McLoughlin, L, 'Landed peasantry or landed gentry: a geography of land grants', in Graeme Aplin (ed), 1988, *A Difficult Infant: Sydney Before Macquarie*, NSW University Press, Sydney, p 123.

11 Strathfield Council, 'European Settlement', viewed 15 June 2015 <<https://www.strathfield.nsw.gov.au/home/council/about-strathfield/history-of-strathfield-local-government-area/european-settlement/>>.



D'Arcy Wentworth's 920 acre Homebush Farm lay to the west of the Liberty Plains farms, and Thomas Rowley's 720 acre Burwood Estate lay nearer Longbottom Farm. An attempt to establish the Village of Concord on part of Rowley's land in the 1830s failed and this land was not fully developed until the 1920s. Some of the Liberty Plain's farmers returned to the area and Edward Powell later owned over 500 acres at Homebush. He is remembered in the naming of Powells Creek. The Merediths also returned and would later rent the Homebush homestead from the Wentworths.

Closer to Sydney, Joseph and Elizabeth Underwood developed their Ashfield Park Estate from the early 1800s. Joseph's brother, James Underwood, who owned the land to the east of Ashfield Park Estate, did not develop his land but leased it for cattle grazing. Opposite the Underwood's Ashfield land was the large Dobroyd Estate (now Haberfield) owned and occupied by the Ramsay family from 1805 until the turn of the twentieth century.

As Sydney began to grow and spread these large estates disappeared under the pressure of urban expansion. Today, the only colonial house that remains along Parramatta Road is Yasmar – at 185 Parramatta Road, Homebush – built in 1856 on part of the Ramsay's Dobroyd Estate.

#### 4.2.4 Suburban development along Parramatta Road

The subdivision of the large estates and farms along Parramatta Road took place from the 1840s to the 1920s. Development began in the areas closer to Sydney such as Ashfield where a small village developed in the 1840s and where much of the land was sold as small acreage allotments from the 1860s. The convenience of its own railway station made Ashfield attractive to wealthy merchants who built substantial villas on their allotments.

The 1880s saw pockets of residential development created along Parramatta Road. James Underwood's large Ashfield landholding west of Liverpool Road was subdivided in 1878 and included the setting aside of 16 acres for the creation of Ashfield Park. In the Homebush/Strathfield Area, the eastern corner of the Wentworth's Homebush Estate was subdivided in 1883 by Fitzwilliam Wentworth. James Underwood subdivided his land at Homebush in two portions in 1878 and 1880, and Edward Powell junior subdivided an area of almost 40 acres on the eastern side of Powells Creek in 1880.

It was the 1920s, however, that produced the most intense period of development. The arrival of the car in the early years of the twentieth century and improved services such as water and sanitation transformed the suburban landscape and the roads that served it. The remaining land along Parramatta Road was subdivided for residential development, including the Dobroyd Estate (now the suburb of Haberfield), and older larger landholdings were re-subdivided for more intense development. Aerial photographs from 1930 show that most of the land along Parramatta Road within the study area had been developed by this time.

Parramatta Road operated as a typical high street from the City to Taverner's Hill with early small commercial buildings replaced by two-storey Victorian terrace shop/residences from the 1880s. Past Taverner's Hill, however, other roads such as Liverpool Road, Old Canterbury Road and Burwood Road took on the role of high streets. In these areas Parramatta Road was used as the arterial thoroughfare to Parramatta – except for a few pockets of commercial buildings and small shopping strips around the developments at Burwood Road and at Homebush.

Other suburban services constructed along the road included police stations at Camperdown and at the Longbottom Stockade (which was moved in the late 1880s to a new location opposite Concord Road), and the Homebush Council Chambers constructed on the corner of Parramatta Road and Park Road Homebush in the 1880s. Several schools and places of worship also had frontages to Parramatta Road, and a number of parks were dedicated along the route from the 1870s.

#### 4.2.5 The industrial road

Parramatta Road has served the industrial districts of Sydney as much as it has the commercial and residential. Early brickworks were located near today's Central Station from the early years of the colony and around Powells Creek, and Becketts Creek from the 1850s.

At Homebush the majority of D'Arcy Wentworth's Estate was resumed by the NSW Government for the State abattoir and brickworks in 1906, which operated from the site until 1988.

In the twentieth century larger factory complexes became more common along Parramatta Road such as the Peak Frean and Arnott's Biscuits factories at Ashfield and Homebush respectively, the Amalgamated Wireless (Australasia) factory near Iron Cove Bridge, and the Ford Motor factory at Homebush. Car dealerships began to dominate both sides of Parramatta Road west of Taverner's Hill from the 1930s and today parts of Parramatta Road are popularly referred to as Auto Alley.

#### 4.2.6 The M4 Motorway

A need for a new freeway heading west to relieve Parramatta Road had been identified in the County of Cumberland Scheme in 1947, and a corridor for the new road between the city and Lapstone was reserved in 1951. Work began on the new freeway in the late 1960s, with the first sections built at its western end. Competing projects, local protests and funding restrictions meant that the freeway east of Concord Road had to be abandoned and the remainder of the project completed in sections with the final links and interchanges not completed until 1992.<sup>12</sup> The section of the motorway from Concord Road to Auburn was opened in 1982 with access provided at Concord Road via Sydney and Young streets. This access was upgraded in 1984 resulting in the demolition of a number of properties located near the junction of Parramatta and Concord roads.<sup>13</sup>

### 4.3 Area 1 – Homebush

#### 4.3.1 Homebush early European history

Land along the M4 East corridor, between Homebush Bay Drive and Powells Creek, lies on land that was originally part of the Homebush Estate. It also includes part of 70 acres originally granted to Thomas Rose (one of the Liberty Plains farmers) which became part of the large Underwood landholding at Homebush by the 1820s (**Figure 4.1**).

The Homebush area was first known to Europeans as The Flats, which was how Lieutenant Bradley first described it in his charting of the river in 1788. Part of this area, the higher and drier lands along Parramatta Road, was where the four Liberty Plains farmers were given their grants in 1793.<sup>14</sup> One of these farmers, Thomas Rose, was granted 70 acres on the western side of Powells Creek (**Figure 4.1**) and this land was purchased by James Underwood in the 1820s. James had married Edward Powells daughter Mary (another Liberty plains farmer) in 1812.

Thomas Laycock was first granted 100 acres between Parramatta Road and Homebush Bay in October 1794. He named his farm, Home Bush (his home in the bush).<sup>15</sup> By 1800, Laycock's Home Bush farm had grown to 585 acres, expanding by a further 225 acres in 1796. This land was sold, in January 1808, to D'Arcy Wentworth, government surgeon.<sup>16</sup> By 1810, Wentworth had increased his holdings at Homebush Bay to 920 acres (**Figure 4.1**). Wentworth established a horse stud and, some time before 1825, built a private racetrack near Parramatta Road. Wentworth resided at Home Bush farm with his family and developed the land into a fine country estate. Descriptions of the Wentworth's Home Bush house are based on the 1840 drawings and descriptions by Louisa Meredith, wife of Frederick Meredith (one of the Liberty Plains farmers), who was a tenant.<sup>17</sup> The house was positioned on a ridge on the highest part of the estate, within the present site of Olympic Park, corner of Figtree

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12 'M4 Western Motorway—Construction Information', viewed 15 June 2015 <<http://www.ozroads.com.au/NSW/Freeways/M4/constructioninfo.htm>>.

13 'M4 Western Motorway—Construction Information', viewed 15 June 2015 <<http://www.ozroads.com.au/NSW/Freeways/M4/constructioninfo.htm>>.

14 Carney, M and Mider, D 1996, *Archaeological Assessment of Homebush House and the Former Laycock and Wentworth Estates*, Olympic Coordination Authority, p. 11.

15 Carney, M and Mider, D 1996, *Archaeological Assessment of Homebush House and the Former Laycock and Wentworth Estates*, Olympic Coordination Authority, p. 11.

16 'Laycock, Thomas (1756–1809)', *Australian Dictionary of Biography, National Centre of Biography*, Australian National University, viewed 6 March 2014 <<http://adb.anu.edu.au/biography/laycock-thomas-2339/text3049>>, published in hardcopy 1967.

17 Meredith, LA1844, *Notes and Sketches of New South Wales*, London.

Drive and Australia Avenue. It had several outbuildings, stables, cow sheds, worker's cottages and barns, and had a separate kitchen (**Figure 4.2**).<sup>18</sup> None of these buildings were located near the study area.

When D'Arcy Wentworth died at Home Bush in July 1827, the Homebush Estate was bequeathed to WC Wentworth, his eldest son. He did not live at Homebush residing instead at Vacluse House and so Home Bush was tenanted throughout WC Wentworth's ownership. The family continued to be interested in horse racing and, in 1827, WC Wentworth was elected steward of the Australian Jockey Club (AJC) and its president in 1832. The existing private track on the Homebush Estate was most probably upgraded and pavilions, clubhouses, stables and training yards established close to Parramatta Road. Over 8000 people attended the opening race in March 1841. From 1841 to 1860, the AJC was based at Homebush and this became the centre for horse racing in Sydney until the opening of the new Randwick Racecourse in 1860.<sup>19</sup> The racecourse lay to the west of the study area (**Figure 4.2**). By 1840, when the Meredith's moved to Homebush, the house and farm had become dilapidated and run down

By 1881, the Homebush Estate consisted of 1094 acres, with the addition of areas drained and reclaimed from around Powells and Haslams Creek and The Flats. Fitzwilliam Wentworth, WC's son, registered a residential subdivision in 1883 (DP 1090) called The Homebush Park Estate, across part of the eastern portion of the property (**Figure 4.3** and **Figure 4.4**). A few of these allotments were sold, mostly near Parramatta Road, but the majority of land, 909 acres, remained intact when resumed in 1907 by the NSW Minister for Public Works for the location of the new state abattoir.

