POWERHOUSE ULTIMO

CONSERVATION MANAGEMENT PLAN 2022

ACKNOWLEDGEMENT

The Powerhouse pays respect to the Gadigal people of the Eora Nation, the traditional custodians of the lands on which Powerhouse Ultimo stands. We recognise their continuous connection to this place.

We honour the clans, nations, families that have always been connected to this site, and respect the diverse Aboriginal and Torres Strait Islander peoples that now call this place home.

We recognise Aboriginal connections to this place as a cultural continuum – resilient, resistant, and responsive to emerging and receding industries. This has always been a place of story, ceremony and gathering, it is our responsibility that this continues to be a place for the broader community and reflects their stories.

Cover: Ultimo Power Station, 1911 (Source: City of Sydney Archives, SRC14562)

CONTENTS

EXECUTIVE SUMMARY

Curio Projects Pty Ltd has been commissioned by the Powerhouse to prepare an updated Conservation Management Plan (CMP) for the Powerhouse site to inform the Powerhouse Ultimo renewal. This report builds upon the previous Conservation Management Plan written by Architectural Projects in 2003, and includes research undertaken by Design 5 Architects.

The main objective of this Conservation Management Plan (CMP) is to enable the sustainable management of the heritage elements of the Powerhouse site. It will guide and support the Powerhouse as the government agency responsible for the daily upkeep, administration and operation of the site. The CMP is also a strategic reference document to help inform the ongoing conservation of the site and future decision making. Conservation management planning is critical to the future of Powerhouse Ultimo and it starts with an understanding of the site's history and its heritage values, including the community's appreciation of these values. This CMP has been developed to provide robust and durable heritage conservation guidance over the next 5-10 years, and is a foundational document that will guide the Powerhouse renewal.

This 2nd edition of the CMP is not a definitive account of the site's history nor is every aspect of the site documented. Its aim is to review the significant values of the site, to discuss issues that are relevant, and set out policies that aim to retain and conserve these values. This CMP assesses the overall heritage values of the Powerhouse site including its curtilage, buildings, fabric, archaeological potential, and intangible values to guide the conservation, maintenance, restoration and any potential future development. This CMP proposes an overarching framework to be applied to any future works likely to affect the heritage values of the site, while also considering the tangible and intangible historical values of the overall site.

Ultimo Power Station, Darling Harbour Goods Line and construction work for new Fruit Market at Haymarket, 1911 (Source: City of Sydney Archives, NSCA CRS 51/2525)

HERITAGE LISTINGS

A summary of all relevant heritage listings (statutory and non-statutory registers) located within the Powerhouse site is presented in Table I.1 for reference. Figure I.1 and Figure I.2 show the mapped locations of State and local heritage items. Further discussion of relevant heritage legislation and heritage listings and the implications, obligations and constraints with regards to the management of the site as a whole, is provided in Section 5.1 of this CMP.

Table I.1 Summary Table of Heritage Listings within the Powerhouse site (statutory listings highlighted in grey)

REGISTER/LISTING	DETAILS	STATUS	LISTING NO.
State Heritage Register (See Figure 1.27)	Ultimo Power House	Registered	02045
	Ultimo Post Office	Registered	00502
City of Sydney LEP (See Figure 1.28)	Powerhouse Museum Former Warehouse Buildings, including interiors	Registered	I2031
	Former Ultimo Post Office including interior	Registered	I2030
Section 170 Heritage Register (See Figure 1.28)	Water Cooling System and Manifold	Section 170 (Property NSW)	Section 170
	The Darling Harbour Rail Corridor	Section 170 (Property NSW)	Section 170
Register of the National Estate	Ultimo Post Office	Formerly registered	N/A
	The Powerhouse Museum (Stage One) (Harwood Building)	Formerly registered	N/A
	The Powerhouse Museum (Stage Two)	Formerly registered	N/A
Register of the National Trust (NSW)	Ultimo Power House	Registered	S11648
	Former Ultimo Depot Tram Shed (Powerhouse Museum)	Registered	S10611
	Ultimo Post Office	Registered	S9302

Figure I.1 SHR Listings (Source: Curio 2021 over Nearmap base aerial)

Figure I.2 LEP and s170 Listings [Water Cooling System and Manifold not shown] (Source: Curio 2021 over Nearmap base aerial)

OVERVIEW OF HISTORY

Pre 1788
The Ultimo area is home to the Gadigal and Wangal people of the Eora nation who have maintained their connection to country despite the seismic changes brought by colonisation.

1803
First land grant to John Harris in Ultimo.

1855
Darling Harbour Goods Line opened.

1859
Subdivision of Ultimo Estate. Powerhouse Ultimo Site located on Blocks 20 and 23.

1880
Technological, Industrial and Sanitary Museum (to later become Museum of Arts and Applied Sciences) established and later housed from 1881 in the Garden Palace, Sydney Botanic Gardens. On 22 September 1882 fire at the Garden Palace destroyed the first collection.

1897–99
Construction of Ultimo Power House and Ultimo Tram Shed.

1899
Ultimo Power House officially completed 29 November 1899, including Engine House, North Annex, Old Boiler House, and Pump House. Harris and George Street tramline officially opened on 8 December 1899.

1901
Ultimo Post Office opened on the corner of William Henry and Harris Streets.

1902–05
Major extensions to Boiler House and Engine Room creating Turbine Hall.

1908
Extension to Ultimo Tram Shed.

1922–26
Switch House constructed.

1923–28
Construction of new underground water conduits connecting the Power House to Darling Harbour.

1929–1931
Major remodelling and modernisation of the Ultimo Power House.

1953
Ultimo tram depot closed on 27 June 1953.

1963
Ultimo Power House closed 11 October 1963.

1967–68
Demolition of large portion of former Pump House for widening of William Henry Street Bridge.

1977
Boiler House chimney stacks demolished to below roof line, with most of the Power House plant and equipment removed by 1976.

1979
The New South Wales Premier Neville Wran announced the Ultimo Power Station and Tram Depot were to become the new home of the Museum of Applied Arts and Sciences.

1981
Stage 1 of the Power House redevelopment project opened in the former Ultimo Tram Depot (Harwood Building).

1982–87
Construction works for the adaptive reuse of the former Ultimo Power House buildings.

1984
The Darling Harbour Rail Corridor (the Goods Line) closed.

1988
Stage 2 of Powerhouse Ultimo redevelopment project opened in adapted Power House buildings and new Wran building.

2008
New Museum of Applied Arts and Sciences volunteer centre opened in the restored Ultimo Post Office.

2011–13
Powerhouse Museum Revitalisation Project.

2015
The Goods Line interpreted and developed as a public park and urban connector.

2020
Ultimo Power House listed on the NSW State Heritage Register.

2020
July 4, New South Wales Treasurer, Dominic Perrottet, and Arts Minister, Don Harwin, announced Powerhouse Ultimo will be retained and renewed.

2021
June 16, NSW Arts Minister, Don Harwin, announced a transformative $480–$50 million investment into the renewal of Powerhouse Ultimo.

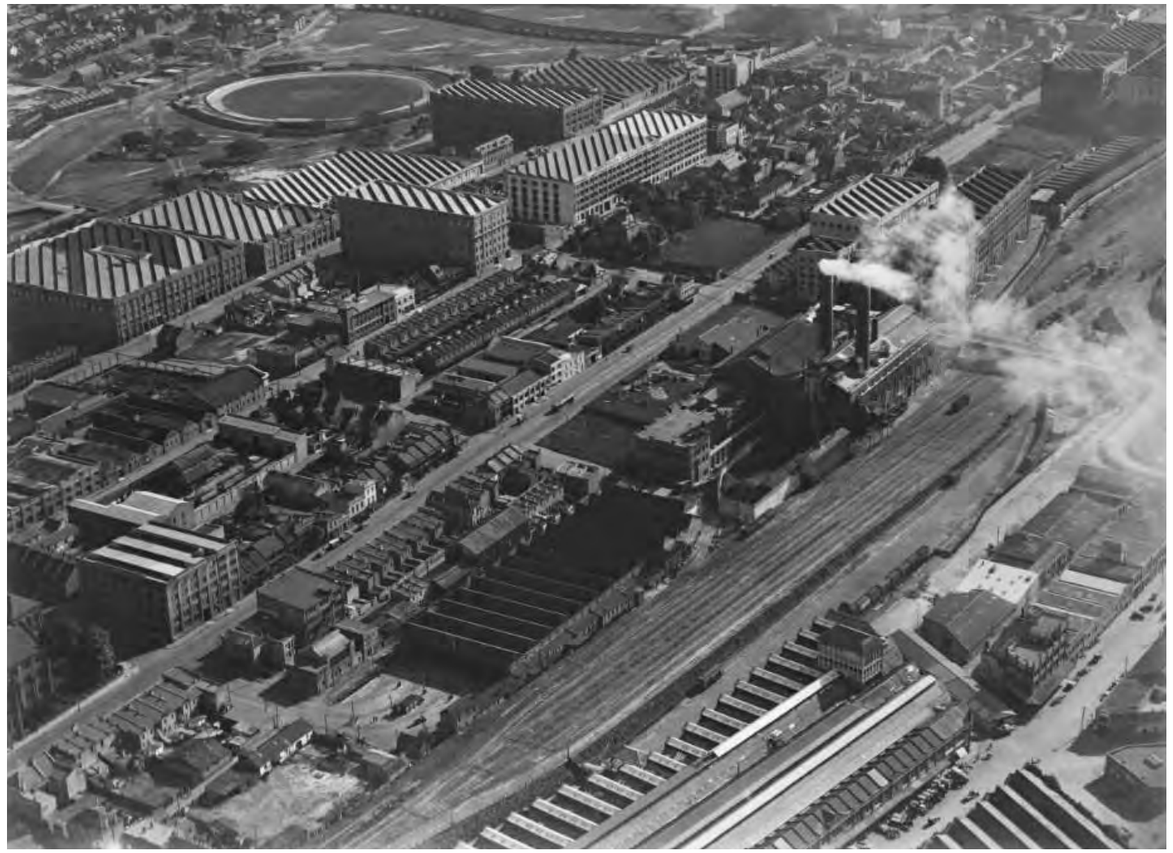


Figure I.3 Baden H. Mullaney, Aerial view showing Power House with new concrete coal store south of Boiler House. Tram Shed to the south, Goods Line along the eastern boundary, 1932 (Source: NLA PIC Row 14/7/4 #PIC/15611/7980)

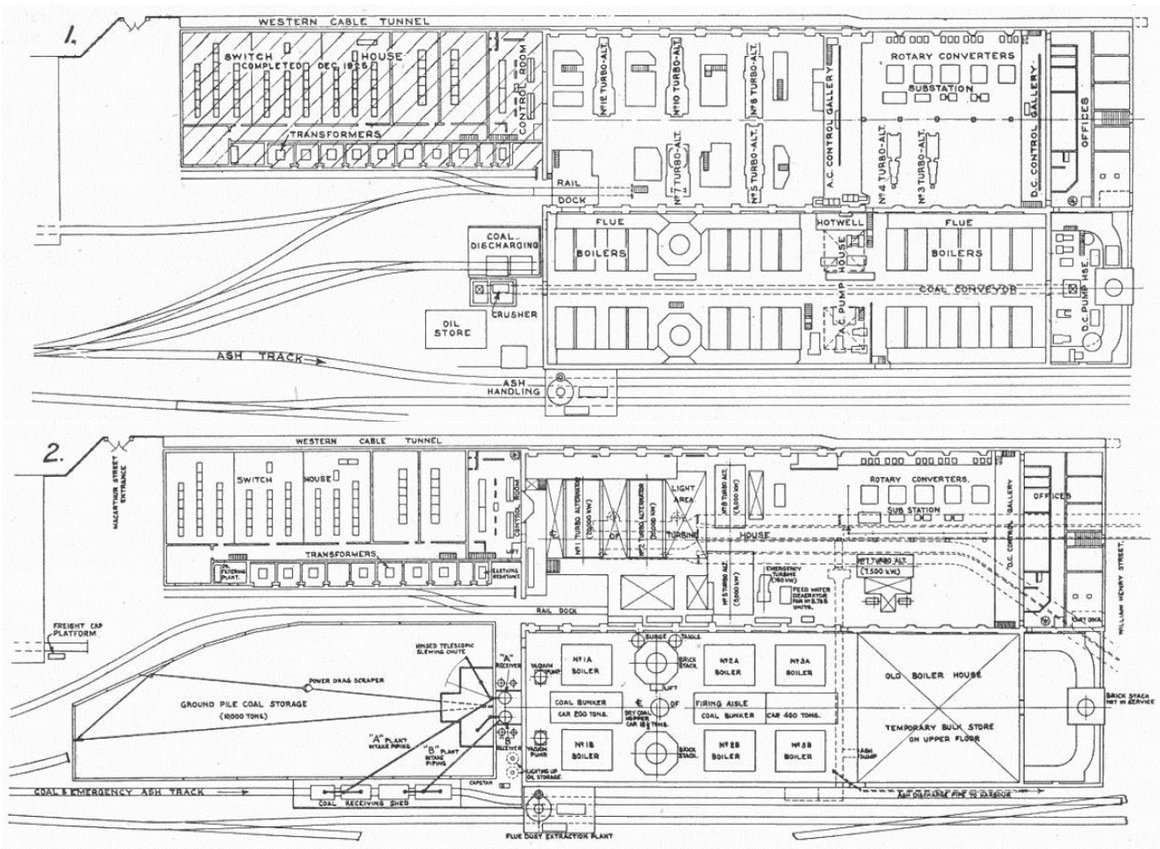


Figure I.4 Pre 1933 (top) and Post 1933 (bottom) Configuration of Ultimo Power House (Source: Myers, 1933 p.254)

Figure I.5 Goods loco 3381 steams across the Ultimo Road underbridge with the three chimneys of Ultimo Power Station in the background. (Source: The Goods Line – then and now – Inside the Collection (maas.museum) Accessed 23 May 2022)

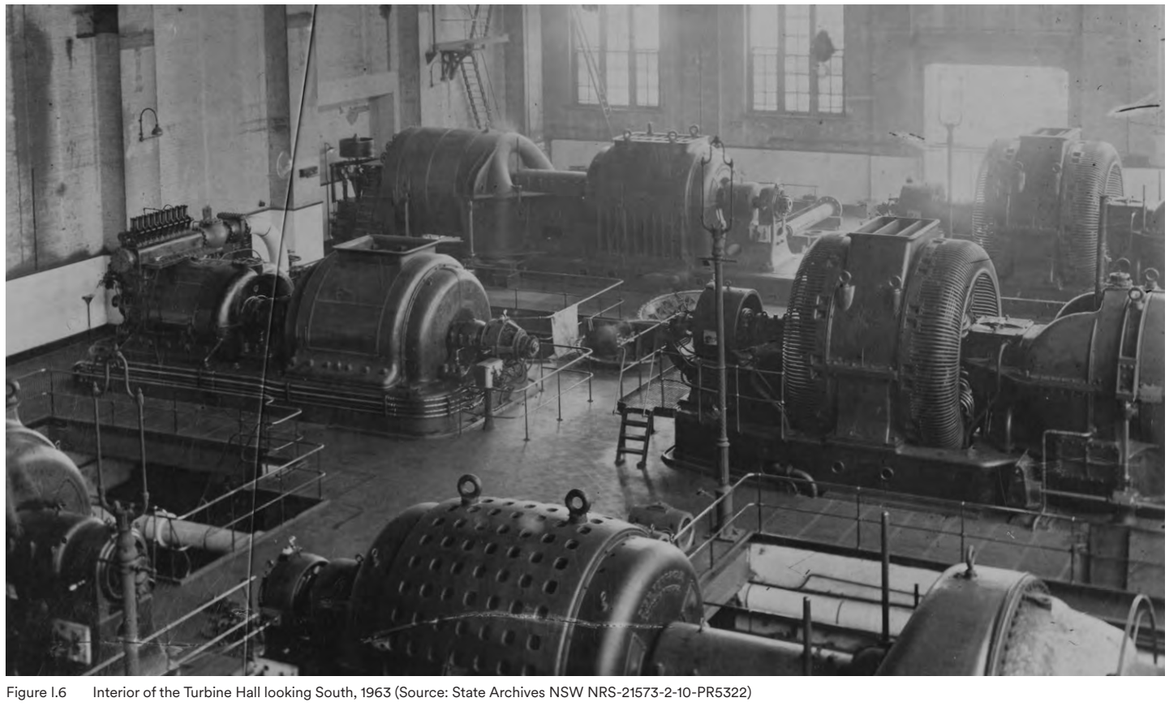


Figure I.6 Interior of the Turbine Hall looking South, 1963 (Source: State Archives NSW NRS-21573-2-10-PR5322)

THE POWERHOUSE MUSEUM

On the 13th of August 1979, NSW Premier Neville Wran announced the Ultimo Power Station and Tram Depot was to become the new home of the Museum of Applied Arts and Sciences. Dr Lindsay Sharp was appointed as the Director to oversee the transition of the site to the new museum space, and the plan commenced with the resumption of the William Henry to Macarthur St block by the Public Works Department in 1980. The 1980s design of the Powerhouse Museum was coordinated by the NSW Public Works Department in close association with the Powerhouse Museum in-house design team.

Stage One of the Powerhouse Museum at Ultimo was opened by NSW Premier Neville Wran on 4 September 1981, and consisted of the adaptive re-use of the former Ultimo Tram Depot as a temporary public gallery, conservation and fabrication area and storage space (Figure 2.24). A commemorative time capsule was buried in the Mary Ann Street carpark at the 1981 opening, with items including a 1981 bottle of Penfold's Grange red wine, a Space Invaders Game, newspapers, a UBD street directory, Sydney telephone books, and photographs of the museum trustees and staff83 (Figure 2.26 and Figure 2.28). In 1984 the Ultimo Tram Depot was formally renamed the Harwood Building, in honour of Norm Harwood, a former curator of the Museum of Applied Arts and Sciences.

Stage Two of the Powerhouse Museum at the Ultimo site opened on 10 March 1988, constituting the adaptive re-use of the former Power House buildings along with the newly constructed Wran Building (Figure 2.30). The new museum was well received and was awarded the Sulman Award for architectural merit for that year. With the opening of Stage Two of the Powerhouse Museum, the exhibits temporarily located in the Stage One development (i.e. the Harwood Building), were relocated across to the Power House buildings and the Harwood building was converted into conservation labs, collection storage and office space. While the construction of the Wran building was innovative for its adaptive reuse of the site at the time, it also impacted the visibility and readability of the existing heritage buildings within the site, including the former Power House buildings, and the Ultimo Post Office.

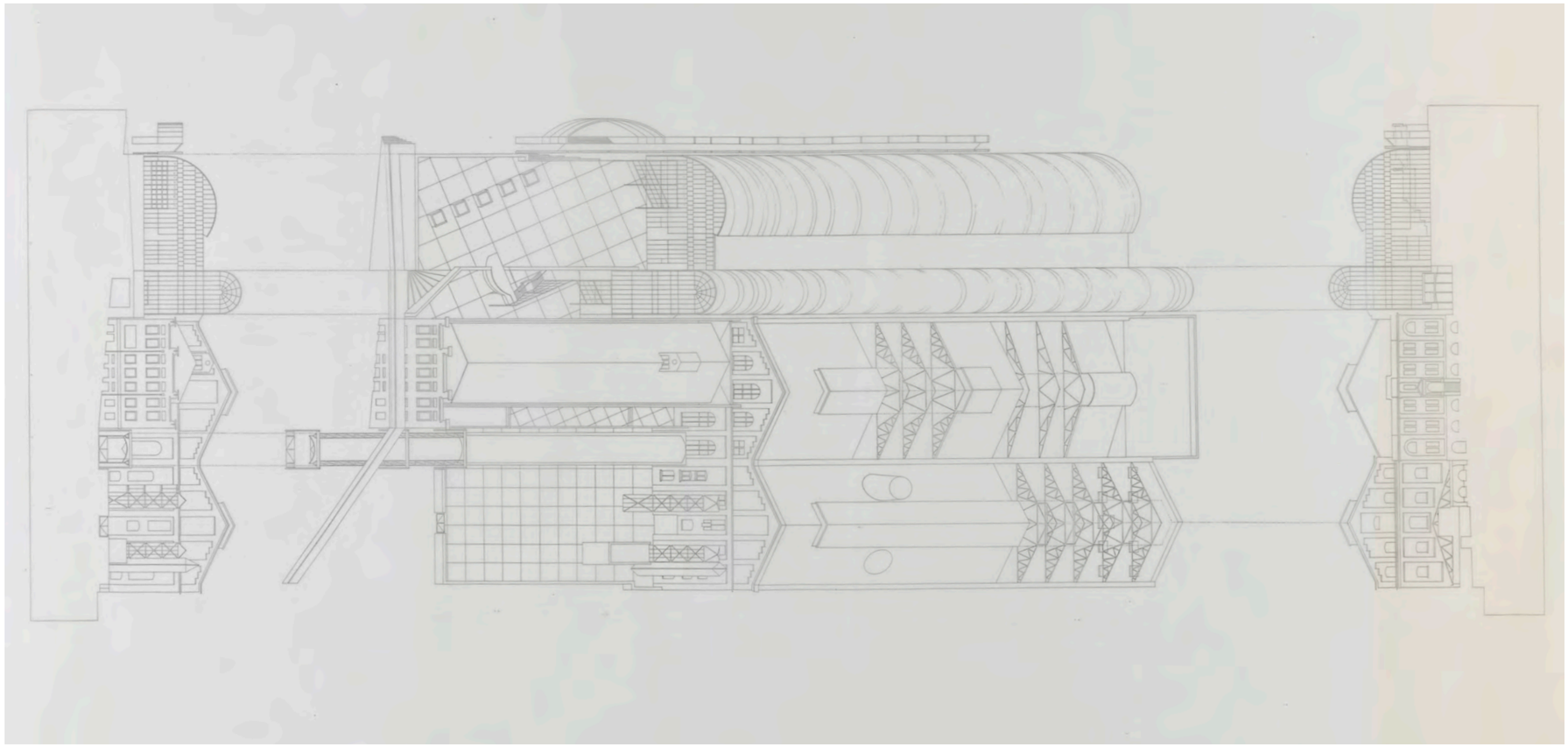


Figure I.7 Powerhouse Museum Axonometric Plan

Figure I.8 Wran Building under construction c. 1986 (Source: Powerhouse Photo Library 00220995.jpg)