Fitzwilliam Wentworth retained ownership of the south-eastern corner of his land east of Flemington Road until it was sold for residential subdivision between 1910 and 1922 (**Figure 4.5**).<sup>20</sup> This land is included in the study area.

In 1911, land was resumed from the State abattoir for the State brickworks on the edge of Homebush Bay. Both the abattoir and the brickworks remained on the site until 1988, when the whole area was resumed for the construction of Sydney Olympic Park.

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18 Carney, M and Mider, D 1996, Archaeological Assessment of Homebush House and the Former Laycock and Wentworth Estates, Olympic Coordination Authority, pp19–24.

19 Painter, M and Waterhouse, R 1992, *The Principal Club, A History of the Australian Jockey Club*, Allen and Unwin, Sydney, pp 15–22.

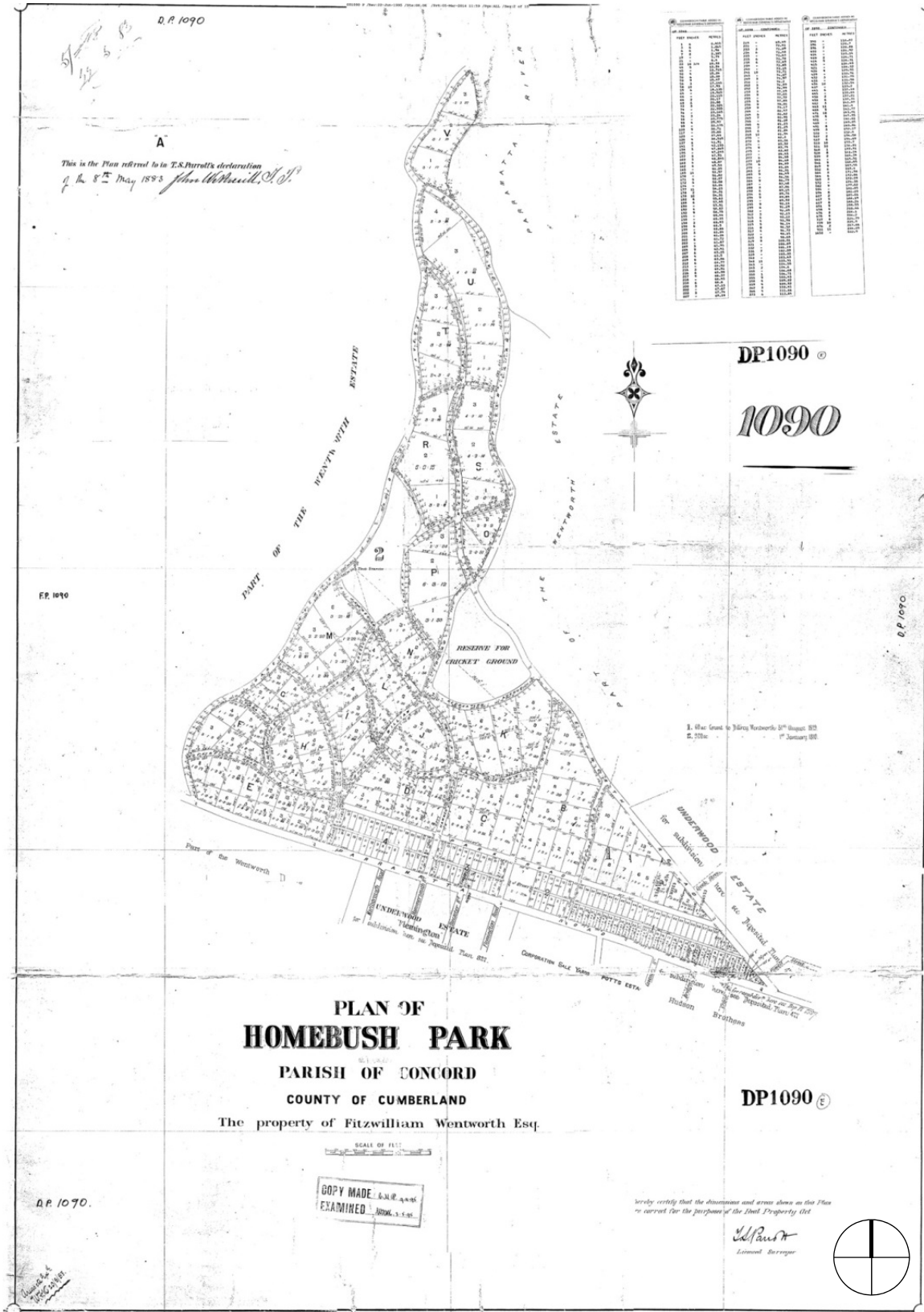
20 CT 1996-194, Department of Lands.



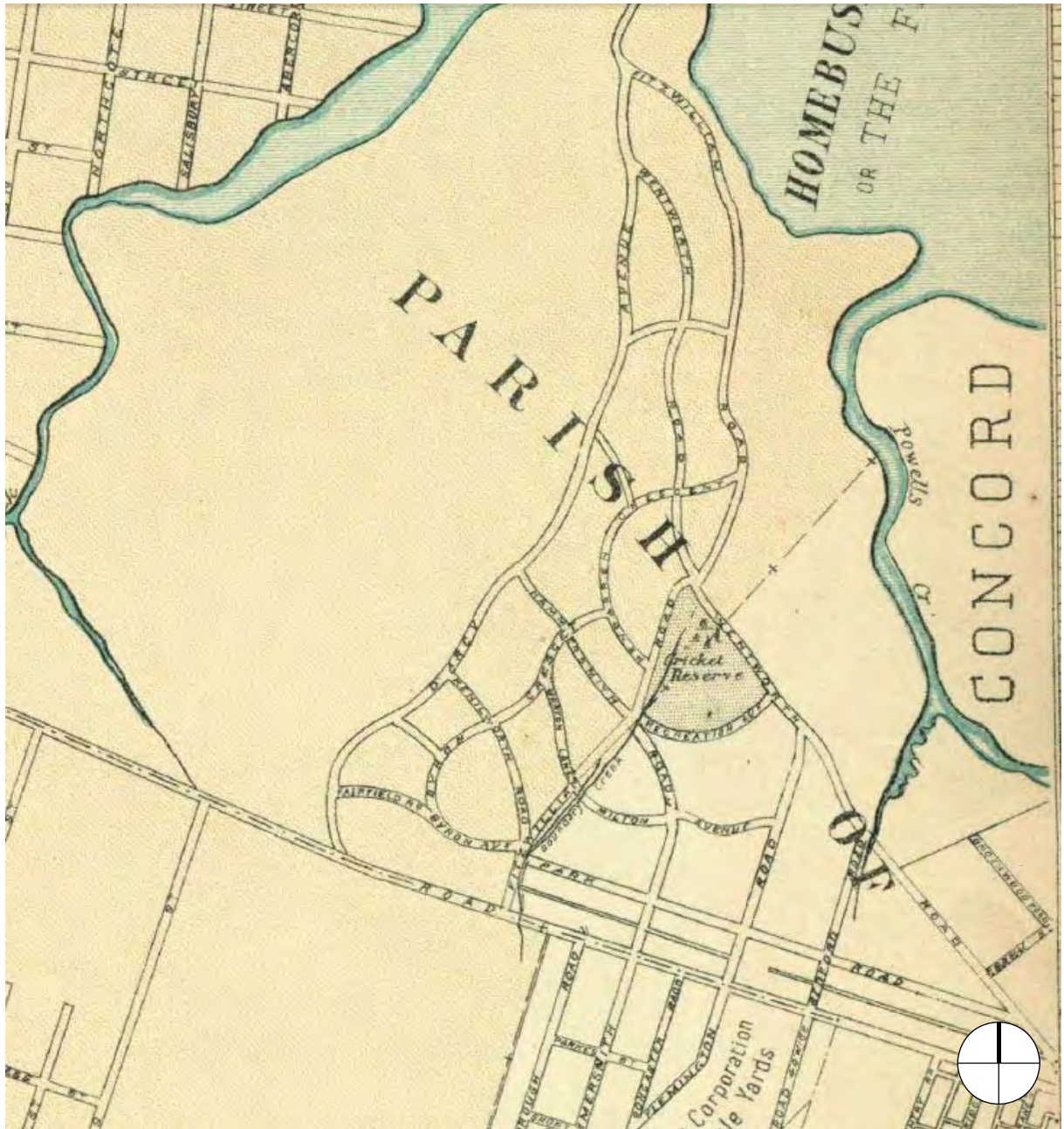
Figure 4.1 Early parish map showing the land included in the Homebush Estate of D'Arcy Wentworth and Thomas Rose's land extending to Powells Creek. (Source: Department of Lands)



Figure 4.2 Early parish map showing the land included in the Homebush Estate of D'Arcy Wentworth and Thomas Rose's land extending to Powells Creek. (Source: Department of Lands)



**Figure 4.3** Subdivision of part of the Homebush Estate by Fitzwilliam Wentworth in 1883. Only a few allotments from this subdivision were sold and most of this land was eventually purchased by the State abattoir in 1907. The eastern end of the subdivision remained in the ownership of Fitzwilliam Wentworth and sold between 1910 and 1922. (Source: Department of Lands)



**Figure 4.4** 1885–1890 map showing how the 1883 Homebush Park subdivision located within the larger Homebush Estate. The triangle of land west of Flemington Road was retained by Fitzwilliam Wentworth and sold between 1910 and 1922. (Source: Atlas of Suburbs City of Sydney Archives)