Figure I.9 Turbine Hall c. 1986 (Source: Powerhouse Photo Library 00215888.jpg)

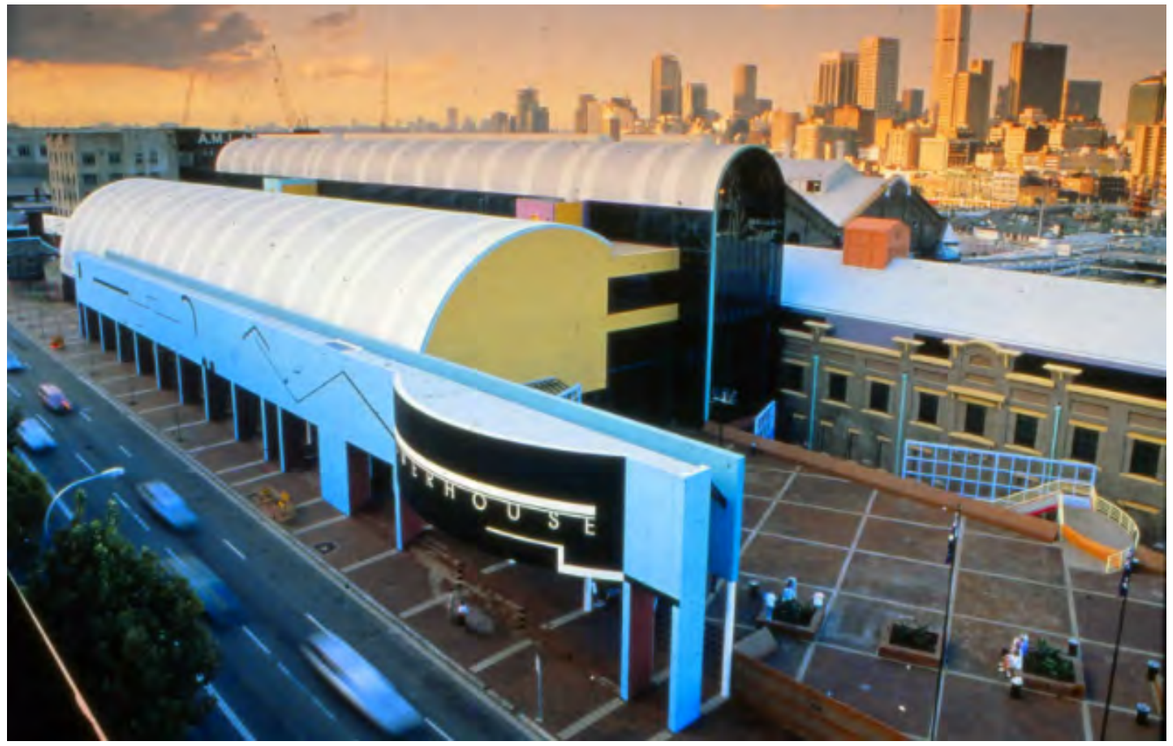


Figure I.10 Andrew Frolows, Elevated view of Powerhouse Museum Stage 2 exterior in April 1988 shortly after opening showing Harris Street and the Sydney skyline in the background. (Source: Powerhouse Photo Library 00221593.jpg)

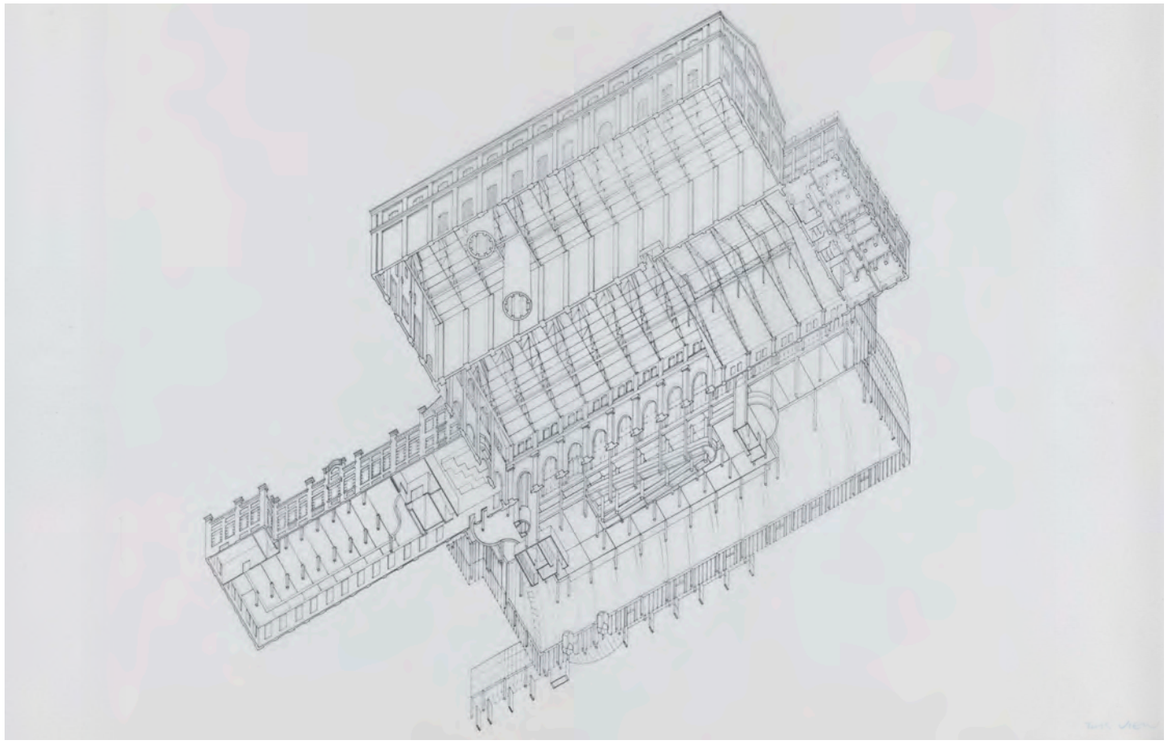


Figure I.11 2008/88/1 Architectural drawings (14), Powerhouse Museum, tracing paper / microfilm / ink, designed by Lionel Glendenning, made and used by New South Wales Department of Public Works, Sydney, New South Wales, Australia, 1987

STATEMENT OF HERITAGE SIGNIFICANCE

The Ultimo Power House is of State significance historically for being the first large state-owned electricity generating station in NSW and the original generating station for the supply of electricity to power the electric tramway network throughout Sydney. It was one of the largest and most important generating stations in NSW. It was the site where most major technological advancements in electrical generation, including steam turbines and large-scale, alternating-current generation, were trialled by NSW electricity authorities. The station also played a major part in the development of the Ultimo/Pyrmont area.

The Federation-Era Ultimo Power House has associations with the electrification of the suburban tramway and railway systems and with the general reticulation of electrical power in Sydney. The Ultimo Power House also supplied power to and has close association with Pyrmont Bridge (SHR No. 1618), Glebe Island Bridge (SHR No. 1914), Sewage Pumping Station No.1 (SHR No. 1336) at Ultimo (and 15 other low level sewage pumping stations in Sydney). The Ultimo Power House is historically significant as the first state-owned, large electricity generating station constructed in Sydney. Built in 1899, it was the first power station constructed to provide electricity for Sydney's "new" electric tram system. There is historical significance in the relationship between the Ultimo Tram Depot and the Ultimo Power House, in addition to the relationship between the Goods Line and the Ultimo Power House. The Ultimo Power House is of State heritage significance for its transformative role in the 20th century redevelopment of the Ultimo/Pyrmont area from a major industrial location to a cultural, educational and tourism precinct was part of the Darling Harbour Bicentennial citywide adaptation project.

The historical purpose and function of the former power station is readable today through the building fabric, structure, in-situ engineering structures, gantry cranes and chimney bases.

The Ultimo Power House buildings are of State significance as a landmark group of buildings which relate closely to the visual and architectural industrial context of the area.

The Ultimo Power House, Tram Shed, Goods Line and Post Office are historically significant for their construction during the main development era of Ultimo and Pyrmont when the major estates of the peninsula were subdivided and sold for State, residential, and commercial purposes. Within the site both the former Ultimo Power House buildings and Post Office are of State Significance.

The Powerhouse site is of museological and architectural significance as a landmark early example of the adaptive reuse of a large-scale industrial heritage site, which was at the time in the 1980s considered a new approach to museum making for NSW. The transformation of the Power House through conservation and adaptation was recognised with several awards and was influential in the urban design of the later buildings in the precinct.

GRADINGS OF SIGNIFICANT COMPONENTS

Grading of significant components of which each individual heritage item is composed have been provided in the individual section for each building in Part C of this CMP. An overview of the gradings of significance is as follows:

Table I.2 Grading of Significant Components of Powerhouse Site

GRADING	ELEMENTS
● EXCEPTIONAL	– North Annex – Engine House – Turbine House – Boiler House – Switch House – Ultimo Post Office (excluding 1980s extension) – Water Cooling System and Manifold – Goods Line (section of track located within site boundary)
● HIGH	– Harwood Building – Former Pump House (remains)
● MODERATE	– Wran Building
● LITTLE	– Harris Street Forecourt – Modern shade sails/structures in Level 1 courtyard – 1980s extension to Post Office
● INTRUSIVE	– Level 1 Café – Covered Walkways (Rear yard of Post Office, between Boiler House and Harwood Building) – Lattice security fence (Harris Street) – Coloured vertical coverings over modern lifts and stairs along southern façade of Boiler House

Figure I.12 Gradings of Significance of Powerhouse site elements (Source: Curio 2021)

CONSERVATION POLICIES

For clarity and ease of use, the conservation policies for the Powerhouse site have been grouped and presented under five categories, seen to be those of critical importance to the conservation of the cultural significance of the site. Each category is accompanied by a brief explanatory segment intended to highlight the intent behind the policies.

The policy categories for the Powerhouse Ultimo site are:

- General Conservation Policies and Cultural Significance
- (Section 6.2.1)
- Fabric and Place (Section 6.2.2)
- Maintenance and Repair (Section 6.2.3)
- Site Use, New Work and Future Planning (Section 6.2.4); and
- Application of this CMP (Section 6.2.5).

POLICY CATEGORY	POLICY
General Conservation Policies and Cultural Significance (Section 6.2.1)	Policy 1: Best Practice Heritage Management
	Policy 2: Recognising and Protecting Heritage Significance
	Policy 3: Statutory Obligations
	Policy 4: Management of Change
Fabric and Place (Section 6.2.2)	Policy 5—Buildings and Structures
	Policy 6—Setting, Context and Associated Sites
	Policy 7—Fabric
	Policy 8—Aboriginal Cultural Heritage
	Policy 9—Historical Archaeology
	Policy 10—Aboriginal Archaeology
Maintenance and Repair (Section 6.2.3)	Policy 11—Moveable Heritage
	Policy 12—Cleaning, Maintenance and Repair
	Policy 13—Materials, Treatments and Techniques
	Policy 14—Services, Facilities and Amenities
Site Use, New Work and Future Planning (Section 6.2.4)	Policy 15—Compatible Use
	Policy 16—Adaptive Reuse
	Policy 17—Change of Use, Owner or Occupier
	Policy 18—Site Access
	Policy 19—New Work and Development
	Policy 20—Security
	Policy 21—Building Standards, Hazardous Materials and Safety
	Policy 22—Signage, Customer Information and Lighting
Application of this CMP (Section 6.2.5)	Policy 23—Records and Documentation
	Policy 24—Review of this CMP
	Policy 25—Experience, Skills and Co-ordination
	Policy 26—Interpretation and Education

HOW TO USE THIS PLAN

This CMP has been written and structured in a module format for ease of use.

Each building has its own section which covers that building or element's history, heritage, opportunities, and constraints. This allows for all information on a particular building or element to be accessed separately and easily read whilst also forming part of the whole plan.

Part A of the CMP provides an overview of the history and significance as it applies to the site as a whole, and the legislation. Part B covers conservation and implementation as it applies to the site as whole. Part C contains the individual sections for the key built structures and elements on the site. All references and appendices are provided as Part D. The structure of this CMP is as follows:

Part A: Introduction and Overview	Section 1	Introduction
	Section 2	Historical Overview and Timeline (Site)
	Section 3	Physical Analysis (Site)
	Section 4	Heritage Significance (Site)
	Section 5	Opportunities and Constraints (Site)
Part B: Conservation Policy	Section 6	Conservation Policy (Site)
Part C: Buildings and Elements Inventory	Section 7	The Harwood Building
	Section 8	The North Annex
	Section 9	The Pump House
	Section 10	The Engine House
	Section 11	The Turbine Hall
	Section 12	The Boiler House
	Section 13	The Switch House
	Section 14	The Ultimo Post Office
	Section 15	The Wran Building
	Section 16	The Water Cooling System and Manifold
	Section 17	The Goods Line
Part D: References and Appendices	Section 18	References
	Appendix A	Exterior Site Photos Register
	Appendix B	Aboriginal Due Diligence Report
	Appendix C	AMBS 2018 Historical Archaeological Assessment Report
	Appendix D	Evolution of the Powerhouse Site (Maps by Design 5 Architects)
	Appendix E	Powerhouse Museum Design Principles (Draft), Design 5 Architects
	Appendix F	Powerhouse Museum Movable Heritage List
	Appendix G	Aboriginal History Overview-Powerhouse Ultimo

POWERHOUSE ULTIMO

CONSERVATION MANAGEMENT PLAN 2022

PART A

1 INTRODUCTION

1.1 PROJECT BACKGROUND

This CMP will support the Powerhouse in the daily and future management of the site. This CMP is also a strategic reference document for the Powerhouse, as the government agency responsible for the site, to help inform future decisions about the site and to support the Powerhouse renewal.

This CMP assesses the overall heritage values of the Powerhouse site including its curtilage, buildings, fabric, archaeological potential, and intangible values, to guide the conservation, maintenance and restoration of the site, as well as to appropriately guide any future development. This updated CMP does not aim to provide a definitive and complete account of the site's history in detail, nor is every individual built aspect of the site documented equally. Rather, the aim of this CMP is to review the significant heritage values of the Powerhouse site today, discussed in the context of any issues that are relevant in 2022 to the ongoing management of the site. The plan seeks to revise and further develop policies, building upon those from the 2003 CMP, that aim to retain and conserve these heritage values.

1.2 PREVIOUS CONSERVATION MANAGEMENT PLAN

In 2003, Architectural Projects prepared the CMP for the site, titled *Conservation Management Plan: The Powerhouse Museum*. This revised CMP provides an update to the 2003 document, particularly reflective of the changes that have occurred since 2003, to both the Powerhouse site and to NSW heritage and planning legislation, whilst ensuring that the principles for the management of the site's heritage values, built heritage assets, and overall heritage significance, remain applicable and practical for another 5-10 years.

1.3 SITE IDENTIFICATION

The Powerhouse site is located in Ultimo, within the City of Sydney Local Government Area. The site is bounded by William Henry Street on the north, Harris Street on the west, Mary Ann Street to the south and The Goods Line/Light Rail track to the east. The site varies in ground elevation, with almost nine metres difference AHD between Harris Street and The Goods Line (Figure 1.1).

The Powerhouse site as referred to through this CMP includes the former buildings of the Ultimo Power House (Boiler House, Engine House, Turbine Hall, Switch House, North Annex, remnants of the Pump House), the former Ultimo Post Office, the Harwood Building (former Ultimo Tram Depot), as well as the Wran Building (1988), Harris Street forecourt and 'Level 1' courtyard, sections of the Goods Line within the site, and the section of the Water Cooling System and Manifold which lies beneath the site, accessible via the Turbine Hall basement.

The 2022 Concept Plan State Significant Development Application includes all aspects of the Powerhouse site apart from the Harwood Building.

The Powerhouse site consists of the following lots, as shown in Figure 1.2:

- Lot 1, DP631345—Former Ultimo Power House Buildings
- Lot 1, DP781732—Wran Building
- Lot 1, DP216854—Harwood Building
- Lot 3, DP631345—Forecourt (Harris St)
- Lot 1, DP77031—Ultimo Post Office

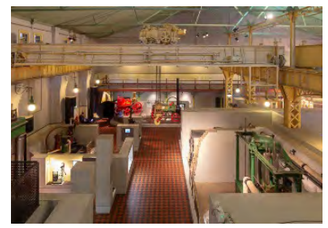
Figure 1.1 Aerial View indicating key built elements of the Powerhouse site. (Source: Nearmap with Curio overlay)

Figure 1.2 Lots and DPs across the Powerhouse site. (Source: Nearmap with Curio overlay)

1.4 KEY BUILDINGS AND ELEMENTS

The Powerhouse site consists of an amalgamation of several earlier sites, resulting in a number of different buildings constructed over time. Table 1.1 provides a summary of the key existing buildings and elements within the subject site, the year each building was constructed, and includes previous building names (where relevant).

Table 1.1 Building Names Past and Present

CURRENT BUILDING NAME	PREVIOUS NAMES	CONSTRUCTED	IMAGE	REPORT SECTION
Harwood Building	Ultimo Tram Depot, Car Sheds, Ultimo Car House	1899		Part C: Section 7
North Annex	The Office Building, The Administrative Building, The Amenities Block, The North Annexe	1899		Part C: Section 8
Pump House	Old Boiler House, The Pump Room	1899		Part C: Section 9
Engine House	Engine Room, Generating Room, Engine Hall, Old Engine Room, Substation	1899		Part C: Section 10
Turbine Hall	The Engine Room Extension	1902		Part C: Section 11

CURRENT BUILDING NAME	PREVIOUS NAMES	CONSTRUCTED	IMAGE	REPORT SECTION
Boiler House	New Boiler House, Second Boiler House	1902-1905		Part C: Section 12
Switch House	Switch House	1927		Part C: Section 13
Ultimo Post Office	Darling Harbour Child Care Centre	1901		Part C: Section 14
Wran Building	Wran Building, 1988 Museum Building and Courtyards, Touring Exhibition Building, Touring Hall	1988		Part C: Section 15
Water Cooling System and Manifold	Water conduit	1898-1901		Part C: Section 16
The Goods Line	Darling Harbour Goods Yard, Darling Harbour Railway Corridor, Darling Harbour Branch Railway	1853-1911		Part C: Section 17

1.4.1 The Powerhouse Site

The following is a selection of the photographs of the Powerhouse site. The complete register of external photographs is attached as Appendix A.

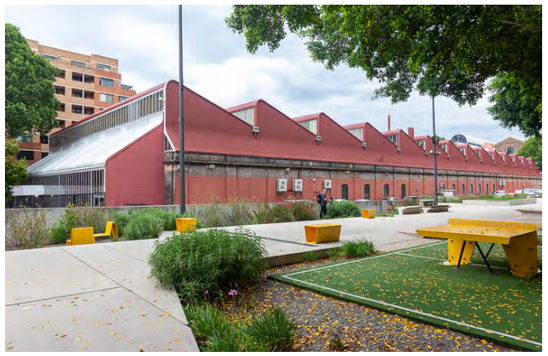


Figure 1.3 Harwood Building and The Goods Line

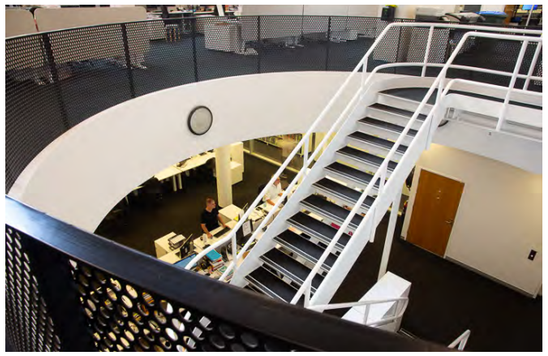


Figure 1.4 Harwood Building interior

Figure 1.5 Harwood Building exterior

Figure 1.6 Switch House

Figure 1.7 Forecourt and Switch House

Figure 1.8 Level 1 Courtyard

Figure 1.9 Entry to Level 1 Courtyard

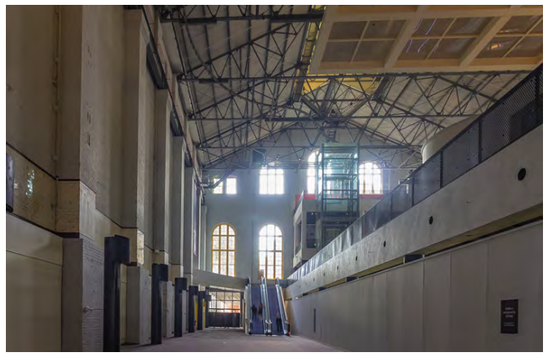


Figure 1.10 Turbine Hall

Figure 1.11 Engine House

Figure 1.12 Wran Building Interior

Figure 1.13 Wran Building, Forecourt, Switch House

Figure 1.14 Wran Building Exterior (Harris Street)

Figure 1.15 Post Office Rear

Figure 1.16 Post Office Front

Figure 1.17 Post Office, Wran Building

Figure 1.18 North Annex

Figure 1.19 North Annex

Figure 1.20 North Annex Interior

Figure 1.21 Pump House, Boiler House and North Annex

Figure 1.22 Pump House and Boiler House

Figure 1.23 Boiler House Interior

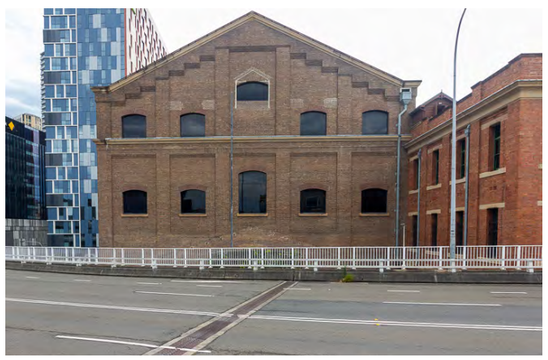


Figure 1.24 Boiler House and North Annex

Figure 1.25 Boiler House

Figure 1.26 Boiler House and Light Rail Line

1.5 SUMMARY OF HERITAGE LISTINGS

A summary of all relevant heritage listings (statutory and non-statutory registers) located within the Powerhouse site is presented in Table 1.2 for reference. Figure 1.27 and Figure 1.28 show the mapped locations of State and local heritage items. Further discussion of relevant heritage legislation and heritage listings and the implications, obligations and constraints with regards to the management of the site as a whole, is provided in Section 5.1 of this CMP.