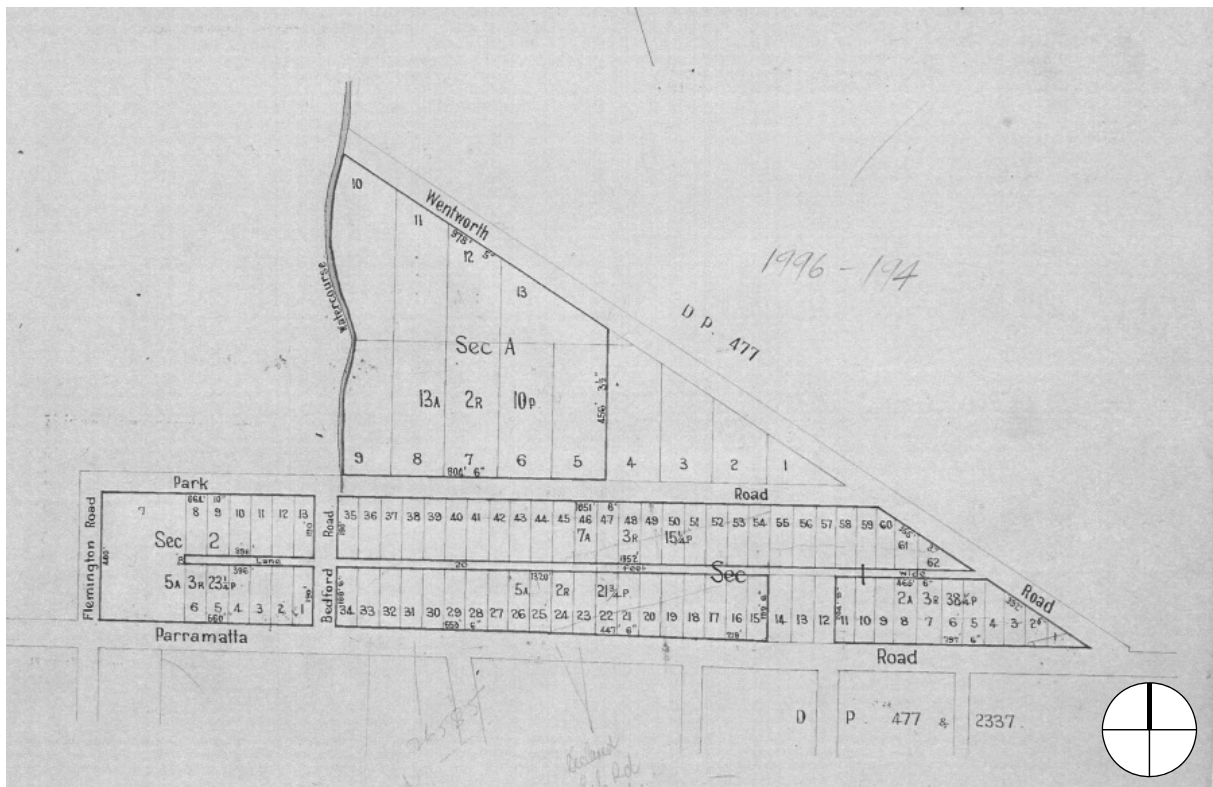
## 4.3.2 Land between Homebush Bay Drive and Powells Creek

### Homebush Bay Drive to just west of Kanoona Avenue

This section of the project corridor was part of Fitzwilliam Wentworth's 1883 subdivision. However, it did not sell and was resumed for the State abattoir in 1907. While there was some development around Flemington Street in the 1920s (presumably cottages for the abattoir staff as this land remained in the ownership of the abattoir), and the privately-owned Wentworth Hotel was built on the corner of Flemington Street and Parramatta Road in 1886 and rebuilt in the 1930s (**Figures 4.9–4.10**), the rest of this land remained as open paddocks until it became part of the Olympic site in 2000 (**Figure 4.11**). In 1897, the Homebush stormwater canal was constructed across this land just west of Bedford Road. The canal begins at Crescent Street, Homebush West and joins Powells Creek near today's Bressington Park.

### Kanoona Avenue to Park Road and Wentworth Road South

This area was also part of Fitzwilliam Wentworth's 1883 subdivision and again did not sell. However, it was retained by Wentworth and did not become part of the State abattoir (**Figure 4.5**). A map of the area from 1874 shows part of this land occupied by sale yards (**Figure 4.6**). Fitzwilliam and later WC Wentworth junior sold this land between 1910 and 1922 and some of the land was further subdivided for more intense development in the late 1920s.<sup>21</sup> Most of the development in this area appears to date from the 1920s (**Figure 4.12**). Land between Wentworth Road and the eastern end of Park Street was subdivided in 1922 by the Pastoral Finance Association Limited (**Figure 4.7**)<sup>22</sup> and part of this land was further subdivided in 1929 when Verley Drive was created (**Figure 4.8**).<sup>23</sup> Park Road does not appear in the Sands Directory until 1926.



**Figure 4.5** This is the land retained by Fitzwilliam Wentworth shown here in 1909 prior to any sales taking place. (Source: CT 1996-194 Department of Lands)

<sup>21</sup> CT 1996-194, Department of Lands.

<sup>22</sup> CT 2861-152, Department of Lands.

<sup>23</sup> DP 16473, 1929, Department of Lands.



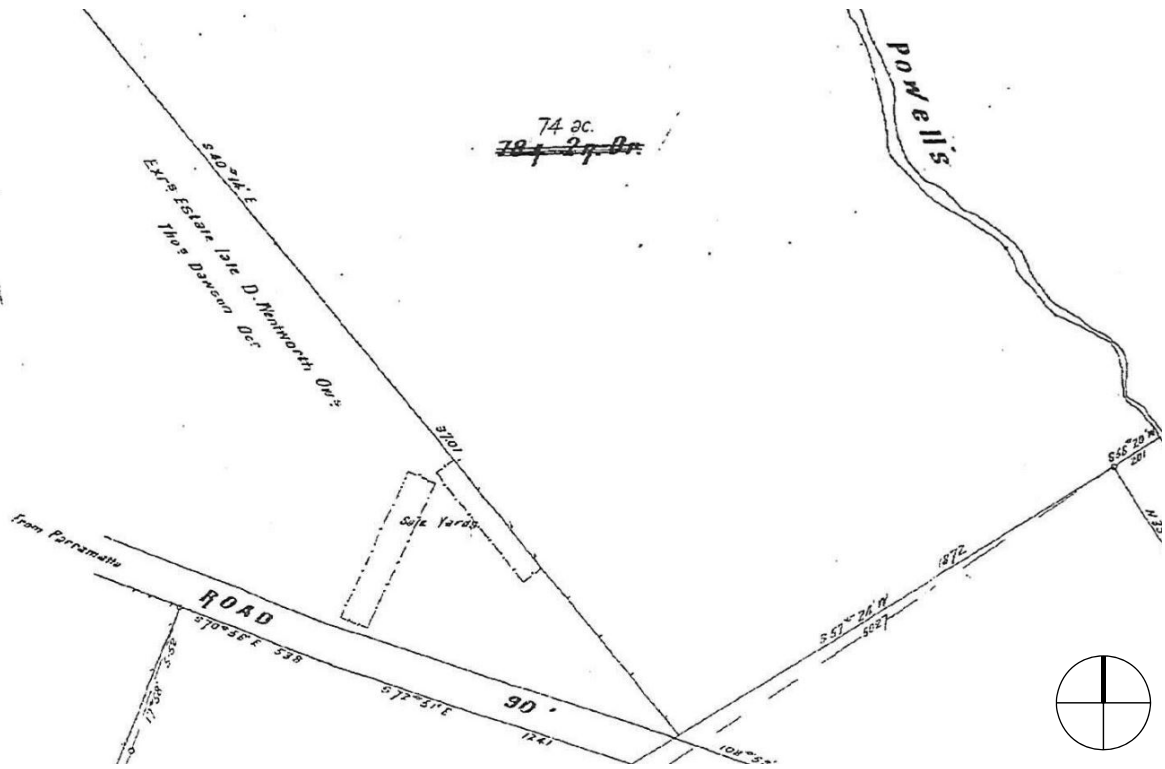
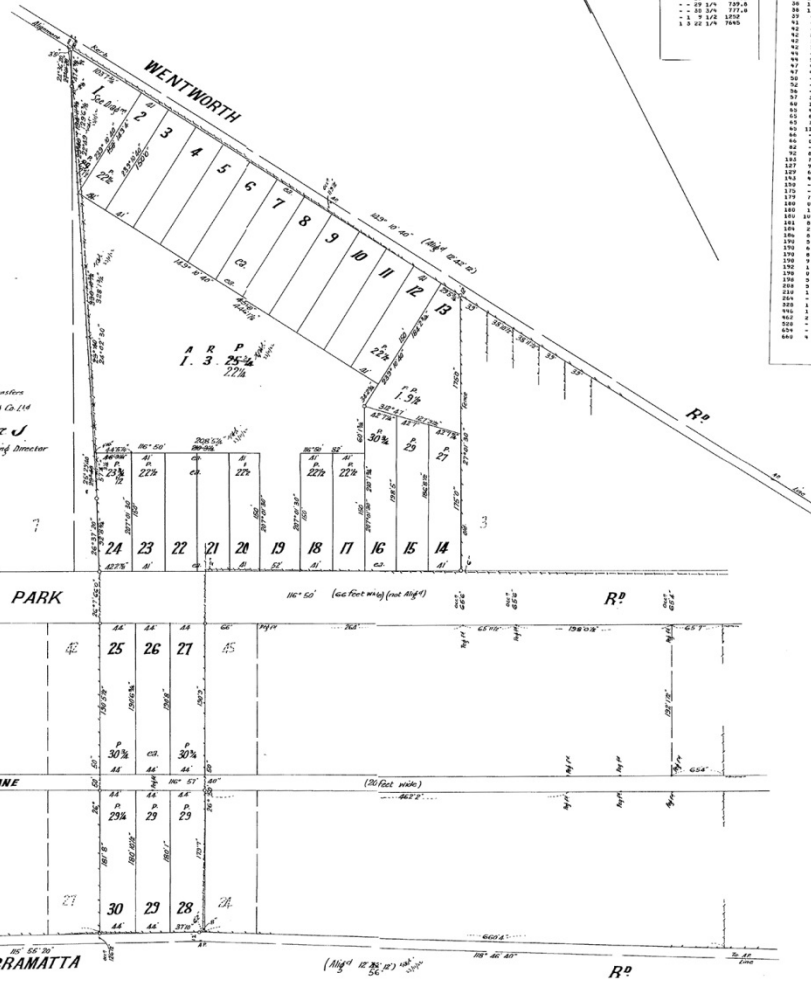
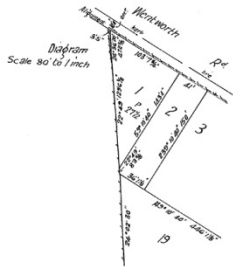