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Figure 1.27 SHR Listings (Source: Curio 2021 over Nearmap base aerial)

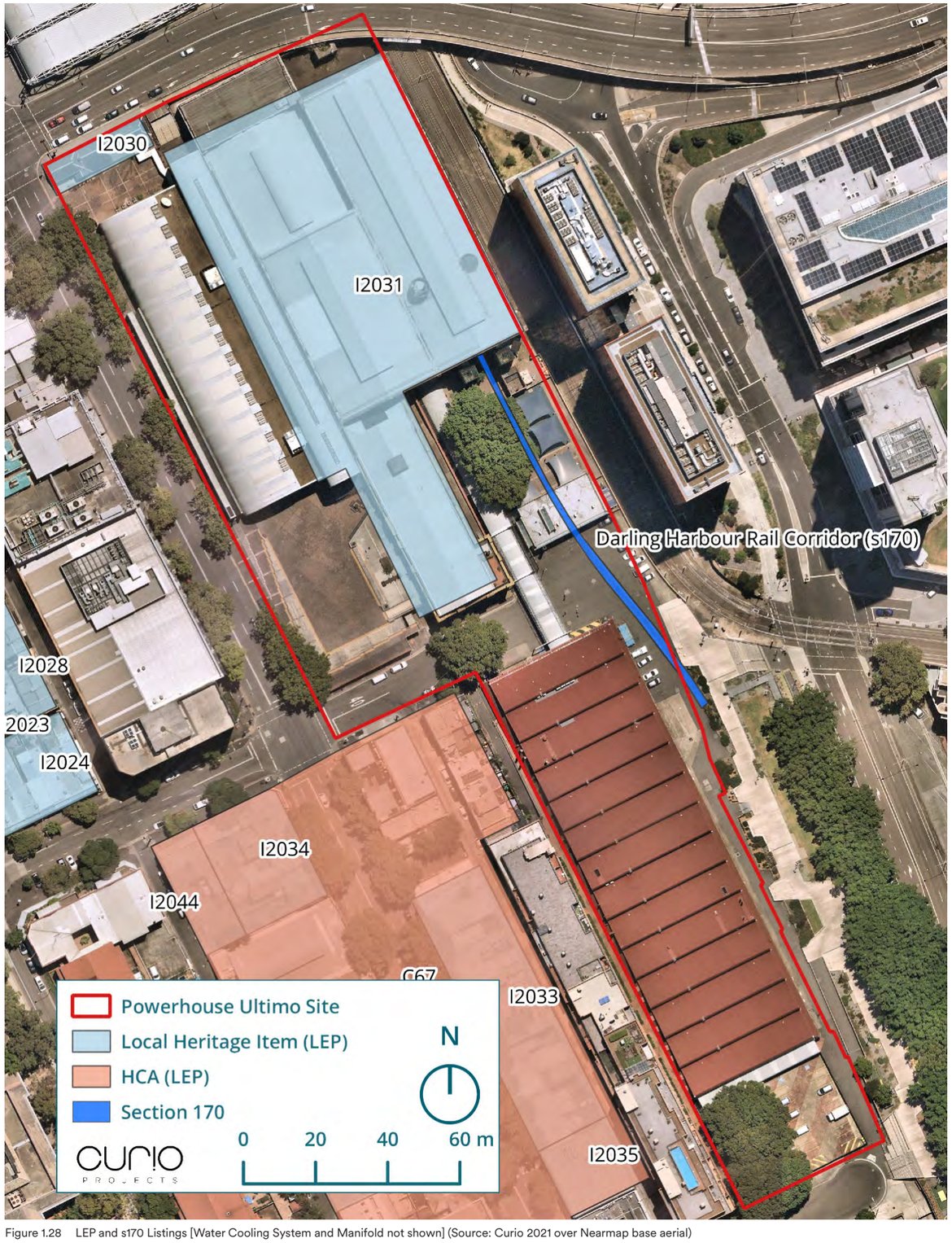


Figure 1.28 LEP and s170 Listings [Water Cooling System and Manifold not shown] (Source: Curio 2021 over Nearmap base aerial)

1.6 CMP OBJECTIVES, METHODOLOGY, AND KEY RESOURCES

This CMP conforms to the assessment of heritage significance and terminology as set out by Heritage NSW guidelines and the Australia ICOMOS Burra Charter, 2013, and has been prepared in accordance with current best practice guidelines and methods for heritage management in NSW, including:

- ICOMOS, *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*, 2013
- NSW Heritage Office, *Assessing Heritage Significance*, 2001.
- Kerr, J. S., *The Conservation Plan: A Guide to the Preparation of Conservation Plans for Places of European Cultural Significance*, (7th Ed), NSW, National Trust of Australia (NSW), 2013.
- NSW Heritage Office and Department of Urban Affairs & Planning, *Conservation Management Documents* [including Model Brief], 1996, revised 2002.

1.6.1 Previous Assessments

Preparation of this revised CMP has considered the following relevant previous assessments and reports prepared for the site:

- Architectural Projects, *Conservation Management Plan: The Powerhouse Museum*, prepared for the Powerhouse Museum, 2003.
- Brassil, T., *Ultimo Tram Depot (The Harwood Building), History and Significance*, National Trust of Australia (NSW), 2019.
- Godden, D., *Ultimo Tram Depot (Harwood Building) A Brief Discussion of Significance*, for The Powerhouse Museum, 2003.
- AMBS Ecology & Heritage, *Historical Archaeological Assessment*, prepared for Tanner Kibble Denton Architects, 2018.

1.7 PROJECT LIMITATIONS

This report has been prepared using the historical data and documentation available for the site, drawn predominantly from the 2003 CMP and the other relevant recent heritage reports and resources. Where required, additional primary historical research has been undertaken to supplement the history elements within the 2003 CMP, with a focus on primary sources such as photographic data, news articles and archival historical documentation.

The history, heritage significance assessment and policies of this CMP specifically focus on the Powerhouse site. Therefore the history of the Museum of Applied Arts and Sciences (MAAS) and of the Powerhouse Museum are only detailed in this CMP as far as it provides context for the Museum's occupation of its current site. This CMP is not intended to provide a detailed history of Museum of Applied Arts and Sciences since formation in 1880.

Assessment of Aboriginal cultural heritage values and significance of any site or place is unable to be determined without consultation with Aboriginal community stakeholders. Led by Dr. Terri Janke, in March 2022, the Powerhouse and Create NSW undertook consultation with the Aboriginal Community, the results of which have been published in Aurecon's Powerhouse Ultimo Conservation Management Plan Engagement Consultation Report, March 2022[2]. Feedback from this engagement as presented in Aurecon's report has been incorporated into the CMP. The CMP document has not been exhibited publicly for comment; this will occur as part of the State Significant Development Application process for the Powerhouse renewal.

The Powerhouse Museum Collection does not form part of this CMP. The Museum Collection is subject to its own independent Management Plan under the Museum of Applied Arts and Sciences Act 1945 No 31.

1.8 AUTHORSHIP AND ACKNOWLEDGEMENT

This CMP has been compiled by a team of staff from Curio Projects Pty Ltd, who was commissioned by the Department of Enterprise, Investment and Trade (Create NSW) and the Powerhouse to undertake an update of the 2003 CMP prepared by Architectural Projects.

The report was primarily authored by the Curio team of Alexandra Thorn, Archaeologist and Heritage Consultant, Sam Cooling, Cultural Heritage Manager, and Dennis Diaz, Built Heritage Specialist. Additional historical research was undertaken by Rebecca Agius, Graduate Archaeologist. Senior review of this CMP has been undertaken by Natalie Vinton, CEO, Sam Cooling, Cultural Heritage Manager and Dr Jody Steele, Director.

This CMP compiled by Curio also includes a synthesis of heritage conservation research that was commissioned by Create NSW to be undertaken by Design 5 Architects.

The following sections of this CMP incorporate heritage conservation research content that was prepared by Design 5 Architects under its commission:

- Section 2.2.5 The Evolution of the Powerhouse Site
- Section 2.3.2 Powerhouse Museum Design Principles Summary
- Section 3.2 Built Elements
- Section 15 Wran Building

That research content is referenced in the relevant sections accordingly. Curio acknowledges the heritage conservation research undertaken by Design 5 Architects.

Curio would also like to acknowledge the assistance of the Powerhouse and Department of Enterprise, Investment and Trade (Create NSW) for their assistance in providing site access, resources, and information.

1.10 TERMINOLOGY AND ABBREVIATIONS

1.10.1 Site Levels

Upon establishment of the Powerhouse Museum at the site in the 1980s, a terminology of standardised 'Levels' was adopted in order to reconcile the difference in floor levels and elevations (elevation of which slopes significantly to the east) and between different buildings. Where relevant, this naming terminology has been applied throughout this CMP, particularly where needed to reconcile between historical buildings and fabric. Of primary relevance to note, is that the main entrance to the museum in the west from Harris Street is referred to as Level 3, while the ground level elevation of the site in the east towards the Light Rail Corridor is referred to as Level 1. A brief summary of these different levels according to elevation across the site is provided below for reference, and depicted in Figure 1.29.

Basement- Harwood, Engine House, Turbine Hall, Boiler House, Switch House

Level 1- Goods Line/Light Rail Corridor, Harwood ground floor entrance, Café, Wran Building basement level.

Level 2- Circulation space below Harris Street forecourt,

Level 3- Main museum entrance from Harris Street, Harris Street Forecourt, Ultimo Post Office

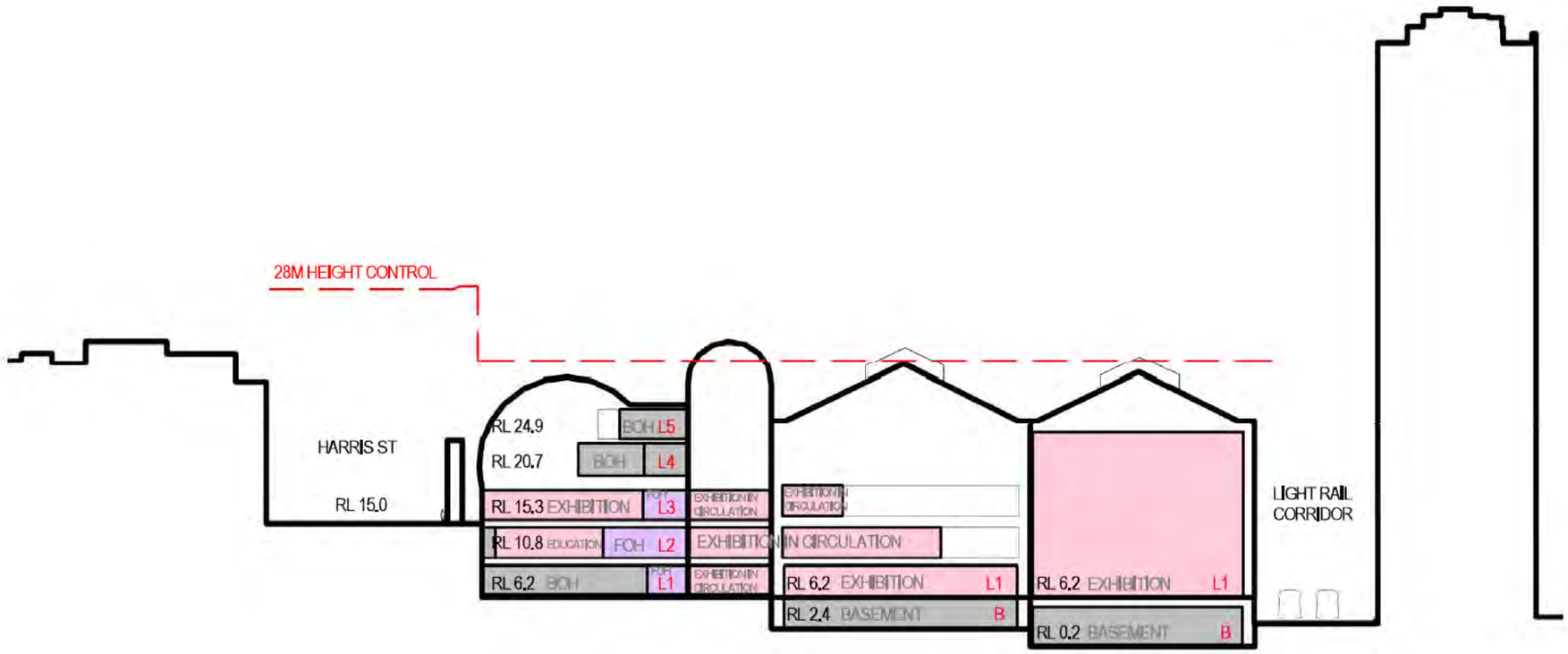


Figure 1.29 Summary of Level terminology applied across site (Source: John Wardle Architects 2020)

1.10.2 Terminology

Definitions of common terms and abbreviations used throughout this CMP are summarised below.

Adaption: Modifying a place to suit the existing use or proposed use.

Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013

Compatible use: A use which respects the cultural significance of a place. Such use involves no, or minimal, impact on cultural significance.

Conservation: The processes of looking after a place to retain its cultural significance (Burra Charter Article 1.1). Conservation can include 'maintenance', 'preservation' and 'restoration' works.

Fabric: All the physical material of the place, including components, fixtures, contents and objects.

Maintenance: The continuous protective care of the fabric and setting of a place and is to be distinguished from 'repair'.

Repair: Involves 'restoration' or 'reconstruction' (Burra Charter Article 1.5).

Heritage Act: Shorthand reference for the NSW Heritage Act 1977, NSW legislation that affords statutory protection to heritage items in NSW

Heritage NSW, Department of Premier and Cabinet (DPC): The NSW government department is responsible for the administration and protection of items listed under the Heritage Act, as guided by the Heritage Council of NSW. Formerly Office of Environment and Heritage OEH.

Restoration: Returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material (Burra Charter Article 1.7).

Reconstruction: Returning a place to a known earlier state and is distinguished from 'restoration' by the introduction of new material into the fabric (Burra Charter Article 1.8).

Preservation: Maintaining the fabric of a place in its existing state and retarding deterioration (Burra Charter Article 1.6).

State Heritage Register (SHR): A register of places that are considered to be of 'state' significance and protected under the NSW Heritage Act 1977.

S170 Register: Section 170 Heritage and Conservation Register, a heritage register of items owned and managed by a government agency, as required by the NSW Heritage Act 1977.

1.10.3 Abbreviations

AHIMS	Aboriginal Heritage Information Management System
CC	Conditions of Consent
CMP	Conservation Management Plan
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection & Biodiversity Conservation Act (Cmwth)1999
IP	Heritage Interpretation Plan
LEP	Local Environmental Plan
MAAS	Museum of Applied Arts and Sciences
NPW Act	National Parks and Wildlife Act (NSW) 1974
OEH	Office of Environment and Heritage
REF	Review of Environmental Factors
S60	Section 60 approval under the NSW Heritage Act 1977
S170	Property NSW S170 Heritage and Conservation Register
SHFA	Sydney Harbour Foreshore Authority
SHR	State Heritage Register

1.11 ENDNOTES

1 Including former Power House Buildings, as well as section of the Water Cooling System and Manifold within the Powerhouse Ultimo site.
2 Aurecon 2022, *Powerhouse Ultimo Conservation Management Plan Engagement 'What we heard' Consultation Report*, prepared for NSW Government, March 2022.

2 HISTORICAL CONTEXT

The historical context of the Powerhouse site, as presented in this section, has been derived predominantly from several key secondary sources (referenced throughout), and supplemented by some additional primary research undertaken by Curio for this revised CMP, including the use of historical maps, images and records.

Additional Aboriginal historical research conducted by Coast History & Heritage has been incorporated into the overall history, and is referenced accordingly. The full Coast report, Aboriginal History Overview – Powerhouse Ultimo is attached as Appendix G.

The history presented in this CMP is not intended to be read as a definitive and comprehensive history of the area. It focuses more on the provision of a general historical overview of the development of the Ultimo area and the Powerhouse site as a whole. This provides a historical context to frame and facilitate an understanding of the historical and cultural significance of the site, which is discussed in subsequent sections of this CMP. Further detail about the historical development of each of the key built elements of the site is provided in the corresponding sections in Part C of this CMP.

The Powerhouse has commenced the process of documenting social histories of the site through research and community engagement. As these are completed they will be added to the CMP as an appendix.

Key secondary sources referenced in the preparation of this section include:

- Architectural Projects, 2003 Conservation Management Plan: The Powerhouse Museum, prepared for the Powerhouse Museum.
- AMBS Ecology & Heritage 2018. Historical Archaeological Assessment, prepared for Tanner Kibble Denton Architects.
- Brassil, T., 2019. Ultimo Tram Depot (The Harwood Building), History and Significance, National Trust of Australia (NSW).
- Coast History & Heritage, 2022. Draft Aboriginal Overview – Powerhouse Ultimo, prepared for the Powerhouse Museum
- Fitzgerald, S. & Golder, H., 1994. Pyrmont & Ultimo Under Siege, Hale & Iremonger.
- Godden D, E Higginbotham, E Pinder, J Whittaker, R Young, 1984. The History and Technology of the Ultimo Power House Sydney. A report for the Government Architects Branch, NSW Public Works Department.
- Matthews, M. R., Pyrmont & Ultimo: A History, Southwood Press, 1982.

For the purposes of this historical overview, the history of the Ultimo area and the Powerhouse site has been summarised into five main phases of historical occupation and development as follows:

Phase 1	Prior to 1803	Pre-European environment and early Aboriginal occupation
Phase 2	1803-1894	Ultimo-Pyrmont Peninsula and 19th Century Occupation
Phase 3	1895-1940s	Ultimo Power House, Tram Shed and Post Office
Phase 4	1940s-1979	Minor Modifications, Closures, and Abandonment
Phase 5	1981-Present	The Powerhouse Museum

2.1 POWERHOUSE ULTIMO SITE: TIMELINE OF KEY EVENTS

Pre 1788
The Ultimo area is home to the Gadigal and Wangal people of the Eora nation who have maintained their connection to country despite the seismic changes brought by colonisation.

1803
First land grant to John Harris in Ultimo.

1855
Darling Harbour Goods Line opened.

1859
Subdivision of Ultimo Estate. Powerhouse Ultimo Site located on Blocks 20 and 23.

1880
Technological, Industrial and Sanitary Museum (to later become Museum of Arts and Applied Sciences) established and later housed from 1881 in the Garden Palace, Sydney Botanic Gardens. On 22 September 1882 fire at the Garden Palace destroyed the first collection.

1897–99
Construction of Ultimo Power House and Ultimo Tram Shed.

1899
Ultimo Power House officially completed 29 November 1899, including Engine House, North Annex, Old Boiler House, and Pump House. Harris and George Street tramline officially opened on 8 December 1899.

1901
Ultimo Post Office opened on the corner of William Henry and Harris Streets.

1902–05
Major extensions to Boiler House and Engine Room creating Turbine Hall.

1908
Extension to Ultimo Tram Shed.

1922–26
Switch House constructed.

1923–28
Construction of new underground water conduits connecting the Power House to Darling Harbour.

1929–1931
Major remodelling and modernisation of the Ultimo Power House.

1953
Ultimo tram depot closed on 27 June 1953.

1963
Ultimo Power House closed 11 October 1963.

1967–68
Demolition of large portion of former Pump House for widening of William Henry Street Bridge.

1977
Boiler House chimney stacks demolished to below roof line, with most of the Power House plant and equipment removed by 1976.

1979
The New South Wales Premier Neville Wran announced the Ultimo Power Station and Tram Depot were to become the new home of the Museum of Applied Arts and Sciences.

1981
Stage 1 of the Power House redevelopment project opened in the former Ultimo Tram Depot (Harwood Building).

1982–87
Construction works for the adaptive reuse of the former Ultimo Power House buildings.

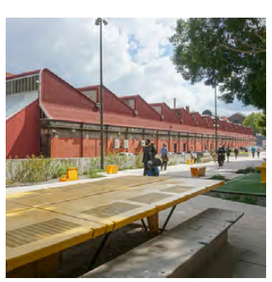
1984
The Darling Harbour Rail Corridor (the Goods Line) closed.

1988
Stage 2 of Powerhouse Ultimo redevelopment project opened in adapted Power House buildings and new Wran building.

2008
New Museum of Applied Arts and Sciences volunteer centre opened in the restored Ultimo Post Office.

2011–13
Powerhouse Museum Revitalisation Project.

2015
The Goods Line interpreted and developed as a public park and urban connector.



2020
Ultimo Power House listed on the NSW State Heritage Register.

2020
July 4, New South Wales Treasurer, Dominic Perrottet, and Arts Minister, Don Harwin, announced Powerhouse Ultimo will be retained and renewed.

2021
June 16, NSW Arts Minister, Don Harwin, announced a transformative $480–$50 million investment into the renewal of Powerhouse Ultimo.

2.2 ABORIGINAL HISTORY

The Powerhouse site is located at the southern end of the Ultimo-Pyrmont Peninsula, in the subregion of Pittwater within the Sydney Basin. It is underlain by Hawkesbury sandstone geology, and characterised by plateaux and ridges consisting of quartz sandstone, with thin layers of shale caps throughout.[1] The natural landscape in this area of Sydney consisted of a diverse range of environments including maritime/coastal, saltmarshes/estuaries and swamps, freshwater creeks, and woodland. It resulted in a range of natural faunal and floral resources that supported Aboriginal people in this area for thousands of years.

The shale capped regions were able to support rich grounds for large forested areas of Sydney blue gum and blackbutt or turpentine and grey ironbark, while the sandstone ridges and plateaux enabled the growth of Sydney peppermint, smooth-barked apple, scribbly gum, red and yellow bloodwoods, as well as shrubs and heath covering the ground.[2] The maritime and coastal regions provided access to a wide variety of shellfish and fish in the tidal mudflats, as well as allowing transport access to other locations via canoe along the Parramatta River. The saltmarshes, swamps and estuaries all provided rich grounds for both plant life and animals such as reptiles, amphibians, small mammals and birds. Bangalay, swamp mahogany, cabbage tree palm, swamp oak, common reed and cumbungi were common plants present in fresher swamp waters, providing resources for fishing nets and string bag making. While these swampy areas were rich in resources for the Aboriginal communities, they were ill-suited for frequent and repeated use over a long span of time due to regular flooding.