Figure 4.6 Part of the 1874 plan of the Underwood Estate (originally Thomas Rose's land) showing sale yards on part of the adjoining Wentworth Estate land within the study area. Note Wentworth Road had not been constructed at this time. (Source: DP 53772 Department of Lands)

**PLAN**  
of subdivision of land comprised in Certificates of Title Vol. 2861 Fol. 152 & Vol. 1089 Fol. 2  
Parish of Concord County of Cumberland  
Scale 80 feet to an inch



Restrictive Covenants if any will be shown on the plan.  
The Intercolonial Investments Land and Building Co Ltd  
*W.S. Douglas*  
Managing Director

CONVERSION TABLE FROM METRIC TO IMPERIAL	
FEET INCHES	METERS
0 3/4	0.009
0	0.00
0	0.00
0	0.00
0 1/2	0.013
0	0.00
0 1/2	0.013
0	0.00
0 3/4	0.019
0	0.00
0	0.00
1	0.030
1 1/4	0.038
1 1/2	0.046
1 3/4	0.053
2	0.061
2 1/4	0.070
2 1/2	0.076
2 3/4	0.083
3	0.091
3 1/4	0.100
3 1/2	0.107
3 3/4	0.114
4	0.122
4 1/4	0.130
4 1/2	0.137
4 3/4	0.145
5	0.152
5 1/4	0.160
5 1/2	0.167
5 3/4	0.175
6	0.183
6 1/4	0.190
6 1/2	0.197
6 3/4	0.205
7	0.213
7 1/4	0.220
7 1/2	0.228
7 3/4	0.235
8	0.243
8 1/4	0.250
8 1/2	0.258
8 3/4	0.265
9	0.273
9 1/4	0.280
9 1/2	0.288
9 3/4	0.295
10	0.303
10 1/4	0.310
10 1/2	0.318
10 3/4	0.325
11	0.333
11 1/4	0.340
11 1/2	0.348
11 3/4	0.355
12	0.363
12 1/4	0.370
12 1/2	0.378
12 3/4	0.385
13	0.393
13 1/4	0.400
13 1/2	0.408
13 3/4	0.415
14	0.423
14 1/4	0.430
14 1/2	0.438
14 3/4	0.445
15	0.453
15 1/4	0.460
15 1/2	0.468
15 3/4	0.475
16	0.483
16 1/4	0.490
16 1/2	0.498
16 3/4	0.505
17	0.513
17 1/4	0.520
17 1/2	0.528
17 3/4	0.535
18	0.543
18 1/4	0.550
18 1/2	0.558
18 3/4	0.565
19	0.573
19 1/4	0.580
19 1/2	0.588
19 3/4	0.595
20	0.603
20 1/4	0.610
20 1/2	0.618
20 3/4	0.625
21	0.633
21 1/4	0.640
21 1/2	0.648
21 3/4	0.655
22	0.663
22 1/4	0.670
22 1/2	0.678
22 3/4	0.685
23	0.693
23 1/4	0.700
23 1/2	0.708
23 3/4	0.715
24	0.723
24 1/4	0.730
24 1/2	0.738
24 3/4	0.745
25	0.753
25 1/4	0.760
25 1/2	0.768
25 3/4	0.775
26	0.783
26 1/4	0.790
26 1/2	0.798
26 3/4	0.805
27	0.813
27 1/4	0.820
27 1/2	0.828
27 3/4	0.835
28	0.843
28 1/4	0.850
28 1/2	0.858
28 3/4	0.865
29	0.873
29 1/4	0.880
29 1/2	0.888
29 3/4	0.895
30	0.903
30 1/4	0.910
30 1/2	0.918
30 3/4	0.925

I Edward Henry Cowdery of Sydney licensed Surveyor, specially licensed under the Real Property Act, do hereby solemnly and sincerely declare that the boundaries and measurements shown in this plan do accord for the purposes of the said Act and that the survey of the land in which the plan is shown has been made under my immediate supervision and I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the said Act 1900.

Subscribed and sworn before me at Sydney this 29th day of September A.D. 1922.

*J. W. W. J. P.*  
Deputy Registrar-General

*E. H. Cowdery*  
Licensed Surveyor

Returned to Registrar-General  
Date of Survey June 1922

Figure 4.7 1922 re-subdivision of land between Wentworth Road and Parramatta Road. (Source: DP 11529 Department of Lands)

Municipality of Homebush  
Shire of B905367 (s. 11, 23)

PLAN  
OF THE VERLEY ESTATE

being a subdivision of Lots 1, 2, 3, 4, 5, 6, 19, 20 & 21. Dep. Plan. 11529

PARISH OF CONCORD COUNTY OF CUMBERLAND

Scale 50 feet to an inch

16473  
13<sup>th</sup> December 1929  
*Richard Taylor*

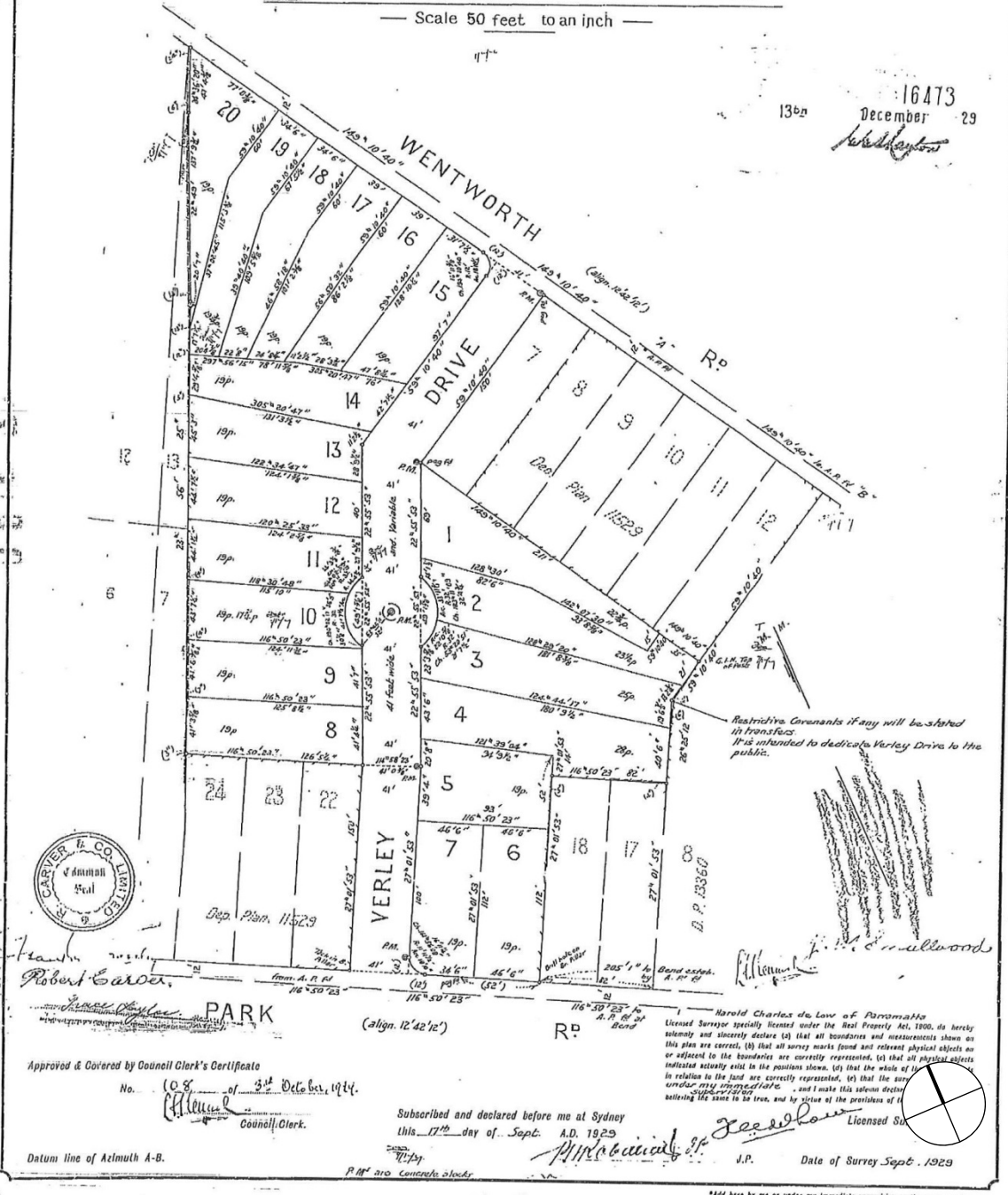


Figure 4.8 1929 Verley Estate subdivision, part of Wentworth's Homebush Estate lands. (Source: Department of Lands)



Figure 4.9 The newly re-constructed Wentworth Hotel, June 1936. (Source: Noel Butlin Archives)



Figure 4.10 The Wentworth Hotel in the 1960s. (Source: Noel Butlin Archives)



**Figure 4.11** 1943 aerial showing the cottages fronting Flemington Road and Welfare Street built for the abattoir staff. The Wentworth Hotel is shown on the corner of Flemington Road and Parramatta Road. (Source: Department of Lands)



**Figure 4.12** 1943 aerial view showing development within the wedge of land bound by Parramatta Road and Wentworth Road, part of the 1883 subdivision of part of the Homebush Estate. Land from the 1883 subdivision was redeveloped and construction in this area is mostly from the 1920s. Park Road first appears in the Sands Directory in 1926. Land to the west of this subdivision was mostly owned by the abattoir. Land on the eastern side of Wentworth Road was included in the 1880 subdivision of the Underwood Estate. (Source: Department of Lands)

## Wentworth Road to Powells Creek

This land was part of 70 acres granted to Thomas Rose in 1798, which was purchased by Edward Powell and then sold to James Underwood (Edward Powell's son-in-law) in 1823. James Underwood owned large areas of land at Homebush on both sides of Parramatta Road (**Figure 4.13**).<sup>24</sup>

Underwood's land on the northern side of Parramatta Road was included in an 1880 subdivision (DP 477) and incorporated the land between Wentworth Road and Powells Creek (**Figure 4.13**). Underwood Road was created as part of this subdivision. The road referred to as Creek Street on the 1880 plan was later renamed Pomeroy Street and extended across into the 1883 Wentworth subdivision (DP 1090) to link the two developments.

Development within Underwood's 1880 subdivision was slow, but an 1881 plan shows that some development had taken place along Creek Street (Pomeroy Street) and Wentworth Road (**Figure 4.14**). Land fronting Powells Creek was subdivided into large lots of between one and two acres which operated as market gardens (**Figures 4.13–4.14**).

The majority of residential development in this area did not begin until the 1920s when the land was re-subdivided into smaller residential lots. In 1921, the land north of Pomeroy Street between Wentworth and Underwood roads was subdivided (DP 11050) creating Cartwright and Coleman Avenues, later Bellona Avenue was added north of Coleman Avenue (**Figure 4.16**). In 1928, several of the large market garden lots plus some of the smaller lots fronting Powell Street were re-subdivided as the Ismay Estate, creating Ismay Avenue within this subdivision (**Figure 4.17**). Land along Powells Creek was resumed by the council and now forms the Ismay Reserve. Land between Underwood Street and Powells Creek north of Pomeroy Street remained in use as market gardens and today is occupied by the Homebush Substation (**Figure 4.18**).

From the 1930s, Powells Creek was 'straightened', moved eastwards and finally transformed into a concrete stormwater canal after reclamation in 1948. Reclamation along the eastern side of Powells Creek canal, north of Conway Avenue, continued as late as 1982.<sup>25</sup>

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24 Strathfield Council, 'European Settlement', viewed 15 June 2015 <<https://www.strathfield.nsw.gov.au/home/council/about-strathfield/history-of-strathfield-local-government-area/european-settlement/>>.

25 'The Changes along Powells Creek: and the Incomplete Destruction of the Dismal Swamp', viewed 11 March 2014 <<http://dl.dropboxusercontent.com/u/5737284/powells-ck-wetlands.htm>>.

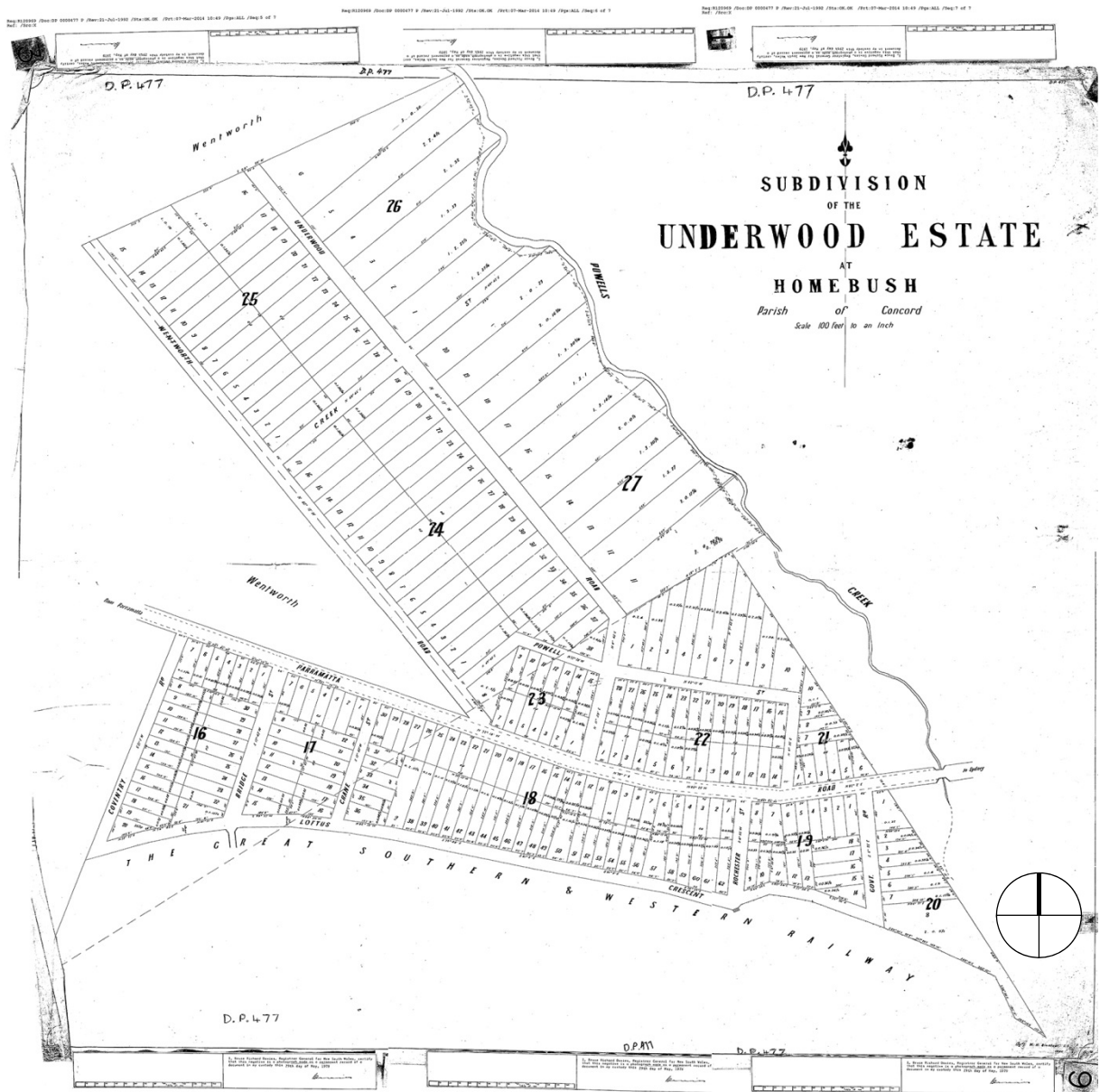


Figure 4.13 1880 subdivision of part of the Underwood Estate at Homebush. (Source: DP 477, Department of Lands)

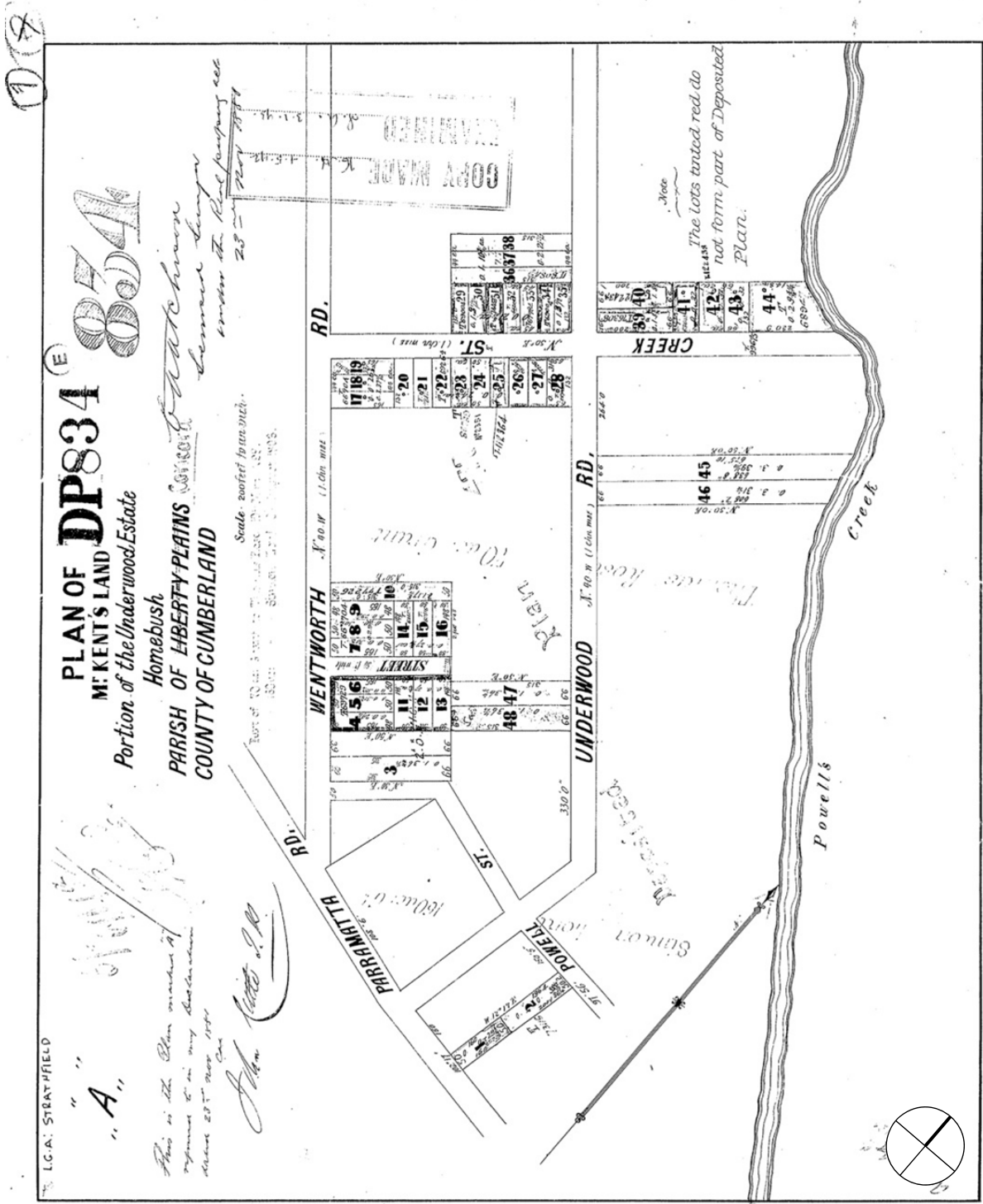


Figure 4.14 1881 subdivision plan showing development on the Underwood Estate at this time. (Source: Department of Lands)



M. HOMEBUSH

61946

DP 6194

PLAN

Of a Subdivision of Lots 28 and 29, Sec 24 of D.P. 477.