Woodland areas located on ridges further in from the coast provided a diverse range of large, sturdy vegetation for both food, pigments, poisons, and tool construction (spears digging sticks, boomerangs, canoes, shelters, rope etc.) as well as animals such as possums, gliders, bats, kangaroo and wallabies. The geological properties of the Hawkesbury Sandstone also provided plentiful raw materials ideal for the manufacture of stone tools, such as quartz and chert.[3] Freshwater creeks were an important water source, with many originally flowing across the Pyrmont Peninsula. One of the more predominate natural creeks of this area of Sydney was Blackwattle Creek, which ran between the current Wattle and Mountain Streets in Ultimo.[4]

The Powerhouse site, and its surrounding inner-city suburbs, have an important and strong legacy of Aboriginal connections. More than a thousand generations of Aboriginal people have lived in the Sydney region through numerous climatic changes that have shaped Australia and its landscape to what it is today.[5] The Pyrmont Peninsula appears to form part of the boundary between the Wangal and Gadigal clans. The Wangal boundary extended from Tumbalong (Darling Harbour), westward to Rose Hill to the area later named Parramatta, while the Gadigal occupied the land from the entrance of the harbour, extending along the southern shoreline towards Tumbalong. Despite these 'boundaries', Aboriginal people camped on both sides of Tumbalong and smaller, more diverse groups (sometimes referred to as 'bands') fished in its waters.[6] Women married into other neighbouring clans and individuals had responsibilities in other clan lands to which they were linked through parents, grandparents or by marriage.[7]

> So while it is probably correct to say that Ultimo, on the western shore of Tumbalong is Wanngal land, we should remember that this land also had meaning to the Aboriginal people living across the saltwater clans of coastal Sydney who linked back to the Wanngal. Based on this, we should avoid the temptation to assume (as many early Europeans did) that any Aboriginal person observed in a particular area was necessarily 'from' that clan. This is very important to bear in mind when we look at how Aboriginal people lived around and on the waters of Tumbalong.[8]

Rock shelters located in the sandstone outcrops around Sydney harbour provided ideal habitation areas for Aboriginal people and would have been used for campsites, with some likely to have contained charcoal and pigment artworks. However, any of these shelters that may have once been present across the Ultimo-Pyrmont Peninsula are likely to have been destroyed by early European quarrying and development.[9] Despite massive changes to the shoreline, some traces of Aboriginal fishing camps have survived around Tumbalong. Shell middens have been found on both sides of the Harbour, showing that Aboriginal people fished cockles, rock oysters and mud whelks out of the mudflat. Stone artefacts have been found at camps to the southwest of the Powerhouse site.[10]

At the time of European invasion in 1788, the Aboriginal population of the Sydney Cove region has been estimated at around 1500-2000 people,[11] a population that was severely and disproportionally impacted in the subsequent years, disposed and relocated from their traditional lands by the swiftly expanding European incursion. The Aboriginal community around Tumbalong would have been devastatingly impacted by the smallpox epidemic which swept the harbour in 1789, resulting in a massive loss of life for the Aboriginal people of Sydney.[12]

Ethnohistorical accounts provide some early descriptions of the use of the Pyrmont Peninsula and wider Port Jackson area by Gadigal and Wangal people, as well as their experiences and interactions with European arrivals. Compared with other nearby areas of Sydney, the Ultimo-Pyrmont Peninsula remained largely undeveloped for many years following European arrival, affording retention of a stronger measure of Aboriginal presence in the earlier years of the NSW colony that was not equalled in adjacent areas such as Sydney and Farm Coves. Aboriginal people on the Ultimo-Pyrmont Peninsula continued to live traditionally for decades after the arrival of Europeans, as is demonstrated through both the historical and archaeological records. Archaeological evidence demonstrates how new materials were adopted into traditional practices, such as fashioning a tool from a piece of glass.[13] Colonial descriptions and images depict Aboriginal people continuing to camp and fish around Tumbalong into the 1820s.[14]

It was not until the late 1830 and early 1840s that the colonists began to turn their attention to the Pyrmont Peninsula for more 'rural' uses, resulting in land clearance and further dislocation of Aboriginal people from their traditional land. However, the Ultimo area remained significantly under-developed in comparison to the nearby larger industrialised areas like Darling Harbour until the late 1880s, and historic records suggest that the area continued to be used by local Aboriginal people during the mid-19th century for gathering oysters and cockles from the shore.[15]

2.2.1 Environmental History

John Harris leased land in the Ultimo area from as early as 1796,[16] before being granted 34 acres by Governor King in 1803 for land 'between the Church land and the ground used as a brickfield without the town of Sydney,'[17] with the rent agreement after five years set at two shillings and sixpence a year. Harris proceeded to clear and cultivate the land, establishing Ultimo House in 1804 (Figure 2.1 and Figure 2.2).[18] The name Ultimo was reportedly a joke between Harris and the Governor; when court marshalled in 1803, Harris had avoided conviction on a technicality due to the incorrect use of the Latin term ultimo (last month) rather than instant (this month) in his charge.[19] Harris received additional land grants at Ultimo in 1806 of 135 acres and 9 ¼ acres,[20] resulting in his ownership of the majority of the land of the Pyrmont peninsula, only really excluding the estate of John MacArthur in the north.[21] The Powerhouse site appears to be within the boundaries of Harris' 1806, 135-acre land grant. In the 1820s Harris employed around 30 convicts and free workers on his Ultimo property, while he himself moved in 1821 to his land at St Mary's, leasing Ultimo House and only using it on occasion when he was in Sydney.[22]

From the 1830s, other areas of Darling Harbour began to be reclaimed and developed, including construction at the northern Pyrmont end of Harris Street in c.1836 as part of Edward Macarthur's (John Macarthur's son) subdivision and development of Pyrmont.[23] This led to the Aboriginal people of Pyrmont being pushed further south down the peninsula towards Ultimo, where John Harris' grandson, Matthew, recalled they could still harvest cockles from the bays near Ultimo House up until the mid 19th Century.'[24] During this time, the Powerhouse site would have remained fairly marshy, while the nearby harbour became increasingly silted-over and polluted. The Ultimo Estate area was described in 1848 as:

> A small third class district lies at between the head of Darling Harbour and Parramatta Street. It is formed by Victoria Street Ultimo Road, Valentines lane etc, and stands on rather uneven ground which slopes down into the flat shores of the Harbour. The irregular streets contain only a few scattered and chiefly slab cottages entirely of the third class. They are old wretched and probably very unwholesome, from the surrounding moist and foul flat land. They are entirely removed from all active traffic.[25]

John Harris died in 1838 with no children, leaving his Harris Estate and surrounding properties to be divided equally between his brothers William and George Harris.[26] However, complications with the Will resulted in the brothers' being able to receive rent from the properties, but unable to subdivide the land.[27] This in turn meant that while development occurred in surrounding areas into the mid-19th century, the Harris Estate land remained quite sparsely populated and underdeveloped during this time.[28] Following the deaths of William and George Harris, the land was inherited by their respective sons (both named John Harris), and in 1859 the Harris Estate was finally able to be subdivided.[29] In February 1860, as part of the subdivision among the Harris family that came to be known as "The Lottery", the children of one side of the Harris family divided up their 35 allotted blocks to be shared between them by drawing numbered lots out of a box.[30]

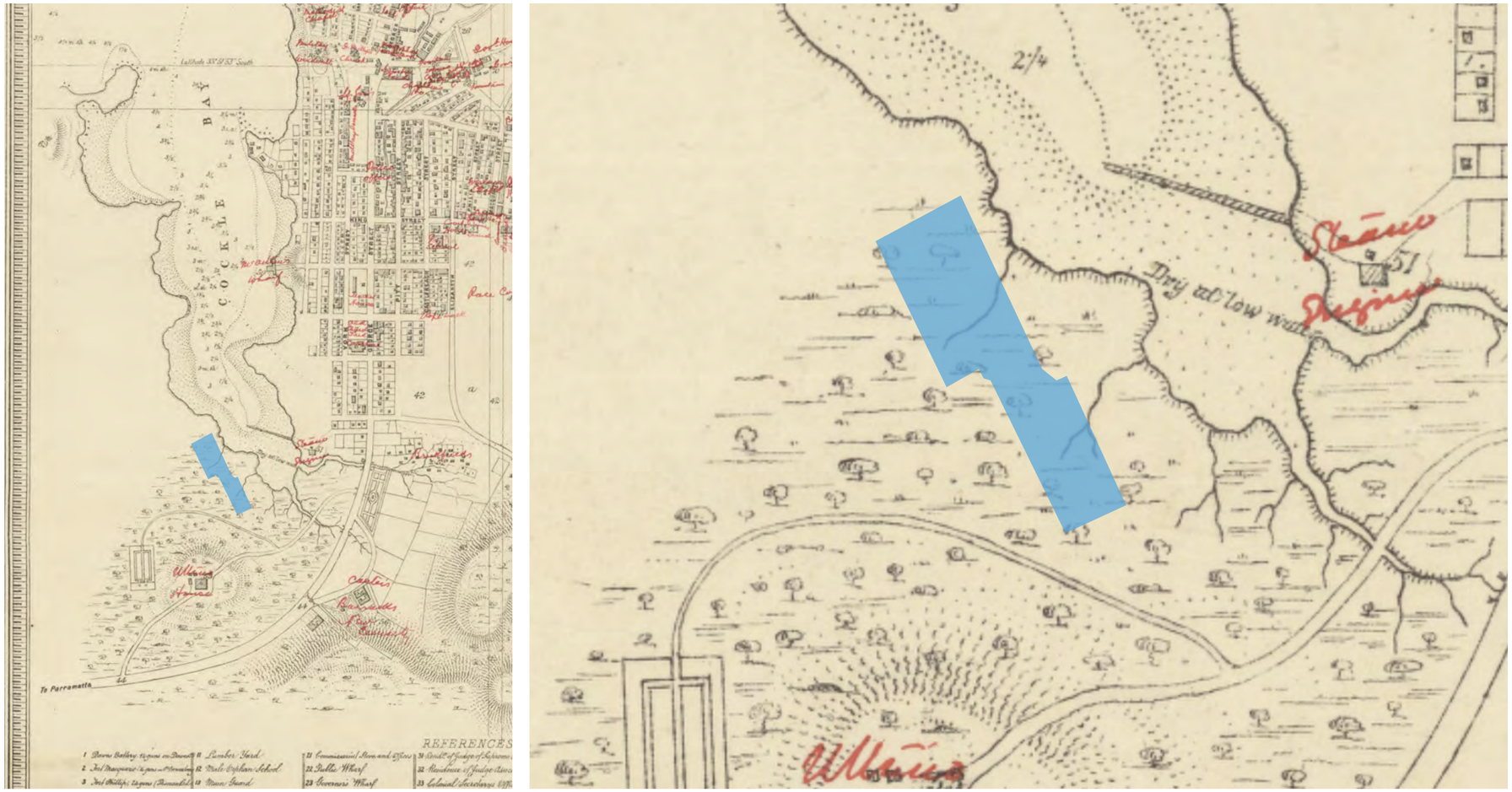


Figure 2.1 Plan of the town and suburbs of Sydney, August, 1822 (Source: National Library of Australia, 2674887 with Curio overlay). showing early context of Powerhouse site. Ultimo House was located south west of the present day site.

Figure 2.2 Edward Mason, Ultimo Place, with Cockle Bay, in Views of Sydney and Surrounding District, c.1821-23 (Source: State Library of NSW, PXC 459)

The Power House buildings and Ultimo Post Office are located on Block 23 of the 1859 subdivision (bordered by Harris Street, William (later William Henry) Street, Macarthur Street and Pyrmont Street and inherited by Margaret Harris),[31] whilst the Harwood building (former Ultimo Tram Shed) is located on Block 20 (likely inherited by John Harris of Shane Park).[32]

In the 1840s and 1850s, Harris Street ran along the western boundary of the Powerhouse site, while Pyrmont Street did not yet extend to the site, instead ending at Union Street in Pyrmont. Small parcels of land across the Ultimo area were rented out, and the 1845 Sydney rates assessment books record that several huts of mud, brick, wood or wattle with bark roofs had been constructed on the Harris Estate land[33] (Figure 2.8). The visual landscape of the area is evident in Elyard's 1860s watercolours of the area (Figure 2.3 and Figure 2.4).

The relatively underdeveloped nature of the Harris Estate, with only a sparse scatter of cottages across the landscape, continued well into the later 19th century and even as late as the turn of the century when the land was resumed for the construction of the Ultimo Power House. By the late 1880s the only 19th century houses that remained within the original site boundaries were those at 137 William Henry Street and several along Pyrmont and Harris Streets (discussed in further detail in Section 3.4.2, with respect to historical archaeological potential).

Numerous sandstone quarries were established across the Pyrmont Peninsula in the 1840s and 1850s, extracting the high-quality Pyrmont 'yellow block' sandstone that was the preferential building material for many of Sydney's major public buildings constructed in the late 19th century including Sydney Town Hall, Sydney University, QVB and the GPO.

While the majority of the larger and better known Pyrmont sandstone quarries were focused along the western side of the peninsula (such as the Saunders family quarries "Paradise", "Purgatory" and "Hell Hole"), historical maps indicate that several quarries were also located within and adjacent to the subject site—on the site of the Harwood building, and one along Harris Street between William Henry and Macarthur Streets, possibly crossing into the site from the east (Figure 2.6). The 1883 Sands Directory also refers to a quarry located near William Henry Street, while a 1853 map and 1872 photograph both suggest the presence of a potential quarry line either through or immediately adjacent to the subject site (Figure 2.5 and Figure 2.8).

Other significant developments around Ultimo and the Pyrmont Peninsula during the 19th Century included construction and operation of both the Darling Harbour Goods Line (1855) and the Pyrmont Bridge (1858). While the opening of the Pyrmont Bridge improved general accessibility to the Pyrmont peninsula, its location also made it easier for traffic from the eastern side of Darling Harbour to bypass Ultimo entirely.

Figure 2.3 Samuel Elyard, Darling Harbour, 1864, in Views of Sydney, 1862-1873 (Source: State Library of NSW, DGD 5)

Figure 2.4 Samuel Elyard, Darling Harbour from Harris Street, 1867 (Source: State Library of NSW, DG V*/Sp Coll/Elyard/18)

The transport association of the subject site commenced in 1871, when the newly formed Sydney Omnibus Company constructed stables and a hay shed on Block 20 of the Ultimo Estate subdivision (Figure 2.5) (the block on which the Harwood Building is now situated). Later known as the Sydney Tramway and Omnibus Company (STOC),[34] this horse-drawn omnibus company was one of Sydney's main private companies providing transport services for most of Sydney's Eastern suburbs, as well as through the city centre and out to Glebe, Forest Lodge, Newtown, Stanmore, Marrickville, St Peters, and the Cooks River.

The subdivision of the Ultimo Estate and the areas subsequent development led to an increase in the population of Ultimo. In 1881 the Government Savings Bank opened a branch on Harris Street, Ultimo in rented premises. Further development including the construction of the Ultimo Power House saw a need for more commercial premises, with a purpose-built Post Office being constructed on the corner of Harris and William Henry Street in 1901 (see following section, and Part C: Section 14 for further detail on the Ultimo Post Office).

During the mid to late 19th century there are less records documenting Aboriginal people living around Ultimo, this may have been due to the subdivision of Harris' estate, the increased urbanisation of the area, or less records about Aboriginal people of the area being kept.[35] The industrial development of Tumbalong and Ultimo in the late 19th century saw the Aboriginal people of coastal Sydney gradually move from their camps around the harbour to the La Perouse Aboriginal fishing settlement.[36] The formation of the Aborigines Protection Board in the early 1880s drove this change. Missionaries and the police had applied pressure on the Government to intervene, and the board was initially established as a means of coordinating government assistance to Aboriginal people. Whilst the board initially had no legal powers, by making La Perouse the primary location for government assistance in coastal Sydney, they influenced where the Aboriginal people of coastal Sydney lived.[37] For the Aboriginal people who continued to visit the inner city, there was an increase in police surveillance and arrests. The Aboriginal people documented in the Ultimo Pyrmont area during this time were predominantly women from outside of Sydney who worked as domestic servants.[38]

Figure 2.6 Sandstone disturbance through quarrying and railway/wharf construction (Source: Broadbent 2010 p. 423, Figure 5.5.8)

Figure 2.5 N J Caire, Anglo-Australasian Photo Company, Scene from the Sydney Town Hall Tower, 1878 showing subject site with sandstone quarrying evident along the eastern side of the peninsula. Sydney Omnibus Stables on Block 20 indicated. (Source: State Library of NSW, SPF/994)

Figure 2.7 Map of Ultimo Estate, 1871 with Powerhouse site indicated. (Source: Office of the Registrar General, Doc: CP 00002-1543 P)

Darling Harbour Goods Line

Upon formation in 1849, the Sydney Railway Company approached the Harris family to request the purchase of seven acres of land for the construction of a railway connecting what is now Central Station with the new wharfing facilities proposed for Darling Harbour, including additional acreage for a goods terminus.[39] This land was eventually purchased from the Harris family in 1853, although management of the railway and the land was taken over by the NSW Government in 1854 after the failure of the Sydney Railway Company.[40] A plan of the land resumed for the proposed railway line is shown in Figure 2.8. A new embankment was constructed along the western edge of Darling Harbour to support the Goods Line, requiring importation of substantial volumes of soil.

At its opening in 1855, the Darling Harbour Goods Line extended along the eastern boundary of Ultimo and ended just south of the future location of the Pyrmont Bridge. The presence of the Goods Line in this location effectively severed the direct connection between Darling Harbour and Harris Street, with the Powerhouse site located in between. This isolation of the Harris land from Darling Harbour, in addition to the underutilisation of the rail line in its early years, created tension between the Harris family and the Government, with the land around the railway through the Harris estate described in 1863 as being 'dilapidated, the railway merely an embankment with the rails set on and the terminus undeveloped'.[41]

Government reclamation of the southern end of Darling Harbour and constructed of the Iron Wharf in 1874 eventually allowed the reactivation of the Goods Line in the 1870s, which went on to became vital in the transportation of wool, coal, shale, timber, and wheat in and out of Sydney. As a result of the industrial development boom following the construction of the Iron Wharf and corresponding relevance of the rail lines, the Darling Harbour Railway Goods Yard was constructed between 1874-88 at the head of the Goods Line (north of the site) and continued to grow and develop into the 1920s. The location of the Goods Line was also to become vital in the transportation of the large quantities of coal required by the Power House for its operation, after its opening in 1899.[42]

The 1960s saw the port functions and wool stores moving away from Sydney which led to a decline in the functions of the railway. The Darling Harbour Goods Line was eventually closed in 1984, and the Goods Yards were redeveloped as part of the NSW government bicentenary project. For further details on the history of the Goods Line, see Part C: Section 17 of this CMP.

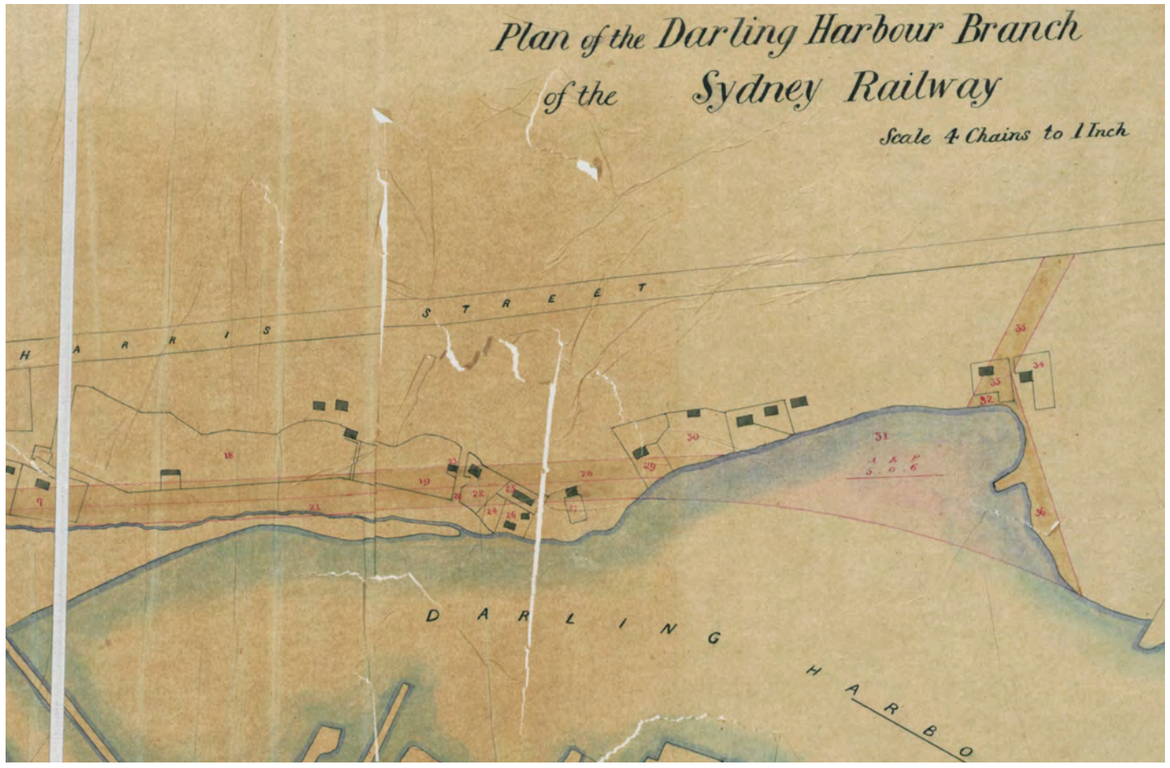


Figure 2.8 Plan of the Darling Harbour Branch of the Sydney Railway, 1853, in Surveyor General sketch book folio 28-71 (Source: State Archives and Records Authority of New South Wales, NRS-13886-1-[X764]-Volume 6 Part 2-14)

Figure 2.9 Goods loco 3381 steams across the Ultimo Road underbridge with the three chimneys of Ultimo Power Station in the background. (Source: The Goods Line – then and now – Inside the Collection (maas.museum) Accessed 23 May 2022)

2.2.2 Ultimo Power House, Tram Shed and Post Office (1895–1940s)

In 1895, the Minister for Public Works commenced investigations into construction of an electric tramway between Circular Quay and Pyrmont (George Street to Harris Street), a proposal that was accepted by majority in 1896. This was soon followed by a general policy to electrify all Sydney's existing tram lines. An Act of Parliament that sanctioned the construction of the George Street and Harris Street Electric Tramway, along with a supporting Power House and Car House at Ultimo, was approved in September 1896.[43] The path of the authorised proposed tramway, Power Station and Car House are shown in Figure 2.10.

The Ultimo Power House was the original generation station for the supply of electricity to the Sydney electric tram network and general distribution of electrical power in the area. It was the first large-scale electric power plant constructed in Australia—a title which it retained for many years. The final location of the Power House was selected on the basis of a number of factors including: access to the Darling Harbour Rail Corridor (The Goods Line) for coal supply and the disposal of the ashes; access to Darling Harbour for adequate sea water supply for the condensers and the distribution of electrical current; and the low cost of the land and space for expansion.[44]

The majority of contracts for the construction of the George and Harris Street tramway (and associated Tram Stabling Shed and Power House) were let between 1897 and 1898. J. Stewart & Co contracted to build the Ultimo Power House and Tram Shed,[45] and Justin McSweeney awarded Contract 18 to construct the water conduit connecting Darling Harbour to the Boiler House supplying seawater to the condensers (i.e. the Water Cooling System and Manifold).[46] Construction of the Ultimo Power House commenced in 1898 (Figure 2.12 and Figure 2.13).

The original building constructed for the Power House occupied the north of the block bounded by William Henry Street to the north. It consisted of the Engine House, Office, (Old) Boiler House, and Pump House, with the overall building measuring 200 feet (c.60m) x 100 feet (c.30m), with the original pump house chimney stack constructed with 890,000 bricks extending 300 feet (c.91m) above flue level.[47]

The Ultimo Car House (Tram Shed), constructed at the same time as the Power House on the southern block bounded by Macarthur Street to the north, Mary Ann Street to the south, Omnibus Lane to the west, and the Darling Harbour Goods Line to the east, measured 275 feet (c.83m) x 130 feet (c.39m), and was the first of the electric tram depots opened for the early 20th century Sydney Tram network.[48] A Store and Repairing Shop, contracted to T. E. Spencer & Co, adjoined the Car House at the rear and featured the same sawtooth design of the Car House.[49]

The first electricity was supplied to the tramway for an experimental tram ride on 22 November 1899. The Ultimo Power House was officially completed on 29 November 1899, powering the official opening of the Harris and George Street tramline on 8 December 1899.[50] The tramline was incredibly popular and carried 95,000 passengers in the first two days of operation.[51] Originally supplying power for electric traction for the George Street and Harris Street tramlines, the Ultimo Power House later extended its supply of electricity to the Eveleigh Railway Workshop (1900) and Central Station (1907).

In 1901, a purpose-built Post Office was constructed at 494 Harris Street on the corner of Harris and William Henry Streets (Figure 2.14), replacing the postal operation at 484 Harris Street. The Ultimo Post Office, designed in the Federation Queen Anne style by the Public Works Department's Government Architect's Branch under Walter Liberty Vernon, formally commenced operation in July 1901, and continued to function as a Post Office until the 1980s.[52]

Sydney's demand for electricity increased rapidly. Almost immediately following its completion in 1899, it became apparent that the Ultimo Power House required expansion to increase its output capacity. Therefore in 1902, just three years after opening, the first extension to the Ultimo Power House was undertaken. Developed by plans drawn by J. G. White & Co. of New York, the 1902 design consisted of a southern extension to the Engine House (later renamed the Turbine Hall) and the construction of a new and larger Boiler House, extending the space by a further 54m south than what the old Boiler House building had occupied (Figure 2.15). The 1902 extensions transformed the Ultimo Power House from a small electricity generation plant, to a substantially sized power station more in line with modern power plants elsewhere in the world, at the time it was said to resemble the New York Metropolitan Street Railway Company's 96th Street Power House.[53]

By 1910, the Ultimo Power House was approaching capacity, with the majority of its power earmarked to serve Sydney's expanding tramway network. Thus, in 1912, the White Bay Power Station was constructed to meet Sydney's growing need for electricity for lighting and general use.

When the Power House was in operation, local residents who left their windows when they went out, would return home to find a fine dust coating their furniture[54] (Figure 2.16). In 1913 the City Health Office wrote to the Town Clerk regarding the heavy smoke emissions from the Power House. In the Town Clerks reply it was claimed this was to be striked by southern coal miners resulting in inferior coal being sourced from northern areas of the state.[55] The pollution in Ultimo would have been quite severe, with a 1924 news article reporting that the Power House used 700 tonnes of coal a day.[56]

> The Ultimo powerhouse, well that was the tramway powerhouse. Before any people around here would wash you'd always go out and see what smoke was coming out the chimney. If it was white smoke you'd wash, but if it was black smoke you wouldn't…because all your sheets and your whites used to get dirty.[57]

Two pneumatic ash ejector plants were constructed in the Power House between 1911 and 1915. These delivered the ash from the boilers to the railway trucks which removed them via the Goods Line, reducing the need for ash management by Power House staff.[58] This system was later replaced (around 1931) by an electrically propelled rail hopper truck which carried the ash from the boilers to a wet sump where it was them pumped into hopper barges on Darling Harbour through 2240 feet of pipe.[59]

Figure 2.10 1896 location of proposed Power House and Car House (Source Legislative Assembly, New South Wales, *Report of the Department of Public Works for the Year Ended 30th June 1896*)

Figure 2.11 Detail from Map of the City of Sydney, 1903 (Source: City of Sydney Archives, Map 1) showing Ultimo Power House and Tram Car Shed

In 1913–14, the Ultimo Tram Instruction Room was constructed. It fronted William Henry Street between the Ultimo Post Office and the Power House Offices (North Annex), requiring the demolition of the former 1870s house at 137 William Street. The Tram Instruction building was 'a sizable single storey brick building with asbestos shingle roof',[60] that contained significant tram car equipment used in the training of electric tram drivers.

At the commencement of this operation in 1899, cooling water for the Power House's condensers was sourced via a water conduit which connected Darling Harbour to the Boiler House. This had been constructed at the same time as the main Power House buildings in 1898. Land reclamation works around Darling Harbour in the 1920s, as well as the larger water requirements of new turbines in the Turbine Hall, necessitated the installation of new, longer intake and outlet conduits for the Power House. Conduit installation works commenced in 1923–24, and were completed by 1928, proving to be one of the most expensive works undertaken during the modernisation of the Power House.[61]

Between 1927 and 1932, the Ultimo Power House underwent a major period of modernisation and remodelling to achieve greater efficiency of operation (Figure 2.18). This work included the replacement and upgrade of much of the industrial equipment and plant, installation of a new pneumatic coal handling plant, and construction to the south of the Boiler House of a new concrete coal store with a storage capacity of 10,000 tonnes. The new coal storage bin allows continued operation of the Power House in the case of strikes on the coalfields.[62] Following completion of modernisation works in 1932, the Ultimo Power House was for a time the largest generating plant in the Southern Hemisphere[63] (Figure 2.17).

Predating but tangential to the 1927–1932 modernisation works, was the construction of the Switch House. This building, adjacent to the southern wall of the Turbine Hall, was built between 1922 and 1927 and measured 23m wide, 61m long and 17m in height. The Switch House was purpose built to house a new control room, high tension switch gear, and transformer banks. The works enabled a major upgrade to the switching gear of the Sydney tramway network, as the existing switchboard facilities in the Engine House or Turbine Hall had reached their capacity.[64]

Figure 2.12 Construction of the Pump House at Ultimo Power House, 1898 (Source: State Archives and Records Authority of New South Wales, NRS-4481-2-[4/8645]-1225)

Figure 2.13 Construction of the Pump House at Ultimo Power House, 1898 (Source: State Archives and Records Authority of New South Wales, NRS-4481-2-[4/8645]-1219)

Figure 2.14 Ultimo Post Office, c. 1901 (Source: State Archives and Records Authority of New South Wales, NRS-4481-2-[4/8610]-559)

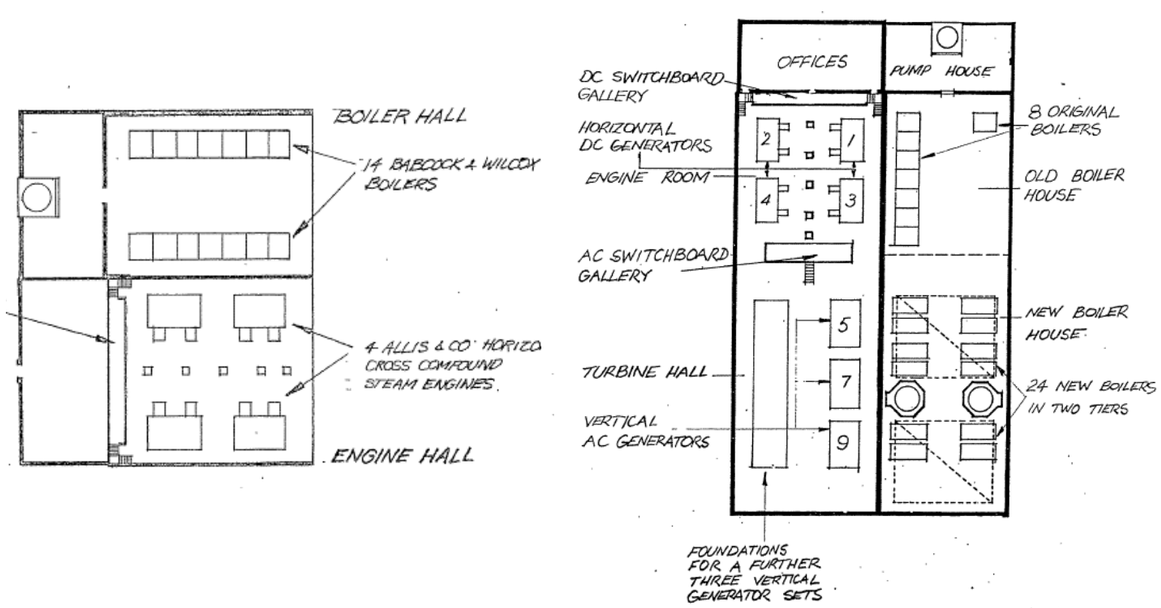


Figure 2.15 1899 Layout of the Power House layout (left) and 1902 (right). (Source: Godden et al. 1984 p. 98 and 104)

Figure 2.16 Ultimo streetscape 1909 with Power House and chimneys in background (Source: City of Sydney Archives NSCA CRS 51/1532)

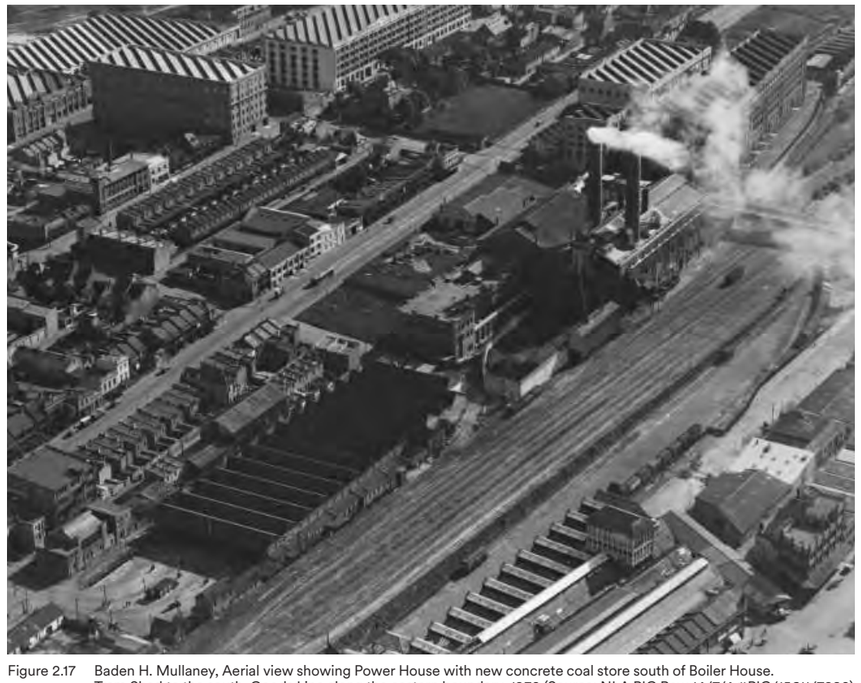


Figure 2.17 Baden H. Mullaney, Aerial view showing Power House with new concrete coal store south of Boiler House. Tram Shed to the south, Goods Line along the eastern boundary, 1932 (Source: NLA PIC Row 14/7/4 #PIC/15611/7980)

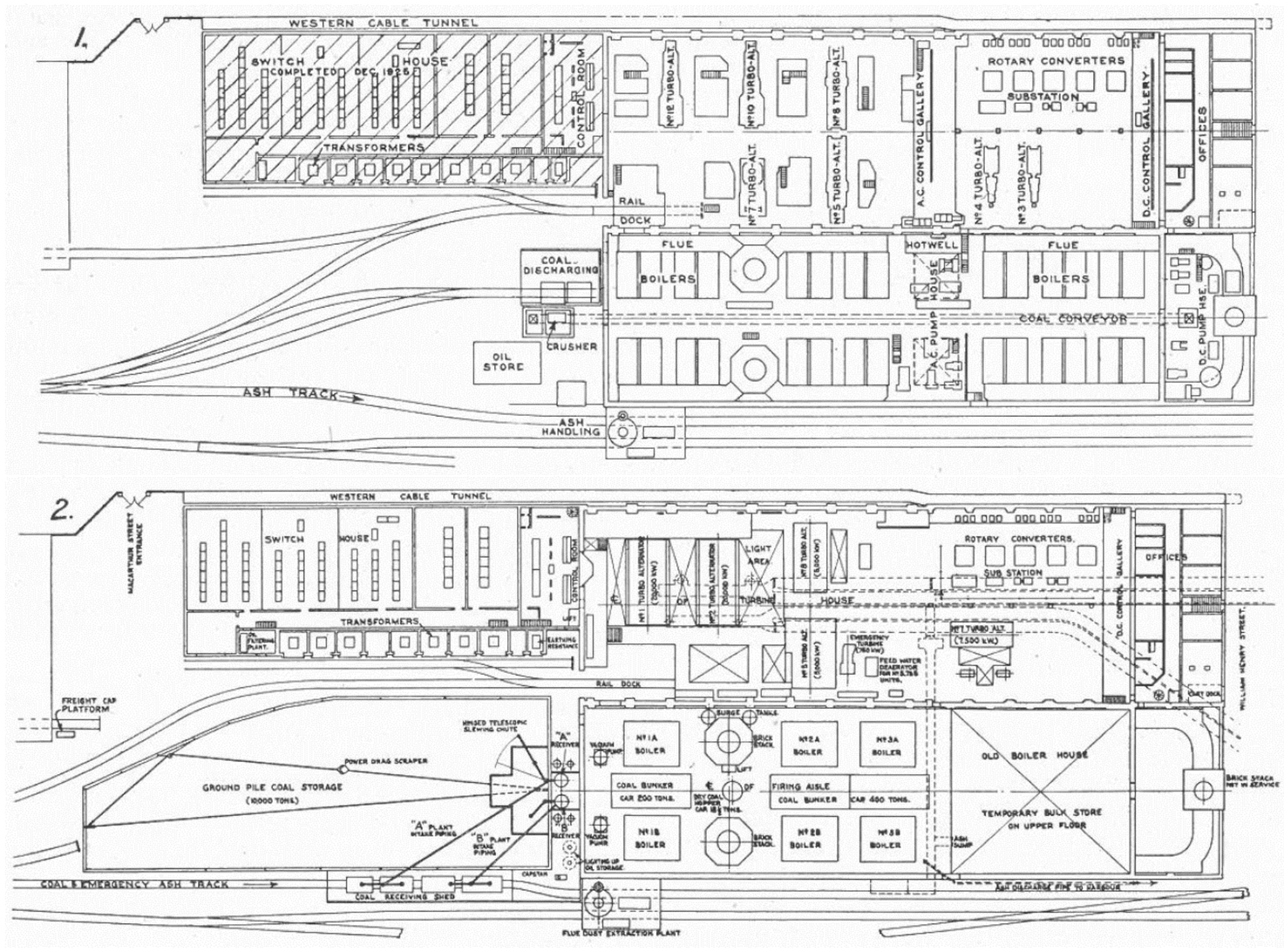


Figure 2.18 Pre 1933 (top) and Post 1933 (bottom) Configuration of Ultimo Power House (Source: Myers, 1933 p.254)

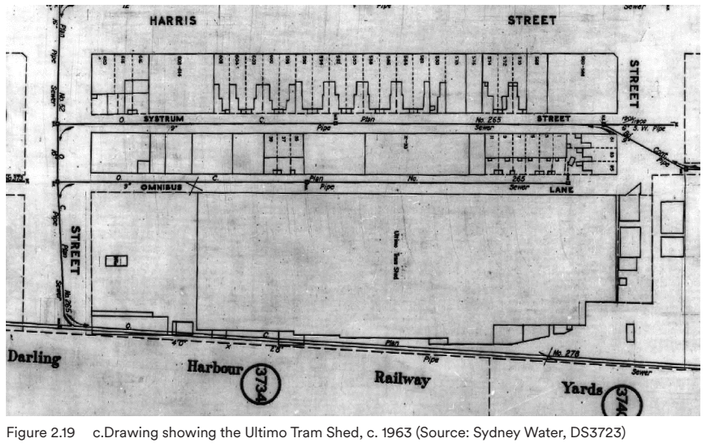


Figure 2.19 c.Drawing showing the Ultimo Tram Shed, c. 1963 (Source: Sydney Water, DS3723)

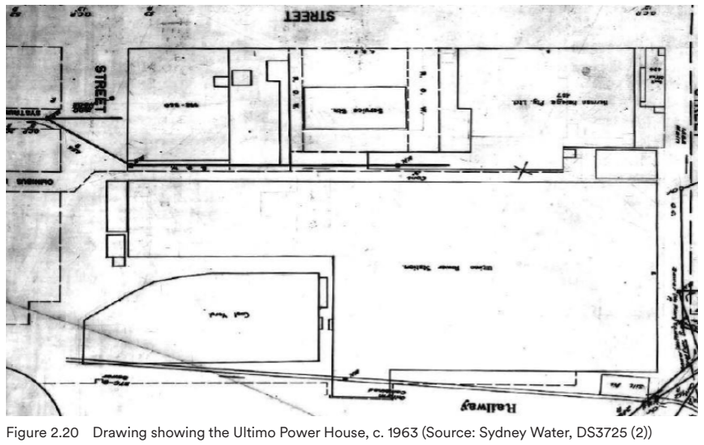


Figure 2.20 Drawing showing the Ultimo Power House, c. 1963 (Source: Sydney Water, DS3725 (2))

2.2.3 Site Modifications, Closures, and Abandonment (1940s–1979)

The Ultimo Power House was subject to numerous adaptations and modifications over time, as necessary to meet the ongoing requirements for the power station. During WWII, precautions were made at the Ultimo Power House in the case of an air raid, including the construction of air raid shelters and barricading the lower windows of buildings with sandbags (Figure 2.21). A severe impact to NSW coal supply in the 1940s as a result of industrial action at the coalfields, resulted in conversion of the boilers to operate on fuel oil in 1947.[65]

The Commissioner of Railways purchased 550 Harris Street in April 1948 providing a frontage to the street.[66] The Tramway Instruction Room was vacated in 1953 when a new training school opened in Randwick, and by 1954 it was being used as a storeroom for the Electrical Commission of NSW.[67] The building appears on the 1963 Sydney Water Plan of the site and it appears to have remained until the development of Stage 2 of the Powerhouse Museum required its demolition as it was recorded when Godden et al reviewed in the site in 1984.[68] The State Railways operated the Power House until 1953 when the Ultimo Power House, along with all other Railway Department Power Houses, were transferred to the Electricity Commission of NSW.[69]

In the 1950s, tramways began to be slowly phased out of use across NSW, replaced by buses. This decline of Sydney's tramways resulted in the closure of the Ultimo Power House on 11 October 1963.[70] By this stage the Power House was only used as a minor component in the Electricity Commission's grid (mostly for tram function only), having been superseded in its output capacity since 1923 by White Bay Power Station.[71] Much of Ultimo's plant and equipment was disassembled and removed between 1965-1966, following which the Power House buildings fell into disrepair and was subsequently damaged by decay, squatters, and vandals. In 1968 a large proportion of the former Pump House and chimney was demolished for the construction of the William Henry Street bridge, while the two brick chimneys at the southern end of the Boiler House were demolished to the roofline in 1976-77, resulting in severe damage to the Boiler House roof.[72]

In the 20th Century there continued to be Aboriginal connections to Ultimo and the surrounding area. In 1933 workers from the Ultimo Power House, alongside a number of workers' groups, contributed to the Eatock Defence Fund, to help fund the defence of Noel Eatock, an Aboriginal man who was arrested and charged when participating in a protest against the dole form in October 1932.[73] In the 1960s, Aboriginal people became increasingly active in the political sphere, particularly around issues that affected their lives such as citizenship and land rights.[74] The Foundation for Aboriginal Affairs was established in 1964 and from 1966 the foundation was located not far from the Powerhouse site at 810-812 George Street. The foundation was established to provided support for Aboriginal people who had migrated to Sydney from regional NSW, and was also a popular location for community functions, concerts and dances. The Foundation attracted prominent political campaigners including Harry Williams, Chicka Dixon and Charlie Perkins, who spoke about issues including the 1967 Referendum and Land Rights.[75]

Figure 2.21 Air Raid Precautions at Ultimo Power House, 1943, with sand bags along North Annex (Offices) lower windows (Source: State Archives and Records Authority of New South Wales, NRS-17420-2-4-364/051)

2.2.4 The Powerhouse Museum (1981 to Present)

Brief History of Museum of Applied Arts and Sciences
The Museum of Applied Arts and Sciences (MAAS) has undergone many changes during its 140 year history. Founded in 1880 following government acquisition of exhibits from the 1879 Sydney International Exhibition, and known initially as the Technological, Industrial and Sanitary Museum of NSW, the museum suffered an early loss with the devastating fire that destroyed its first residence in the Garden Palace in Sydney's Royal Botanic Gardens in 1882. With the majority of the collections lost, the museum was re-established in the Agricultural Hall in the Outer Domain in 1883, under the curatorship of Joseph Henry Maiden. The conditions of the former Agricultural Hall proved to be woefully inadequate to house and maintain the museum's collection, and in 1893, the Technological Museum finally moved into its own purpose-built home on Harris Street, Ultimo, within the Technical College, where it remained until 1988.