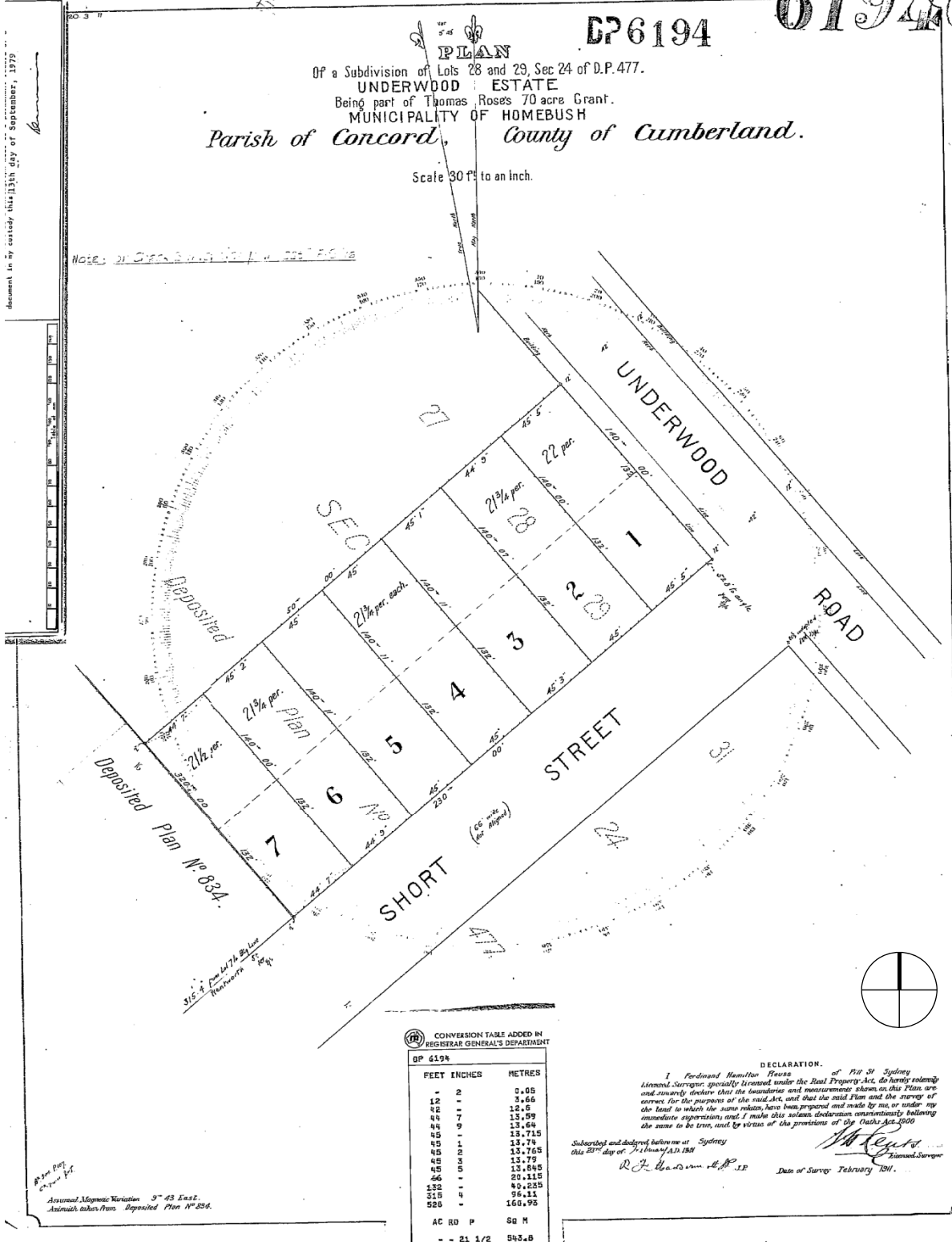
UNDERWOOD ESTATE

Being part of Thomas Roses 70 acre Grant.

MUNICIPALITY OF HOMEBUSH

Parish of Concord, County of Cumberland.

Scale 80 ft to an inch.



CONVERSION TABLE ADDED BY REGISTER GENERAL'S DEPARTMENT

DP 6194

FEET	INCHES	METRES
-	2	0.60
12	-	3.66
16	-	4.88
44	7	13.99
44	9	13.69
45	-	13.715
45	1	13.74
45	2	13.765
45	3	13.79
45	4	13.815
45	5	13.84
45	6	13.865
45	7	13.89
45	8	13.915
45	9	13.94
46	-	13.965
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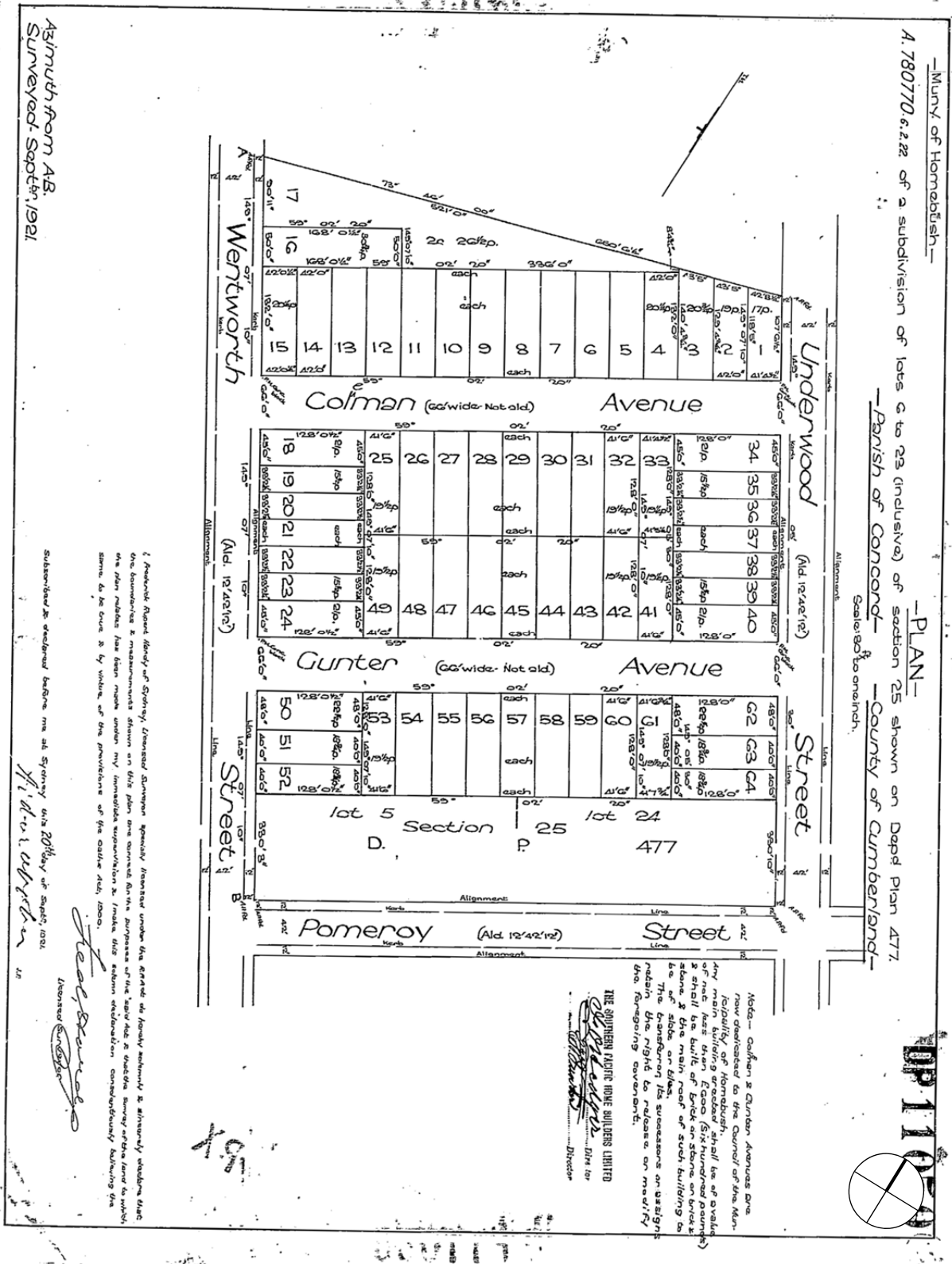