> The Powerhouse Museum has a history spanning 120 years. Conceived in an era when technology, industry and sanitation were thought to be the keys to a better society, the new institution, based on the latest developments in London, set about collecting 'typical collections of all materials of economic value belonging to the animal, vegetable and mineral kingdoms, from the raw material through the various stages of manufacture to the final product or finished article ready for use'.[76]

Establishment of the Powerhouse Museum in Ultimo
From the closure of the Ultimo Power House in 1963 until the late 1970s, a wide range of options of what to do with the now defunct Power House site were explored, with potential options ranging from total demolition of the site, through to full reconstruction and intervention. This period of contemplation of the Power House's fate coincided with a period during which the Museum of Applied Arts and Sciences were investigating options for relocation from their now-unsuitable location nearby within Sydney Technical College. Both the options for the future of the Power House, as well as the relocation of the Museum of Applied Arts and Sciences, were also influenced by the ongoing process of de-industrialisation of Pyrmont and Ultimo that had been occurring since the 1950s.

Suggestions for use of the Powerhouse site for a museum were made as early as 1964, when plans were made to convert the former Ultimo Tram Depot (Harwood Building) to a Transport Museum—although these plans were initially abandoned when it appeared there was a conflict with the route of the 1965 Western Distributor.[77] However, when the freeway plans were finally curtailed in 1977 avoiding the Power House site, the possible use of the site as a Museum re-emerged.

On the 13th of August 1979, NSW Premier Neville Wran announced the Ultimo Power Station and Tram Depot was to become the new home of the Museum of Applied Arts and Sciences. Dr Lindsay Sharp was appointed as the Director to oversee the transition of the site to the new museum space, and the plan commenced with the resumption of the William Henry to Macarthur St block by the Public Works Department in 1980. The 1980s design of the Powerhouse Museum was coordinated by the NSW Public Works Department in close association with the Powerhouse Museum in-house design team.

A heritage report prepared in the early 1980s (Godden et al, 1984) reported upon the condition of the former Power House buildings at the time, (although the adaptation of the former Ultimo Tram Shed was undertaken prior to this assessment, without detailed heritage assessment and recommendations prepared prior to development impacts).

> Many of the features of the Power House extant in July 1982 have already been removed. Included in the features removed are the massive concrete engine pads on which the 20,000 kW Parson's turbines were mounted, the tiled walkways which surround them, the switchboard gallery on the western wall of the engine room, the bus-bar cabinets in the switch house and the hoppers and columns at the north end of the boiler house'[78]

While the 1984 report made a number of recommendations for retention of the Power House industrial equipment and machinery in its adaptive re-use and interpretation, the majority of these recommendations were overridden in the design process for budgetary and time reasons.

> ...the Overview Group listed a number of exhibitions that had to be 'stand alone' from the thematic organisation because of their spatial requirements'. This included orientation (with a notional space of 500 sq metres), history of the museum (50 sq. metres), history of the powerhouse (50 sq. metres), a discovery room, an information centre and models in the north annexe. On this basis the 'history of the powerhouse' was allocated 50 metres out of 11,200 metres of allocated space. The history and meaning of the powerstation and the tramway system did not loom large in the mindset of the curators, the directorate, designers, consultants, or anyone else associated with this start-up phase when both the museum and as many exhibitions as possible had to be opened to a political and financial deadline.[79]

Works undertaken to the former Power House buildings in the adaptive reuse of the site as the Powerhouse Museum mostly resulted in the industrial buildings remaining as shells only, with most original equipment, plant, machinery, and finishes removed, refit with modern exhibits, amenities, and services as required for the modern museum. The substantial bulk of the alterations and additions to the Powerhouse site were focused along the Harris Street frontage, including construction of the new Wran Building.[80] The water conduit (Water Cooling System and Manifold) connecting the Power House and Darling Harbour was repurposed to serve as part of the museum's air conditioning system (and continues to do so to this day). According to project architect Lionel Glendenning, the design of the Wran Building responded to the 'the golden mean proportion' of the Turbine Hall, with Vault 1 making architectural reference to the Museum of Applied Arts and Sciences' first home in the Garden Palace, and Vault 2 referring to the arches of the Boiler House.[81]

> The existing buildings, which include the former turbine, switch and boiler houses, have been stripped back to the bare essential structure. Exhibits, including airplanes, motor vehicles and helicopters, are hung in space. The new work was largely confined to the Wran Wing, a barrel-vaulted room, partially glazed with an external colonnade along Harris Street. From the entry, ramps, escalators and lifts lead the visitor to the various parts of the museum and the interactive displays.[82]

Figure 2.22 Engine Hall at Ultimo Power House being redeveloped as part of Powerhouse Museum Stage 2, c. 1986 (Source: Powerhouse Photo Library 00239730.jpg)

Figure 2.23 Turbine Hall c. 1986 (Source: Powerhouse Photo Library 00215888.jpg)

Stage One of the Powerhouse Museum at Ultimo was opened by NSW Premier Neville Wran on 4 September 1981, and consisted of the adaptive re-use of the former Ultimo Tram Depot as a temporary public gallery, conservation and fabrication area and storage space (Figure 2.24). A commemorative time capsule was buried in the Mary Ann Street carpark at the 1981 opening, with items including a 1981 bottle of Penfold's Grange red wine, a Space Invaders Game, newspapers, a UBD street directory, Sydney telephone books, and photographs of the museum trustees and staff[83] (Figure 2.26 and Figure 2.32). In 1984 the Ultimo Tram Depot was formally renamed the Harwood Building, in honour of Norm Harwood, a former curator of the Museum of Applied Arts and Sciences.

Stage Two of the Powerhouse Museum at the Ultimo site opened on 10 March 1988, constituting the adaptive re-use of the former Power House buildings along with the newly constructed Wran Building (Figure 2.34). The new museum was well received and was awarded the Sulman Award for architectural merit for that year. With the opening of Stage Two of the Powerhouse Museum, the exhibits temporarily located in the Stage One development (i.e. the Harwood Building), were relocated across to the Power House buildings and the Harwood building was converted into conservation labs, collection storage and office space. While the construction of the Wran building was innovative for its adaptive reuse of the site at the time, it also impacted the visibility and readability of the existing heritage buildings within the site, including the former Power House buildings, and the Ultimo Post Office.

> The re-design of the power house into a museum won numerous awards including the Sir John Sulman Medal in 1988, the Australian Institute of Architects (AIA) National President's Award for Recycled Buildings, the NSW AIA Chapter Belle Interiors Award for Interior Design and was a finalist for the National Sir Zelman Cowen Award. The Powerhouse Museum re-purposing of a former industrial complex influenced other adaptation projects in NSW, Australia and internationally. (e.g. Casula Powerhouse, Carriageworks in NSW; Brisbane Powerhouse, Longreach Powerhouse & Historical Museum. in Queensland; Spotswood Pumping Station conversion into Scienceworks, the Malthouse Theatre in Victoria; and adaptive reuse of Blackhawk Generating Station into Beloit College Powerhouse, Wisconsin USA.)[84]

The opening of the Sydney Monorail in July 1988 provided access to the new Powerhouse Museum from Darling Harbour, and included construction of a nearby station (named Powerhouse Museum Station in 2002[85]) and a covered walkway from the station to the Powerhouse Museum. The monorail line was raised and ran past the Boiler Hall aside the light rail line.

Figure 2.24 Harwood Building southern exterior and forecourt, 1987 (Source: Powerhouse Photo Library ST1-SMN-65-37A.jpg)

Figure 2.26 Greg Piper, Powerhouse Museum Stage 1 time capsule in situ, 4 September 1981 (Source: Powerhouse Photo Library 00238313.jpg)

Figure 2.25 Premier Neville Wran announcing the Powerhouse Museum Project, 1979 (Source: Powerhouse Photo Library 00224476.jpg)

"How do you get 54 tonnes of locomotive, tender and railway carriage inside a new museum? Easy-you build 120 metres of railway track over the floor and push it in"

Figure 2.27 '"Hidden treasures" go on show' (Source: The Australian Women's Weekly, Wed 9 Sep 1981, p. 22

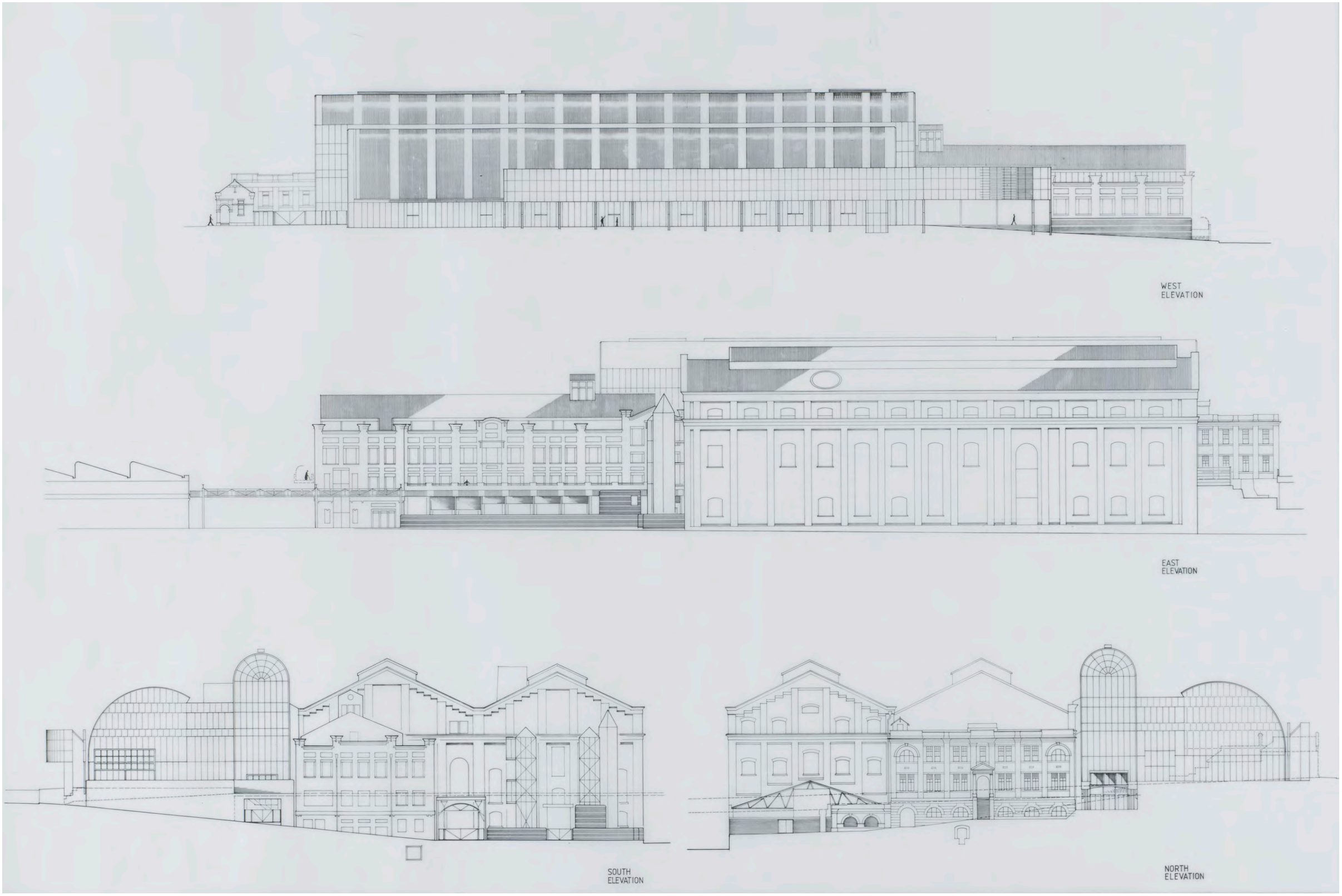


Figure 2.28 2008/88/1 Architectural drawings (14), Powerhouse Museum, tracing paper / microfilm / ink, designed by Lionel Glendenning, made and used by New South Wales Department of Public Works, Sydney, New South Wales, Australia, 1987

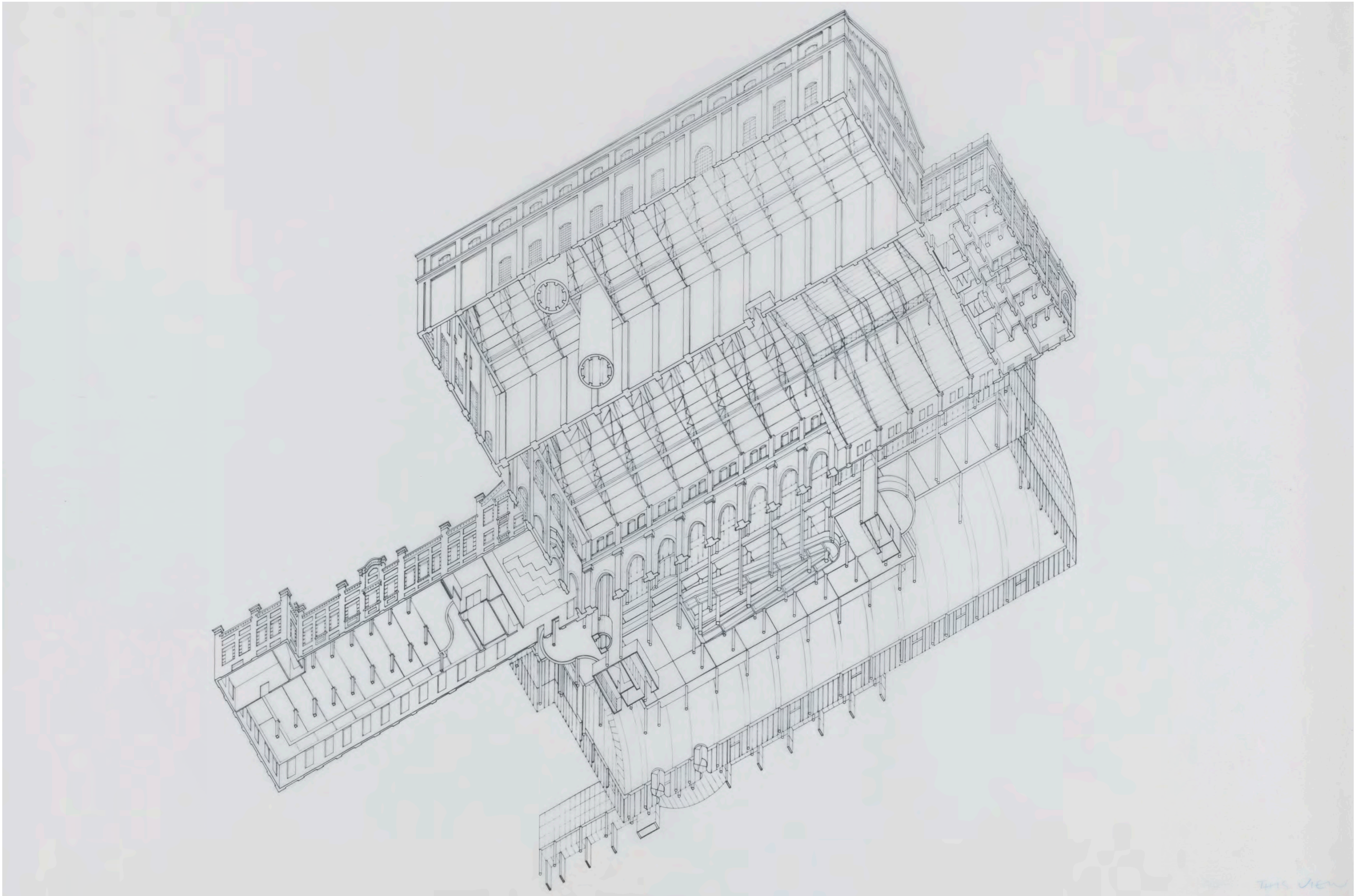


Figure 2.29 2008/88/1 Architectural drawings (14), Powerhouse Museum, tracing paper / microfilm / ink, designed by Lionel Glendenning, made and used by New South Wales Department of Public Works, Sydney, New South Wales, Australia, 1987

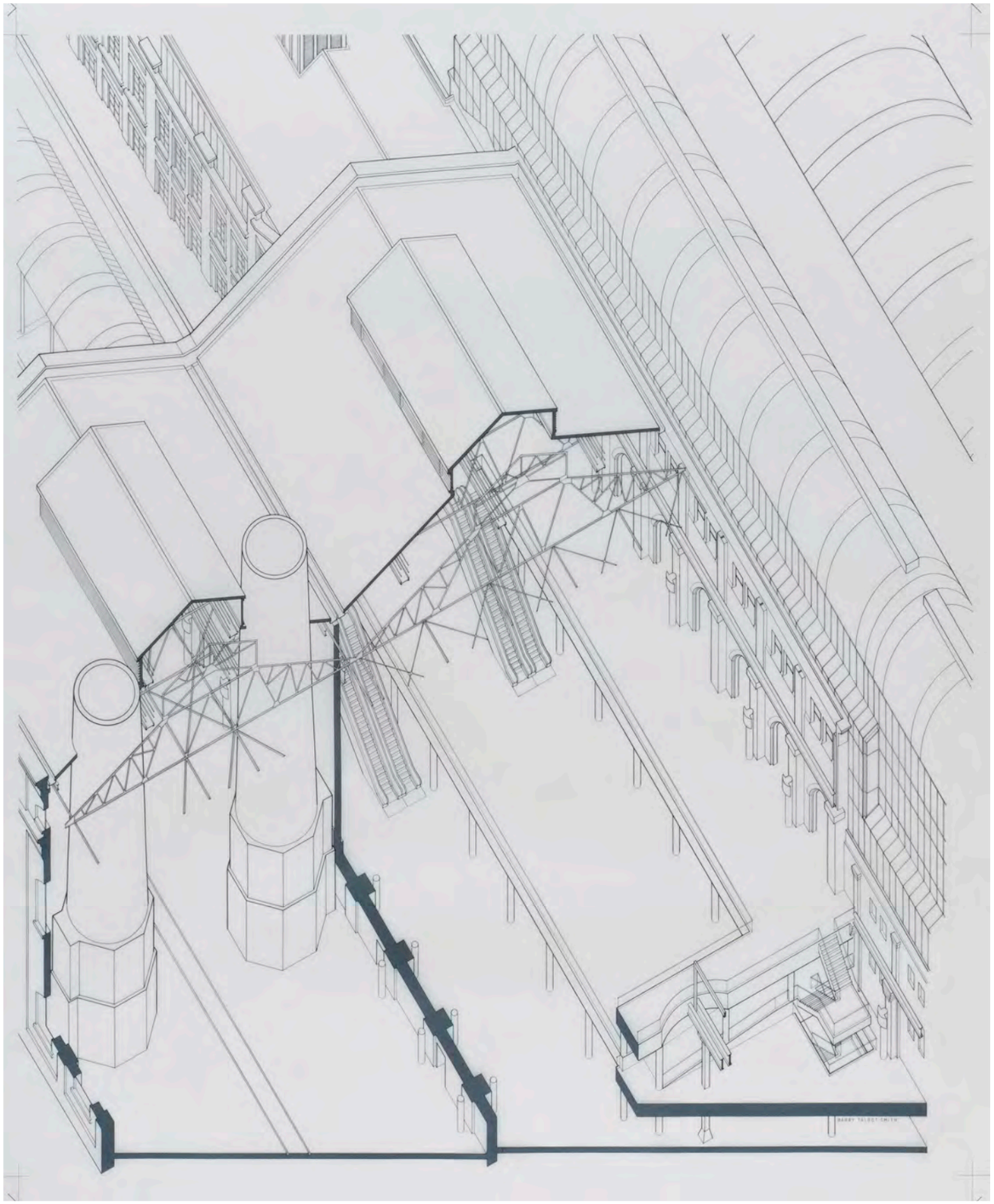


Figure 2.30 2008/88/1 Architectural drawings (14), Powerhouse Museum, tracing paper / microfilm / ink, designed by Lionel Glendenning, made and used by New South Wales Department of Public Works, Sydney, New South Wales, Australia, 1987

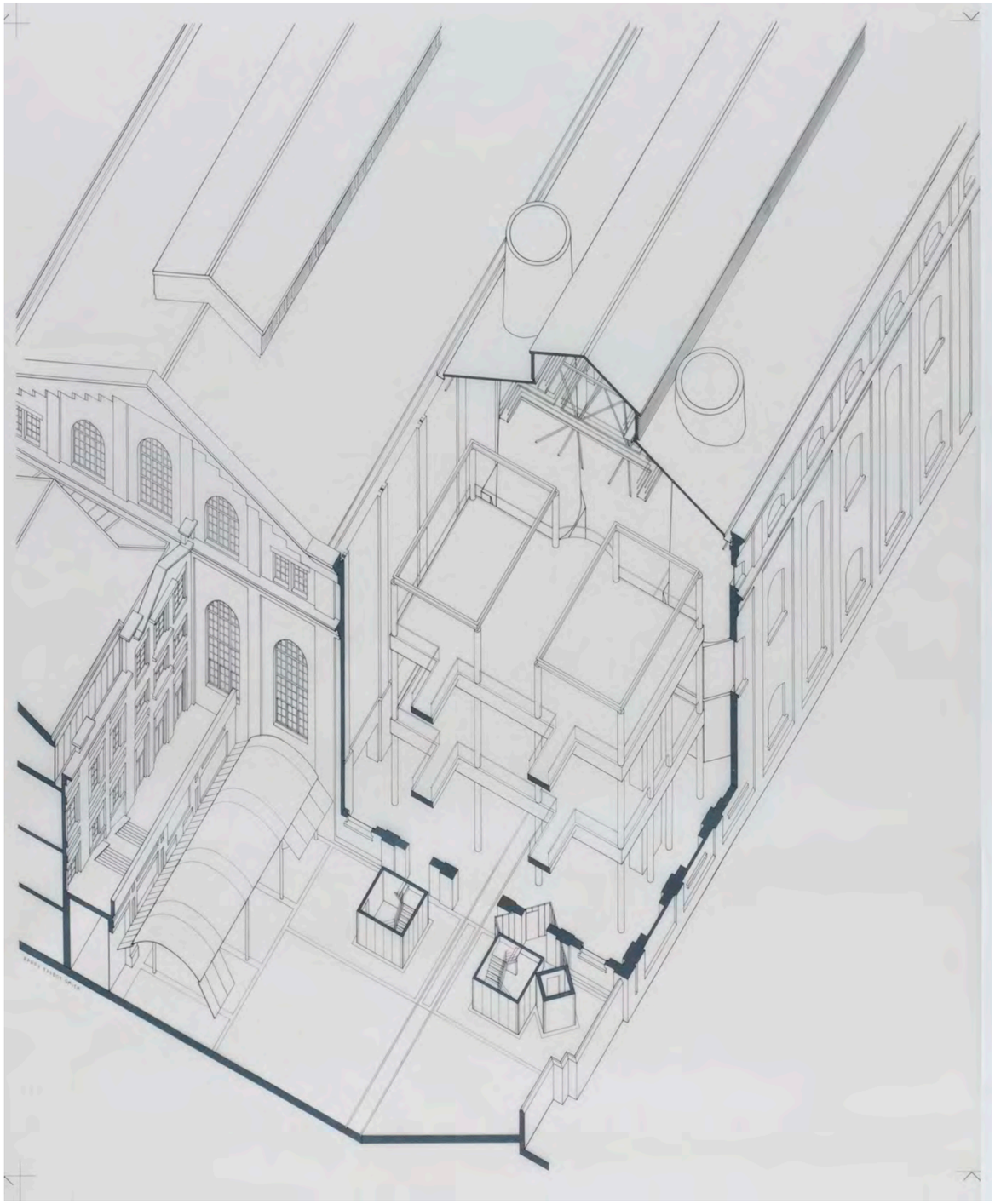


Figure 2.31 2008/88/1 Architectural drawings (14), Powerhouse Museum, tracing paper / microfilm / ink, designed by Lionel Glendenning, made and used by New South Wales Department of Public Works, Sydney, New South Wales, Australia, 1987

Figure 2.32 Greg Piper, elevated view during opening ceremony of Powerhouse Museum Stage 1 on 4 September 1981 with time capsule being lowered in the background (Source: Powerhouse Photo Library 00238338.jpg)

Figure 2.33 Wran Building under construction c. 1986 (Source: Powerhouse Photo Library 00220995.jpg)

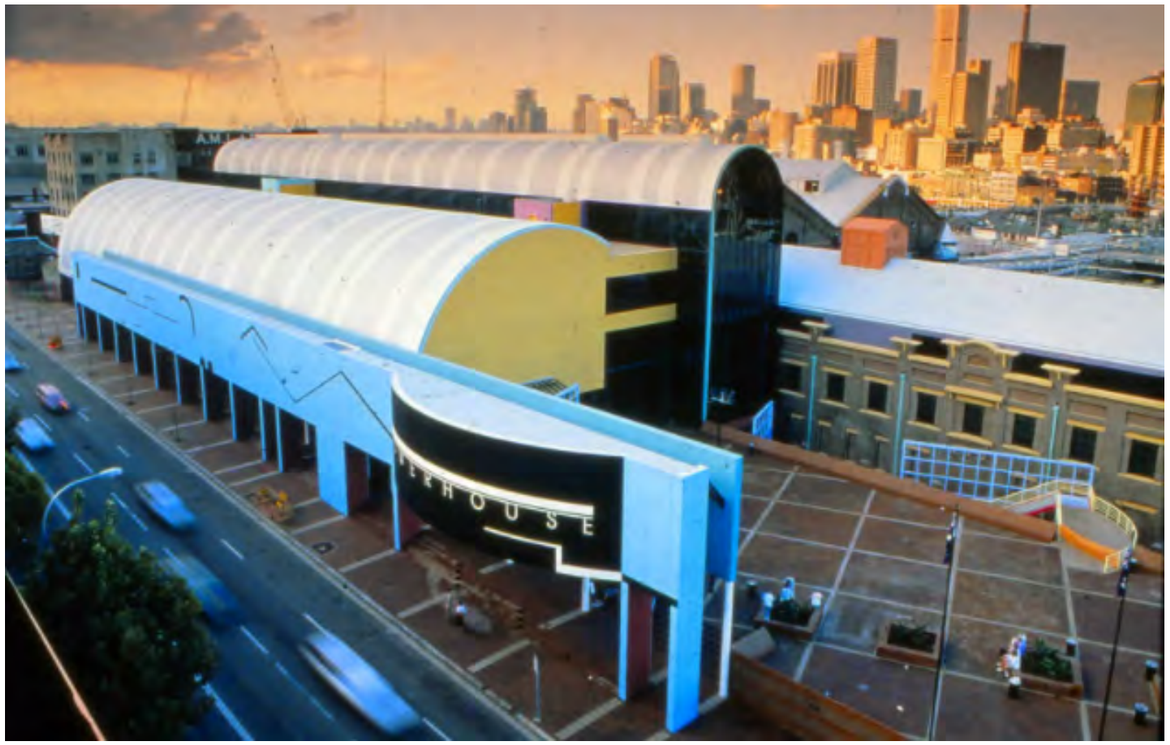


Figure 2.34 Andrew Frolows, Elevated view of Powerhouse Museum Stage 2 exterior in April 1988 shortly after opening showing Harris Street and the Sydney skyline in the background. (Source: Powerhouse Photo Library 00221593.jpg)

Figure 2.35 Lionel Glendenning, architectural drawing of south elevation of Stage 2 Powerhouse Museum, 1987 (Source: MAAS 2008/88/1-5)

The Powerhouse Museum at Ultimo has been subject to a number of alterations and systematic changes since its establishment in the 1980s, the most relevant and extensive of which have been summarised below.

1995
A new mezzanine floor and office were constructed in the Harwood Building.[86]

1996–1997
The Grace Bros Courtyard was redeveloped and kiosk opened.[87]

1997–1998
Café Loco opened.[88]

1998–1999
Construction began on new briefing rooms and a group entrance lobby.[89]

2000–2001
An earthquake damage prevention project was undertaken, focussing on the Boiler Hall's outer wall.[90]

2005–2006
Launch of the Museum's 'Refresh Program', consisting of a series of projects developed to enhance and renew the Powerhouse Museum in recognition of a need for refurbishment and rejuvenation of the Museum. As part of the 2005-2006 works, the Wran building's Harris Street facade exterior was repainted white, and the former yellow logo replaced, with updated visual identity to complement the new Ian Thorpe Aquatic Centre that was set to open nearby.[91]

2006–2007
Extensive changes to Museum's way-finding across both the exterior and interior of the site were undertaken, including upgrades to the Level 1 courtyard café, and establishment of the 'Cog's Playground' in the Level 1 courtyard.[92]

2007–2008
Former Ultimo Post Office (which had functioned since 1985 as a Museum of Applied Arts and Sciences run childcare centre) underwent additional restoration and refurbishment, opening on 10 March 2008 as the new volunteer centre for the Powerhouse Museum, coinciding with the 20 year anniversary of the Museum at the Ultimo site.[93] Construction of a covered walk way between the newly restored Post Office (Museum of Applied Arts and Sciences Volunteers Centre) and the Wran Building in 2009.

2009–2013 Restoration Stonework Project
Funding from the NSW Treasury and Department of Public Works for three years at a total cost of $6 million, undertaking maintenance works to the original facades and fabric of the Boiler Hall, North Annex and Turbine Hall of the original Ultimo Power Station.[94]

2011–2013 Revitalisation Project
The first significant renewal to occur to the buildings since the 1988 opening, focusing on the Harris Street entrance and courtyard, including café and shop, as well as revisions to the interior spaces of the buildings and exhibitions. Works as part of the 2011-2013 program at the Powerhouse site included:

Externally:

- Demolishing the brick parapets
- Partially demolishing the colonnade
- Removing the stairway and railing that connected the forecourt to the level 2 courtyard
- Construction of new steps and handrails with LED lighting which were installed along Harris and Macarthur Streets
- The new main entrance was completed
- Linking the Switch house with the forecourt
- Opening the front courtyard to the street

Internally:

- Dismantling a large cube structure in the Turbine Hall
- Removing the glass lift from what is now the entry to the Wran Building allowing a better view of the vaulted ceiling
- Relocating the glass lift to the Turbine Hall
- Demolishing two pairs of escalators (level 1-2) and (level 2-3)
- Moving the exit to the Switch House
- The former entrance was transformed to be the 1,800m2 Level 3 temporary gallery
- Replacement of the Turbine Hall escalators with new eco-friendly models.[95]

The new Museum shop opened in the Switch House in 2012, while the new café in the Switch House with seating in the Harris Street forecourt opened in 2013. The Powerhouse Museum celebrated 25 years at the Ultimo site in March 2013.

Other relevant works that have occurred over the past decade at the Powerhouse site include:

- Closure of the Sydney Monorail in June 2013, and subsequent dismantling of the line and Powerhouse Station, including the covered walkway connecting Haymarket to the Powerhouse Museum (completed by April 2014).[96]
- Rebranding of the Powerhouse to its statutory name MAAS (Museum of Applied Arts and Sciences) across all museum sites (Ultimo, the Sydney Observatory and the Castle Hill Discovery Centre) in 2013.[97]
- Redevelopment of the Darling Harbour Goods Line by Sydney Harbour Foreshore Authority into a public park and thoroughfare (completed in 2017), connecting Central Railway and Darling Harbour, including the Museum granting landowners consent to allow the Goods Line to connect to Macarthur Street, and provided an 'at-grade connection' to Darling Harbour, thus avoiding construction of a pedestrian overbridge to span the museum car park'.[98]
- In 2018 a high-tech collaborative theatre classroom for the University of Technology, Sydney opened at the Powerhouse.[99]
- Launch of the Creative Industries Residency program at the Powerhouse in 2019,[100] with the Powerhouse Museum announcing the 11 recipients of its Creative Industries Residency Program in October.[101] In 2022, there are 21 Creative Residents.

Over the course of the recent few years, the museum has seen immense changes occur at a legislative, corporate and social level. The Powerhouse Museum has been maintained as per the charter of the Museum of Applied Arts and Sciences to keep buildings to its best standards, and since the Revitalisation Program of 2011-2013, there have been no major developments to the site.

In 2014, the NSW Government completed a Business Case to consider options to address constraints caused by infrastructure on the Powerhouse's capacity to uplift the service level and achieve operational sustainability at the Powerhouse Museum, Ultimo. The Ultimo site was determined to be no longer fit-for-purpose, with significant investment required to fulfil functions outlined in the Museum of Applied Arts and Sciences Act.

In February 2015, the then NSW Premier, Mike Baird released the *Create in NSW: NSW Arts and Cultural Policy Framework* and announced the Government's decision to relocate the Powerhouse to Parramatta. Following that announcement, Create Infrastructure initiated and led the development of the planning framework, this included site selection assessment which concluded that the Riverbank site in Parramatta was the preferred site for the new museum. The Riverbank site was acquired by the NSW Government from the City of Parramatta in early-2019 to facilitate the delivery of the project.

In August 2019, the NSW Government endorsed a vision for Powerhouse Parramatta and on 17 December 2019, announced that the architectural partnership of Moreau Kusunoki and Genton had been selected to design the new Powerhouse following an international design competition.

In response to community support to retain the museum's Ultimo location on 4 July 2020, Treasurer Dominic Perrottet and Arts Minister Don Harwin announced Sydney's Powerhouse Museum at Ultimo would continue to welcome visitors to its world renowned exhibits, with the NSW Government announcing it will remain open and operate alongside the new state-of-the-art flagship museum planned for Western Sydney, Powerhouse Parramatta. The decision meant the Museum of Applied Arts and Sciences (MAAS) would have a four-site future, including the flagship Powerhouse Parramatta, Powerhouse Ultimo, Sydney Observatory and Powerhouse Castle Hill.

On the 16th June 2021, Minister for the Arts Don Harwin announced the NSW Government will put design and fashion at the forefront of Powerhouse Ultimo's future with a transformative $480-500 million investment into the renewal of the Ultimo site.

Figure 2.36 Front courtyard during works (Museum of Applied Arts and Sciences Annual Report 2011-12 p. 8)

Figure 2.37 Upgraded front courtyard (Museum of Applied Arts and Sciences Annual Report 2011-12 p. 8)

Figure 2.38 Level 3 former entrance (Museum of Applied Arts and Sciences Annual Report 2011-12 p. 8)

Figure 2.39 Level 3 temporary exhibition hall (Museum of Applied Arts and Sciences Annual Report 2011-12 p. 8)

Figure 2.40 The Turbine Hall prior to Stage 1 of the Revitalisation Project (Source: Museum of Applied Arts and Sciences 2011-12 Annual Report p.10)

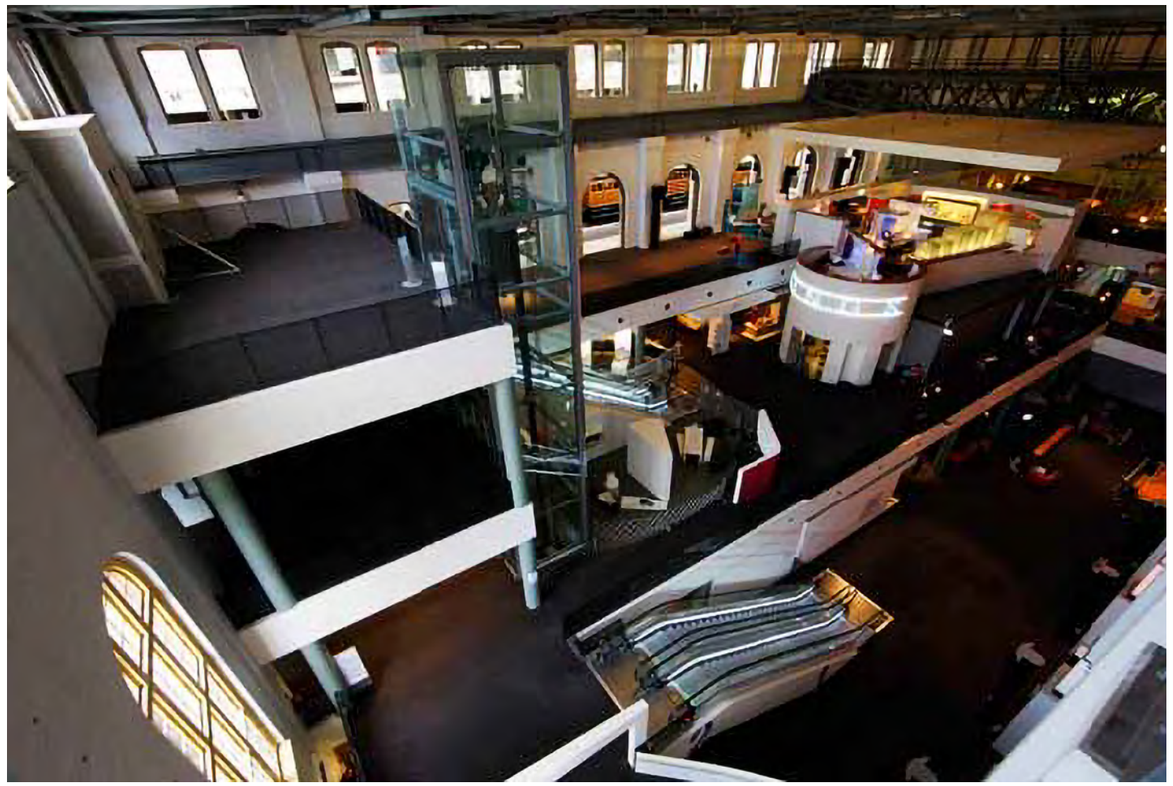


Figure 2.41 The Turbine Hall in 2012 following Stage 1 of the Revitalisation Project (Source: Museum of Applied Arts and Sciences 2011-12 Annual Report p.10)

Figure 2.42 2014 Site Image showing the Pedestrian Railway Bridge prior to demolition (Source: HMUP, Statement of Environmental Impacts for proposed demolition of Existing Pedestrian Bridge Macarthur St Ultimo, 2014 p. 1)

Figure 2.43 Site Image showing the Pedestrian Railway Bridge prior to demolition (Source: HMUP, Statement of Environmental Impacts for proposed demolition of Existing Pedestrian Bridge Macarthur St Ultimo, 2014 p. 1)

Figure 2.44 Ultimo Tram Depot with additions on the East façade, the Goods Line, Pedestrian walkway (Source: JBA 2014 SEE letter to City of Sydney Council)

2.2.5 The Evolution of the Power House Site

This section is informed by research conducted by Design 5.

The following provides an overview of the changes to the Powerhouse site from 1901 to 2022. Detailed evolution maps for the separate buildings have been attached as Appendix D.

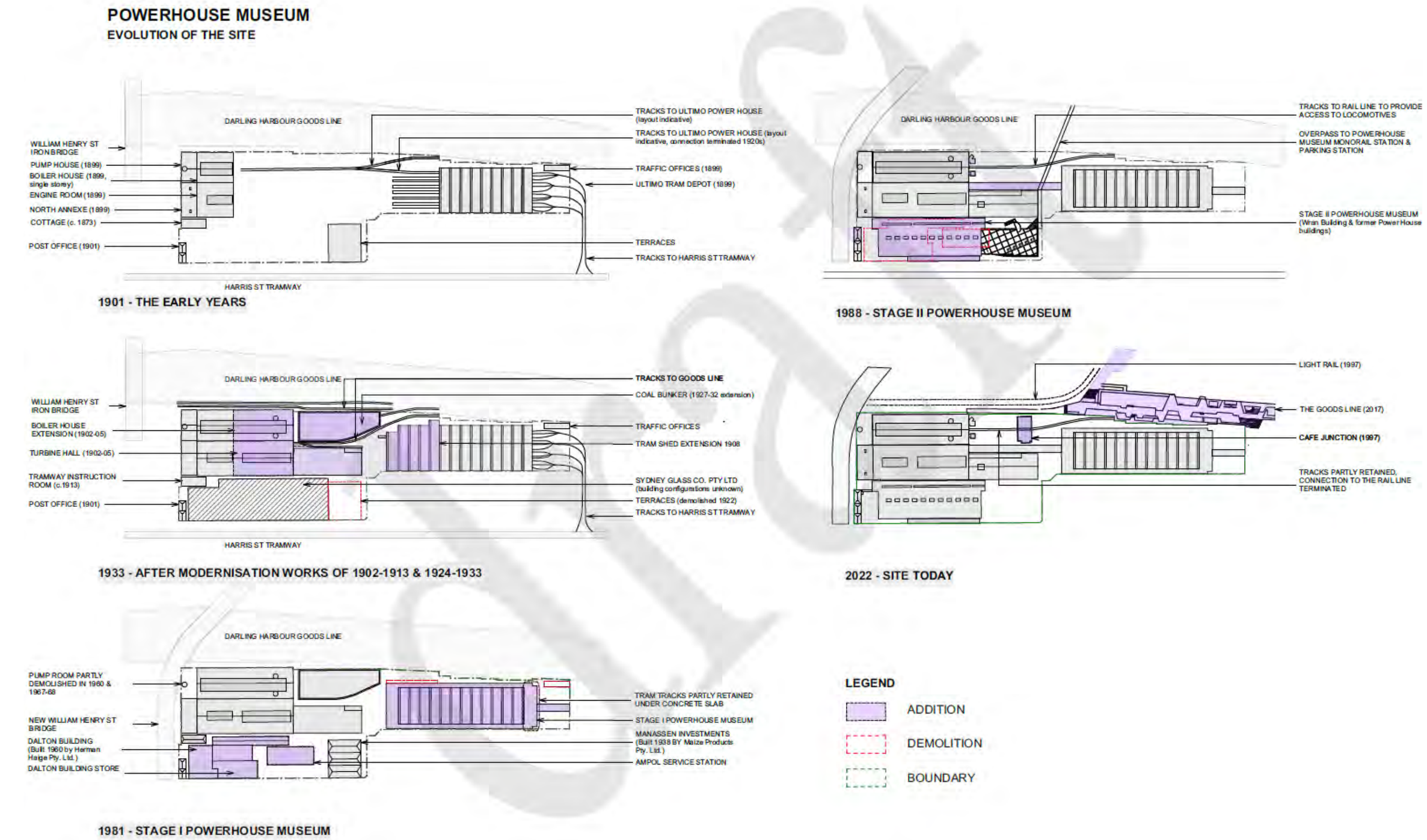


Figure 2.45 Evolution maps (Source: Design 5)

2.3 HISTORICAL THEMATIC FRAMEWORK

The Australian Heritage Commission (AHC) national framework of historical themes provides a consistent framework for determining appropriate historical themes for a place of cultural significance. Thirty-six NSW State themes have been in turn derived from these national themes.[102] The National and State historic themes (summarised in Table 2.1) provide the overarching framework for a sub-set of local themes which are generally relevant to Local Government Area boundaries and smaller subgroups that have social or local community boundaries.

Table 2.1 National and State Historic Themes

RELEVANT AUSTRALIAN THEME	RELEVANT NSW THEME
1. Tracing the natural evolution of Australia	Environment- naturally evolved
2. Peopling Australia	Aboriginal cultures and interaction with other cultures; Convict; Ethnic Influences; Migration
3. Developing local, regional and national economies	Agriculture; Commerce; Communication; Environment-cultural landscape; Events; Exploration; Fishing; Forestry; Health; Industry; Mining pastoralism; Science; Technology; Transport
4. Building settlements, towns and cities	Towns; Suburbs and villages; Land tenure; Utilities; Accommodation
5. Working	Labour
6. Educating	Education
7. Governing	Defence; Government and administration; Law and order; Welfare
8. Developing Australia's cultural life	Domestic life; Creative endeavour; Leisure; Religion; Social Institutions; Sport
9. Marking the phases of life	Birth and Death; Persons

2.3.1 Historical Themes for the Powerhouse Site

Table 2.2 summarises the key historic themes that apply to the Powerhouse site, identifying the relevant National, State, and local historical themes that are relevant to the site itself, as well as within its wider historical setting and associated significance. The table presents explanatory notes for the themes according to the NSW Heritage Council guidelines and indicates the relationship between those themes and the history of the Powerhouse site.

Themes that apply to Aboriginal cultural heritage significance of the site will continually be developed through community engagement.