Figure 4.16 1921 subdivision (DP 11050) which created Cartwright (originally Gunter) and Coleman Avenues, and later Bellona Avenue north of Coleman Avenue. (Source: Department of Lands)

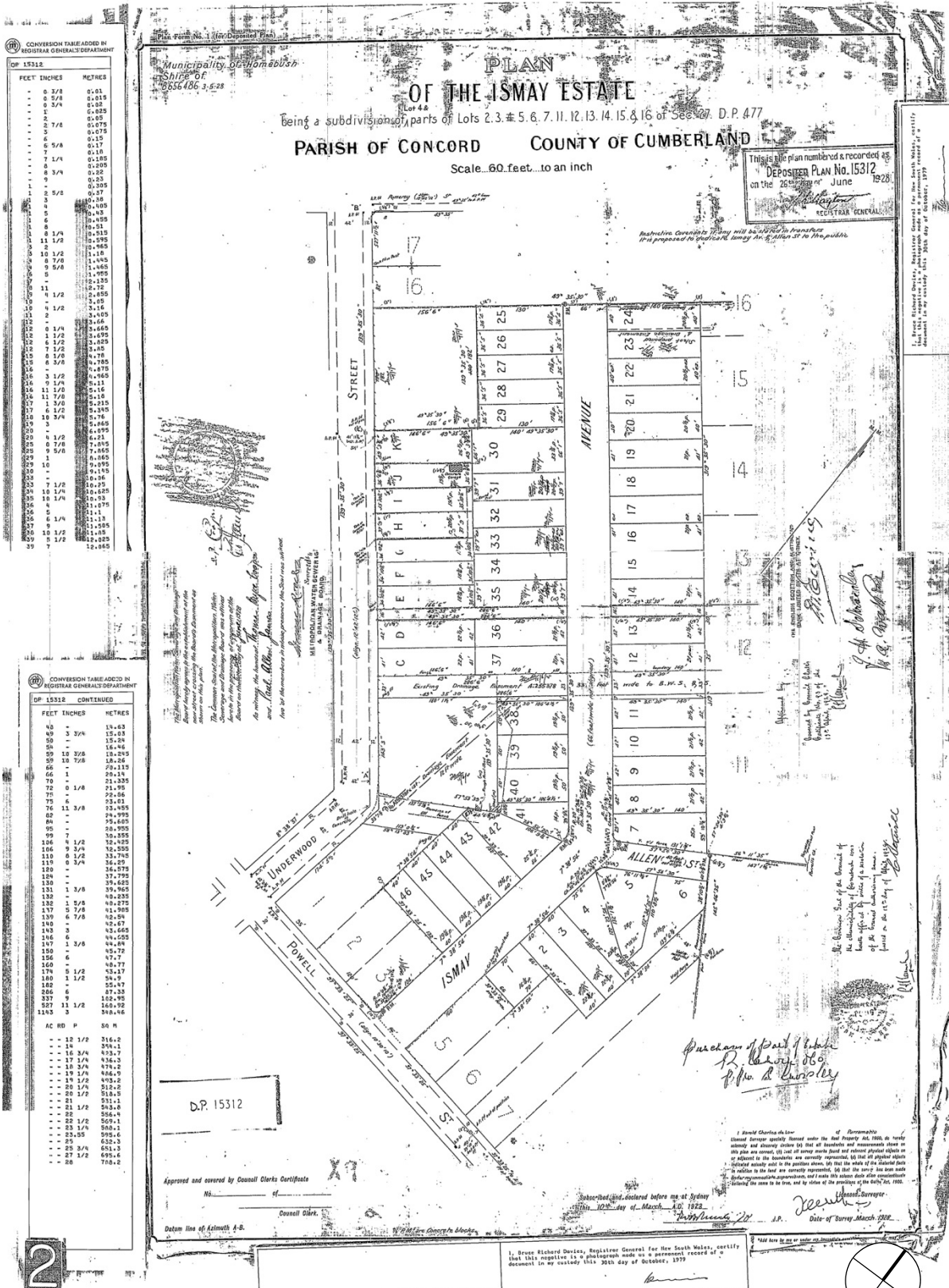


Figure 4.17 1928 subdivision of the Ismay Estate, Homebush. (Source: Department of Lands)



**Figure 4.18** 1943 aerial showing development on the Underwood Estate from Wentworth Road to Powells Creek. (Source: Department of Lands)

## 4.4 Area 2 – North Strathfield and Concord

### 4.4.1 Early European development

Land along from the eastern side of Powells Creek to Concord Road (now part of the suburb of North Strathfield) was originally part of Thomas Rowley’s large Burwood land holdings (**Figure 4.19**). Thirty-nine acres of Rowley’s land located on the northern side of Parramatta was purchased by Edward Powell – one of the Liberty Plains farmers in the early years of the twentieth century. On his death in 1814 this land was inherited by his wife and then by his son Edward Powell junior (**Figure 4.20**) (see **section 4.4.2**).

Land on the eastern side of Concord Road, east to John Street and between Alexandra Street and Parramatta Road, was also originally part of Thomas Rowley’s large Burwood land holdings. This land, however, was purchased by George Robert Nicholls, son of Isaac Nichols – an early Concord resident – in 1835 and was subdivided as the Village of Concord in 1837 (**Figure 4.29**). Very little development took place within this subdivision and a village was never really formed (see **section 4.4.3**).

Land to the north and east of the Village of Concord subdivision was originally part of the Government’s Longbottom Farm and Stockade established on 700 acres during the early years of the colony (**Figure 4.19**). Land north of Alexandra Street was included in an 1858 subdivision of the Longbottom Farm into small acre lots of between five and 11 acres (**Figure 4.31**). Houses with supporting out buildings and stables were developed on these small farm allotments and some of the sites included orchards and small market gardens (see **section 4.4.4**).

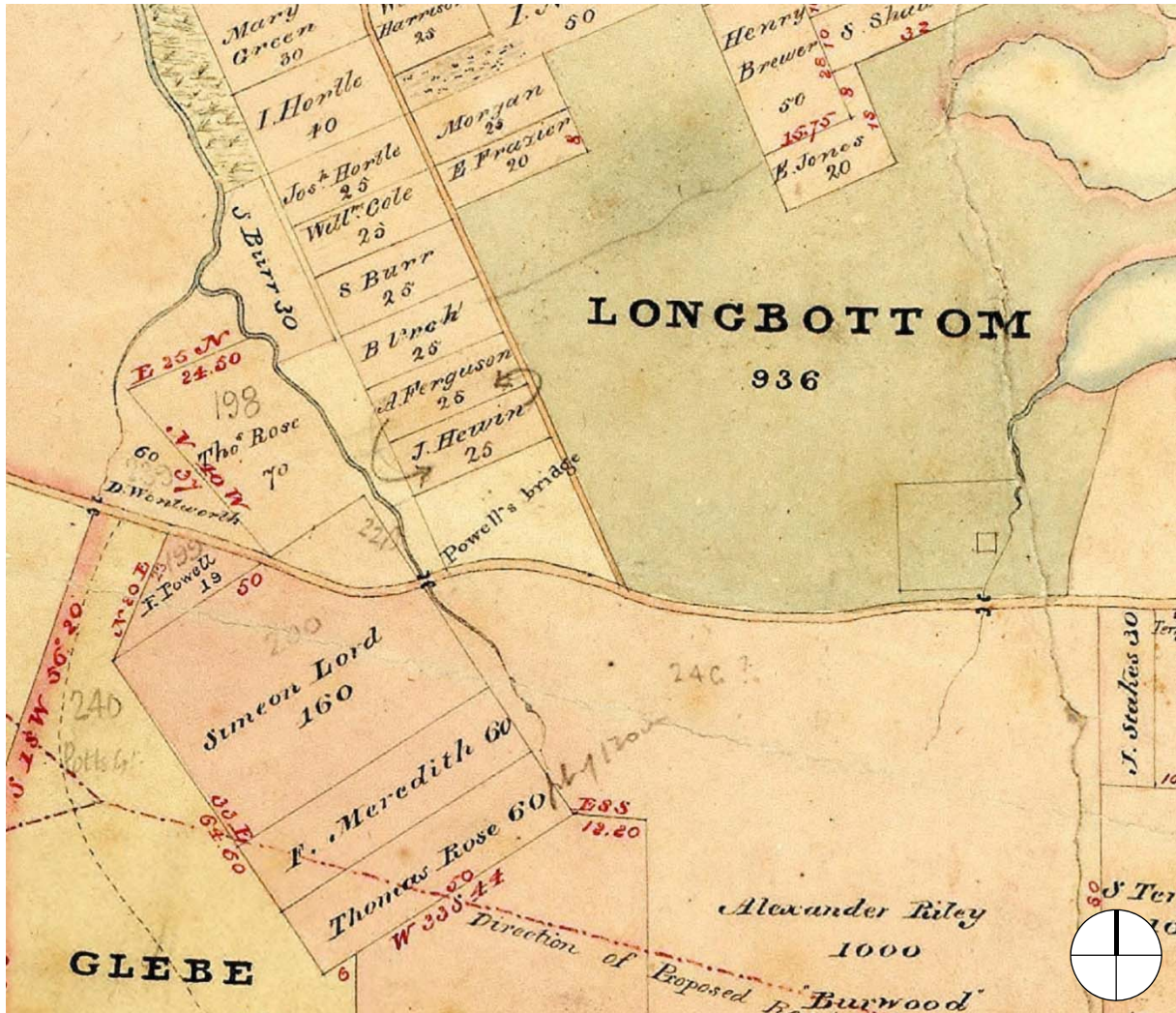


Figure 4.19 Early parish map of Concord dated circa 1836 just prior to the laying out of the Village of Concord and the Village of Longbottom. Powell's Bridge lies just west of Edward Powell's land which was originally part of Thomas Rowley's grant. Concord Road is already well defined between Powell's land and Longbottom Farm. (Source: Department of Lands)

#### 4.4.2 Subdivision from Powells Creek to Concord Road

When Edward Powell junior inherited his 39 acres at Homebush he was living at Richmond and leased the Homebush land to cattle dealers.<sup>26</sup> An 1882 plan shows no structures on his land except for a small cottage on the corner of Parramatta Road and Concord Road on land Powell had already sold (Figure 4.20).

Two acres of Powell's land was resumed by the Commissioner for Railways in 1882 for the construction of the Strathfield to Hornsby section of the Northern Line which opened in September 1886 (Figure 4.21).

<sup>26</sup> Primary Application No. 5672, Department of Lands.

Powell sold the remaining 37 acres to the Excelsior Land Investment and Building Company and Bank Limited in April 1885.<sup>27</sup> They subdivided the land into 367 residential allotments creating Princess Avenue and Carrington, Sydney, Park and Young streets as part of this subdivision (**Figure 4.22**). Land sales began in December 1886 and by 1896 over half of the allotments had been developed, especially along Concord Road, the northern side of Sydney Street and some lots along Parramatta Road (**Figures 4.23–4.24**). By the turn of the century almost all of the lots had been developed (**Figures 4.25–4.26**).

On part of the Powell's land that lay on the western side of the railway line, Arnott's Biscuits purchased land in 1906 to construct a new factory complex. This North Strathfield site was located between the railway and George Street near Parramatta Road (**Figure 4.41**). In 1920 they expanded their factory site with the construction of an additional building located on the opposite side of George Street and connected to the original building by an overhead walkway. By 1933, 2500 workers were employed there. As part of their advertising campaign, Arnott's painted their logo on the railway bridge built across Parramatta Road near their factory in 1914. This sign remains despite the factory relocating in 1997.<sup>28</sup>

### **The railway bridge and underpass**

The railway crossed Parramatta Road just west of Queen Street, where a level crossing was constructed in 1886. By 1906, there were already requests by local councils to abolish the level crossing and to build a railway bridge over Parramatta Road.<sup>29</sup> This took place in 1914 and included considerable roadworks. A new cutting was made for Parramatta Road to go underneath the railway line and a steel railway bridge was constructed. The Parramatta Road cutting was built just south of the original road alignment. The original alignment of Parramatta Road was renamed as an extension of Queen Street on the eastern side of the railway line and Railway Street on the western side of the line (**Figure 4.28**). This old alignment of Parramatta Road remains today, even after all the changes that occurred during the construction of the M4.

### **The M4 Motorway**

Land within Powell's subdivision was greatly affected by the construction of the M4. Initially, access to Parramatta Road was provided at Concord Road via Sydney and Young streets. However, because the construction of the freeway east of Concord was cancelled, this area became a major intersection with Parramatta Road. The Department of Main Roads (DMR) had to integrate this prematurely truncated freeway into the existing road system and in 1985 a new improved connection to Parramatta Road was opened. At this time Sydney Street was turned into an east-bound off-ramp and the freeway mainline was constructed under the newly re-aligned Concord Road to meet Parramatta Road where the old alignment of Concord Road had been (**Figures 4.41–4.42**).<sup>30</sup> This process included the demolition of many of the buildings between Sydney Street and Parramatta Road including all the properties on the western side of the original alignment of Concord Road south of Alexandra Street. Most of the demolished properties were late-nineteenth century houses but one was the Four Ways Garage at the corner Parramatta Rd and Concord Road (**Figure 4.27**).

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27 CT 724-26, Department of Lands

28 Strathfield Heritage, 'Arnott's Biscuits Homebush', viewed 28 February 2014<<http://strathfieldheritage.org/industry-commerce/arnotts-biscuits-homebush/>>.

29 *Sydney Morning Herald*, 1 January 1906.

30 'M4 Western Motorway—Construction Information', viewed 15 June 2015 <<http://www.ozroads.com.au/NSW/Freeways/M4/constructioninfo.htm>>.

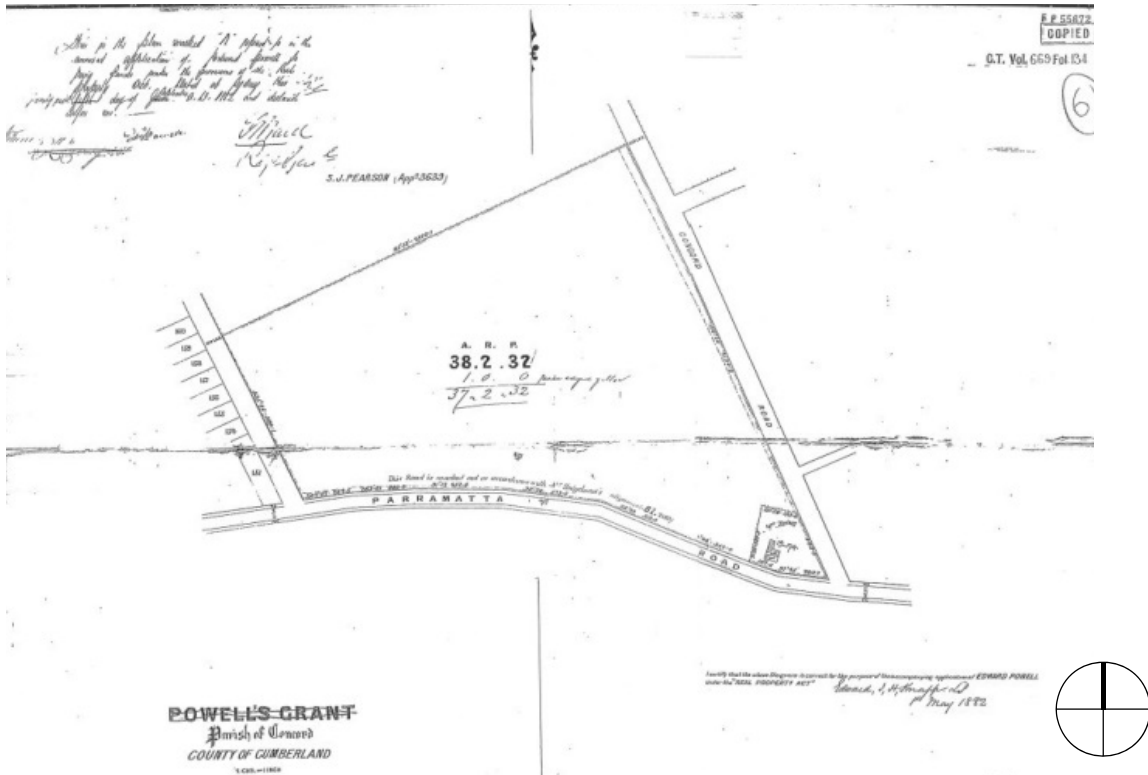


Figure 4.20 1882 plan of Edward Powell's land showing a small house in the south-eastern corner of the site. (Source: DP 55672, Department of Lands)

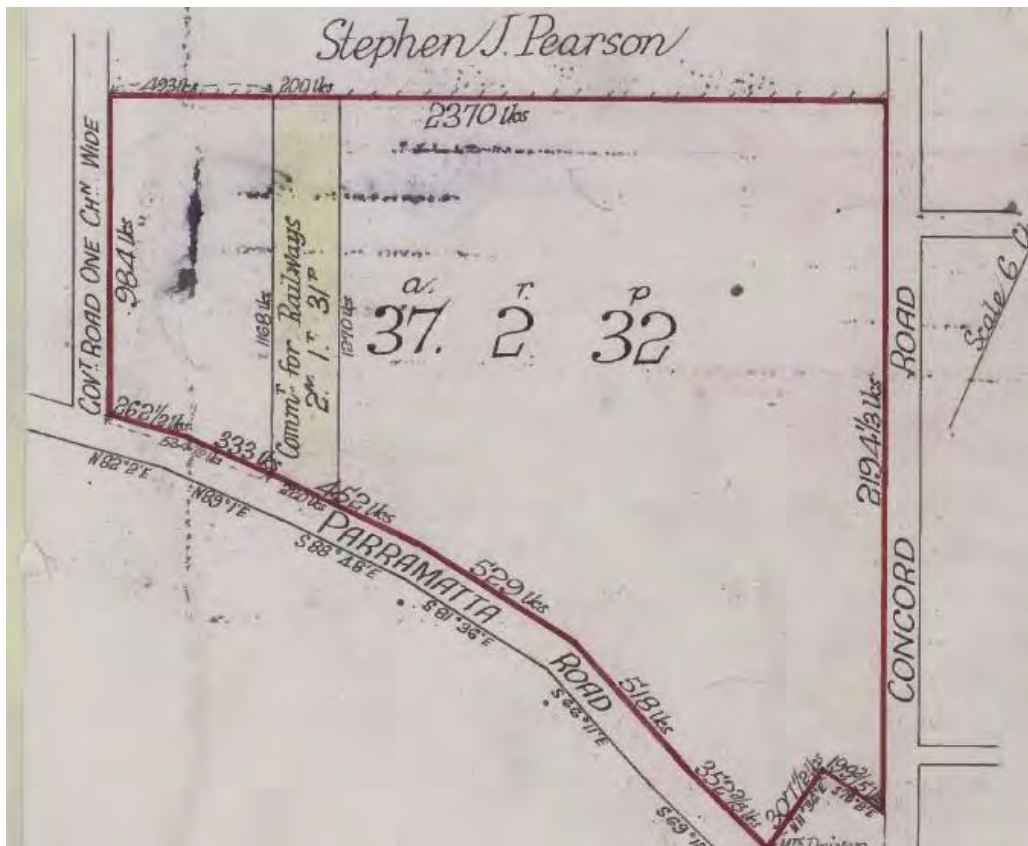


Figure 4.21 1884 plan of Edward Powell's land showing the land set aside for the railway. (Source: CT 724-26, Department of Lands)