Table 2.2 Key Historic Themes for Ultimo Powerhouse

AUSTRALIAN THEME	NSW THEME	LOCAL THEME	RELATIONSHIP TO POWERHOUSE SITE
1. Tracing the natural evolution of Australia	Environment- naturally evolved	Coastal features Changing the environment	The Ultimo-Cockle Bay area was distinguished by a creek that ran through marshy ground that drained into the bay. This side of Darling Harbour developed slowly due to the extensive mudflats which required reclamation prior to development. Potential site of a quarry Changing face of the harbour
2. Peopling Australia	Aboriginal cultures and interaction with other cultures	Use of landscape for travelling and access to resources	Prior to displacement by European Settlers, the subject site was an area that was occupied by the Wangal and Gadigal people. This area of the Harbour was a place where the Wangal and Gadigal would have fished and gathered shellfish
	Convict	Employment of convicts (Ultimo Estate)	The study area was part of the Ultimo estate which employed convict labour.
3. Developing local, regional and national economies	Environment	Sydney landmark Landscapes of institutions - productive and ornamental Industrial landscape	The Ultimo Power House has been a Sydney landmark since 1899. The Ultimo Power House was part of the industrial landscape of the Ultimo Pyrmont Peninsular. The Powerhouse Museum has been a Sydney landmark since 1988.
	Events	Developing local landmarks Providing a venue for significant events	The Powerhouse Museum has been a venue for events of local and national significance.
	Agriculture	Ultimo Estate	Prior to the construction of the tram sheds and Power House the site was semi-rural with stables.
	Communication	Transfer of Information (Post)	The Ultimo Post Office was a central area for the conveyance of information for over eighty years.
	Industry	Energy supply industry	The Ultimo Power House was the main supplier of Electricity for the tram system.
	Transport	Sydney Omnibus Stables Tram Sheds Goods Line	Powerhouse Museum collects objects and tells stories of transport histories and innovation. The Goods Line The Omnibus Company stables The Ultimo Tram Sheds The Ultimo Power House supplied electricity for the Sydney tram System
	Technology and Science	Technological advancement	The Ultimo Power House was a place where significant technological advancements were trialled. Water Cooling System Ash Pipes Powerhouse Museum collects objects and tells stories of Australian and international technological and science advancement.

AUSTRALIAN THEME	NSW THEME	LOCAL THEME	RELATIONSHIP TO POWERHOUSE SITE
4. Building settlements, towns and cities	Accommodation	Building settlements, towns and cities Adapted heritage building or structure	Houses present on site in 19th Century A section of the North Annex was originally used as accommodation for workers. Harwood accommodations.
	Land tenure	1820s-1850s land grants Changing land uses - from rural to suburban Changing land uses - from suburban to urban Early farming (Cattle grazing) Sub-division of large estates Resuming private lands for public purposes	Land Grants Cattle Grazing The subdivision of the Harris Estate. Resumption and development of the Railway Corridor, Tram Shed, Power House, Post Office.
	Towns, suburbs and villages	Early Sydney Street Subdivision of urban estates 19th century suburban developments 19th Century Infrastructure 20th Century infrastructure Creating landmark structures and places in suburban settings Suburban Consolidation Shaping coastal settlement Impacts of railways on urban form Developing suburbia	Harris Street The subdivision of the Harris Estate Resumption of land Development of the Darling Harbour Rail Corridor Development of the Ultimo Tram Yards Ultimo Power House Powerhouse Museum
5. Working	Labour	Working at enforced labour Working complex machinery and technologies Working on public infrastructure projects	At the time of the Ultimo Estate, convict labour was enforced in the vicinity. The Ultimo Tram Sheds and the Ultimo Power House were major employers.
6. Educating	Education	Community education - adults, school excursions Maintaining libraries and museums for educational purposes	The Powerhouse Museum has been a site of school tours, education and learning programs, and research. The Powerhouse Museum Library and Archive. The Museum is a site of public education and learning. Creative Industries

AUSTRALIAN THEME	NSW THEME	LOCAL THEME	RELATIONSHIP TO POWERHOUSE SITE
7. Governing	Government and Administration	Developing roles for government: providing electricity Developing roles for government: conserving cultural and natural heritage Developing roles for government: providing museums Developing roles for government: administration of land Developing roles for government: building and operating public infrastructure	The Government resumed land for the Ultimo Power House to supply electricity. The Government resumed land for the Ultimo Post Office. The Government resumed land for the Darling Harbour Railway Corridor (Goods Line). The Government resumed land for the Ultimo Tram Depot (Harwood Building). The Government's adaptive reuse of the site for a Museum.
8. Developing Australia's cultural life	Social institutions	Community volunteering Developing and maintaining a local museum	The Powerhouse Museum has a long history with community volunteers and affiliated societies. From the first stage opening, the Powerhouse Museum has operated on this site since 1981.

2.3.2 Powerhouse Museum Design Principles Summary

This section is informed by research conducted by Design 5.

The following section has been drawn from "Powerhouse Museum Design Principles: Lionel Glendenning & Richard Johnson," prepared by Design 5, and has been summarised and interpreted by Curio Projects. The complete "Powerhouse Museum Design Principles: Lionel Glendenning & Richard Johnson" document had been included as Appendix E.

Key Design Priorities

In a 1988 interview with Colin Wood, Lionel Glendenning summarised the following influences and design intentions for the design of the Powerhouse Museum Stage II Ultimo:

- "The great exhibition and railway buildings of the 19th Century including Garden Palaces, Sydney; Melbourne Exhibition Building; Central Railway Station, Sydney.
- A contextual awareness and historic reference.
- Creating old and new linkages with the architecture of Ultimo and the Powerhouse.
- Architecture within Architecture. House within a house.
- Adaption and reuse of existing fragments of the city.
- Separation, layering, transparency, screen, density, diversity, intervention."[103]

The mid-twentieth Century marked a major design revolution in museum architecture following the construction of landmark buildings such as the Centre Pompidou (1971-1977) and Musee d'Orsay (adapted in 1986) in Paris and Solomon R. Guggenheim Museum in New York (1956-59). The Powerhouse Museum, and particularly the Wran Building, acted as a direct, yet innovative, responses to these cultural centres, and were heavily intertwined with emerging attitudes towards retention and re-use of historical industrial buildings.

Development of the Powerhouse Museum in Ultimo was first considered in 1978 following a visit to the newly completed Centre Pompidou by NSW's then Premier Neville Wran.[104] In the same year, the NSW Government commissioned a Feasibility Study which was prepared by Jack Ferguson, Lindsay Sharp and Lionel Glendenning, an architect employed at the NSW Government Architects Office.[105] Glendenning was subsequently chosen as the project's lead architect and went on to design the Claymore Primary School and now demolished Imax Theatre in Darling Harbour.

In his 1978 report, Glendenning made particular mention of the Tramway Depot and Ultimo Power Station site in Ultimo, which offered a historically appropriate, economically effective and scale specific opportunity for the proposed museum.[106]

An architectural brief for the museum was developed in 1979 by Powerhouse Curator Norman Harwood and Director Dr Lindsay Sharp, along with Jack Ferguson (Deputy Premier) and Neville Wran (Premier). The team's primary design objectives focused on the creation of a centre that would 'embrace the challenges of the new age',[107] rather than adopt traditional museum and exhibition design philosophies. They envisioned a building that '[bridged] the gap between the traditional style and the more radical, experimental, hands on experience, interactive type, of museum of today and the future.'[108] Glendenning responded by incorporating key elements of the site's history, primarily its connections to the Industrial Revolution, rail technology and electricity generation, with influences from Baroque architecture and landmark nineteenth Century Australian exhibition spaces such as Sydney's Garden Palace and Melbourne Exhibition Building, into his design.[109]

Retention and adaptive re-use of the site's original buildings, primarily the Ultimo Power House and Tram Sheds, was also a key component of the museum's design development. Glendenning later described his overall intention as one that involved sustainability, resource management and the environment, where existing resources were retained and buildings re-used.[110] To house the museum's collection, and address the Government's vision for the museum, he incorporated the Wran Building into the design. The building, a two vaulted post-modernist structure as Glendenning recalled, he intended to compliment and contradict the site's existing character, history and objects. Glendenning also recalled he intended to accentuate the old and new, ensuring each was separated from the other, with no new elements touching old elements and vice versa.[111] The grand and imposing vaults of the building took their cues from Sydney's Garden Palace with its ghost-like transparency[112] and the Normanton Railway Station's archway:

> A key to the architecture was the sense of 'beginning a journey,' hence the railway station metaphor, the space-capturing arch of Normanton railway station, Queensland.[113]

The overall size and form of the Wran Building was also designed to create an ongoing connection between Sydney's past and future through 'cultural memory'.[114] Glendenning saw it as a structure that would act as a landmark that could be replicated across the cityscape, and eventually form part of the city's psyche.

Together with exhibition designer Richard Johnson, primary intentions for the internal museum spaces themselves were to create diverse galleries that were flexible, surprising and adaptable to the desires and tastes of exhibition goers. According to Glendenning, each room was designed to respect the original function of retained buildings, including their fabric and form.[115] Both designers wanted to create a strong contrast within the museum's internal spaces by incorporating large and small rooms into the buildings that could create a 'sense of purpose and focus'.[116] These influences can be seen in the Turbine and Boiler Halls which were used to house the museum's larger collections such as aircrafts, steam engines and locomotives, while also housing small, self-contained exhibition spaces and even structures.

The Museum was designed to be embedded in its location, the way Jørn Utzon's Sydney Opera House, which had been completed a decade earlier, embodied its surrounding environment by mimicking elements synonymous with Sydney Harbour like boats, birds, clouds and shells. The Wran Building was similarly developed to respond to its immediate and broader environment by incorporating industrial forms and materials into its design and scale. He was equally inspired by Utzon's distinct interior design which while minimal, was characterised by decorative ceilings and colourful draped curtains.[117] This is evident in Glendenning's use of contrasting colours throughout the museum, for example, black handrails, green columns, red steam vents, Italian nougat tiles and a painted sky mural.

2.4 ENDNOTES

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3 PHYSICAL ANALYSIS

3.1 SITE AND SETTING

The Powerhouse site is located in the suburb of Ultimo, within the City of Sydney LGA. The site is bounded by William Henry Street to the north, Harris Street to the west, Mary Anne Street to the south and the Goods Line to the east. The topography of the site has some significant variance in elevation, with almost nine metres difference in level between Harris St to the west and the Goods Line to the east.[1]

The Ultimo-Pyrmont area is characterised by its peninsula location and proximity to Darling Harbour. The Ultimo-Pyrmont Peninsula was first developed as an industrial centre 'often enveloped in dirty air and surrounded by polluted water'[2] then it weathered the process of de-industrialisation growing into a contemporary residential and creative neighbourhood. While the Pyrmont Bridge provides access from the western shoreline of Darling Harbour to the Sydney CBD, the physical division created by the former Darling Harbour Goods Line and Goods Yard between the study area and the harbour, means the Powerhouse site is relatively isolated from the Sydney CBD. The Powerhouse site consists of an amalgamation of several earlier sites with varying historical significance and built elements.

Since the preparation of the 2003 CMP, a significant volume of new development and public domain has been constructed around the Powerhouse site, resulting in a substantial change to the existing built context and setting of the site as a whole. New development works have been concentrated to the east and northeast of the site (Haymarket and Darling Harbour respectively), including construction of numerous high density multi-storey commercial and residential (student housing) buildings along the Goods Line (Figure 3.1 and Figure 3.2). The taller of these new eastern developments are very visually apparent to the east of the site, rising above the Power House buildings forming the background built urban context of the site, even when viewed from Harris Street (Figure 3.3 and Figure 3.4). The northern elevation of the site is dominated by the overbridge and road approaches along and above William Henry Road (Figure 3.5), while the site's western boundary along Harris Street has an elevation to the lower density urban environment of Ultimo (Figure 3.6).

Figure 3.1 Existing context of the eastern side of the site, view north along Goods Line public park, Harwood Building in left. Context of recent high density commercial and residential (Urbannest- student housing) immediately east of the site (Curio 2020)

Figure 3.2 View south along the Goods Line park, Harwood Building in right. Existing surrounding built context including UTS Chau Chak building in background. (Curio 2020)

Figure 3.3 Existing surrounding built context of site, recent student housing multi-storey development visible behind Power House buildings to east. View from Harris Street, Wran Building in back left. (Curio 2020)

Figure 3.4 Existing surrounding built context of site. View southeast across Harris Street forecourt, UTS Chau Chak Building visible in background right, new development east of site visible behind Power House buildings (Curio 2020)

Figure 3.5 View west along William Henry Street bridge, northern elevation context/setting of Powerhouse site. Boiler House visible in left of image with Goods Line in front. (Curio 2020)

Figure 3.6 View north along Harris Street. Wran Building in right, Ultimo Post Office visible on corner of Harris and William Henry Streets in background (Curio 2020)

3.2. BUILT ELEMENTS

This section is informed by research conducted by Design 5.

The primary built elements of the Powerhouse site include the former Power House Buildings (North Annex, Engine House, Turbine Hall, Pump House (remains), Boiler House, and Switch House), former Ultimo Post Office, the Harwood Building (former Ultimo Tram Shed), and the Wran Building. A section of the Goods Line (former Darling Harbour Rail Corridor) borders and enters the site along the eastern boundary, and the Water Cooling System and Manifold is located within the site as a subterranean element, accessible via the basement of the former Turbine Hall.

The development of the Powerhouse site over time is evident in its built form as an amalgamation of several earlier sites and a number of buildings. The rails of the 1853 Goods Line extend along the east of the side alongside the 1899 Harwood Building with its industrial heavy brick walls and sawtooth roof. The single storey brick Ultimo Post Office (1901) on the corner of Harris and William Henry Streets was designed by Government Architect Walter Liberty Vernon in the Queen Anne architectural style and provides a stark visual contrast to the industrial architecture of the former Power House buildings (1899–1902) and the modern 1980s museum additions (Wran Building) that rise behind it. The former Power House structures themselves are strong, substantial warehouses, characteristic of the Federation era, constructed of solid brick with rendered brick detailing on the cornices and window sills, complemented by the later (1927) Switch House to the south that features a highly decorative façade.

When it was completed, the 1988 Wran Building provided a contemporary response to both the history of the Museum and the extant Power House buildings. It was heavily influenced by Baroque architecture with its emphasis on curves and space, yet also took cues from Sydney's Garden Palace, Melbourne's Exhibition Building, the Normanton railway station in Queensland and Central Station in Sydney.[3] These governed its overall form and almost transparent, fragile appearance. Interior spaces were developed with an aim of creating contrasting scales within modern and old exhibition spaces. This is demonstrated by its cavernous, vaulted galleries which lead into and are surrounded by smaller exhibition spaces (see Section 2.3.2 for discussion of design intent of Wran Building).[4]

A detailed history and physical description of each of the key built elements of the Powerhouse site has been included within the relevant sections of Part C of this CMP, and are summarised in Table 3.1.

3.2.1 Water Cooling System and Manifold

The "Water Cooling System and Manifold" is a significant, s170 heritage register listed, sub-surface structure that runs beneath the site towards Murray Street and into Darling Harbour" (Figure 3.7). It is an historically important operating element associated with the day to day operations of the former Ultimo Power House. The Water Cooling System and Manifold was not identified in the 2003 CMP, nor the 2018 Archaeological Assessment. The Water Cooling System and Manifold is also specifically included within the SHR listing of the Ultimo Power House (SHR 02045), as an 'integral component of the power station'.

As the item has structural integrity (i.e. underground tunnel structure) and is incorporated into the built fabric of the former Power House (and the SHR listing), it is not technically defined as an archaeological 'relic' in accordance with the relics provisions of the NSW Heritage Act, but as a 'work'. Nevertheless, its subterranean location and listing on the Property NSW S170 Register indicates that this subterranean feature requires in situ retention, and therefore acknowledgement in the context of this CMP and future management of the Powerhouse site.

Given that any proposed deep excavation in this area would have the potential to disturb the conduits, it is recommended that this significant, subterranean asset requires protection and management as part of any over-arching archaeological management strategy for the site. It is recommended that this asset should be accurately located and identified on any sub-surface plans. Further information about the history and management recommendations for this heritage item are considered in the individual section in Part C.

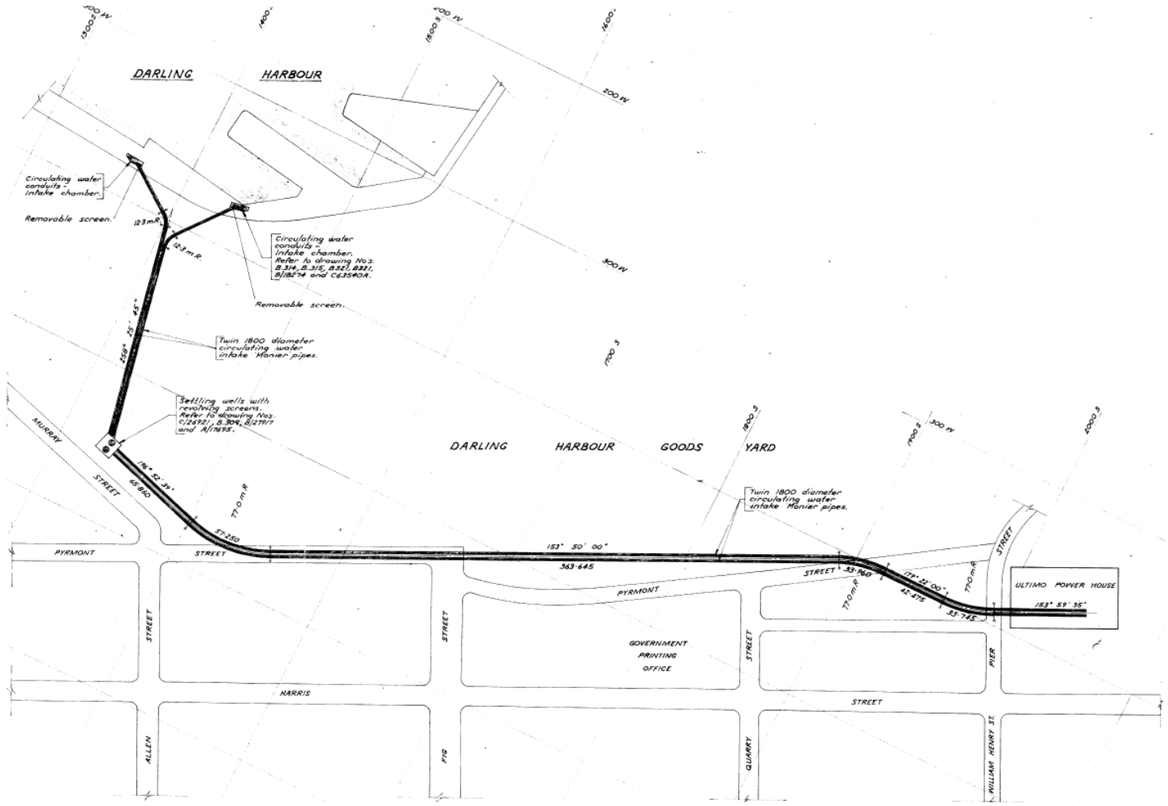


Figure 3.7 Plan of Powerhouse Seawater Conduits, November 1982 (Source: Government Architect NSW C82-079G/SC-001)

THE GOODS LINE
Constructed: 1853–1911
Physical Analysis: Part C—Section 17.2

WATER COOLING SYSTEM AND MANIFOLD
Constructed: 1898–1901
Physical Analysis: Part C—Section 16.2

HARWOOD BUILDING
Constructed: 1899
Physical Analysis: Part C—Section 7.2

NORTH ANNEX
Constructed: 1899
Physical Analysis: Part C—Section 8.2

PUMP HOUSE (FORMER)
Constructed: 1899
Physical Analysis: Part C—Section 9.2

ENGINE HOUSE
Constructed: 1899
Physical Analysis: Part C—Section 10.2

ULTIMO POST OFFICE
Constructed: 1901
Physical Analysis: Part C—Section 14.2

TURBINE HALL
Constructed: 1902
Physical Analysis: Part C—Section 11.2

BOILER HOUSE
Constructed: 1902–1905
Physical Analysis: Part C—Section 12.2

SWITCH HOUSE
Constructed: 1927
Physical Analysis: Part C—Section 13.2

WRAN BUILDING
Constructed: 1988
Physical Analysis: Part C—Section 15.2

3.3 SURROUNDING HERITAGE LISTINGS

The Powerhouse site is located adjacent to, and within close vicinity to the Harris Street Conservation Area (C67), which also includes a number of individually listed items. In addition to further heritage items close to the site. The SHR listed Sewerage Pumping Station No. 1 (SHR Item #01336), and Ultimo Road Railway Underbridge (SHR Item #01062) are also in close proximity to the site (Figure 3.8 and Figure 3.9).

Table 3.2 Heritage Items in the vicinity of the Powerhouse site

ITEM	REGISTER	NAME	ADDRESS
01062	State	Ultimo Road Railway Underbridge	Ultimo Road, Ultimo
01336	State	Sewerage Pumping Station No. 1	William Henry Street, Utimo
I2032	Local	Glasgow Arms Hotel including interior	527–529 Harris Street
I2028	Local	Terrace group including interiors	11–63 Hackett Street
I2024	Local	Terrace group including interiors	342 Bulwara Road and 68–80 Macarthur Street
I2023	Local	Terrace group including interiors	286–340 Bulwara Road
I2067	Local	Terrace group including interiors	91–97 William Henry Street
I2068	Local	House including interior and fence	103–103a William Henry Street
I2044	Local	Terrace group including interiors (C67)	77–79 Macarthur Street
I2033	Local	Terrace group including interiors (C67)	578–606 Harris Street
I2034	Local	Terrace group including interiors (C67)	597–607 Harris Street
I2035	Local	Former “Millinery House” including interior (C67)	608–614 Harris Street
I2037	Local	Terrace group including interiors (C67)	629–637 Harris Street
I2025	Local	Terrace group including interiors (C67)	348 Bulwara Road and 68–80 Mary Ann Street

Figure 3.8 State Heritage Listings including Powerhouse site and surrounds (Source: Curio 2021 from HNSW Shapefile, over Nearmap aerial 2021)

Figure 3.9 Local Heritage Items and HCA including Powerhouse site and surrounds (Source: Curio 2021 from HNSW Shapefile, over Nearmap aerial 2021)

3.4 ARCHAEOLOGY

3.4.1 Aboriginal Archaeology

The following summary of Aboriginal archaeological context and potential of the Powerhouse site has been summarised from the Aboriginal Due Diligence Heritage Assessment Report prepared for the site (Curio 2020). The full Due Diligence report is also provided for information as an appendix in Part D of this CMP.

Environmental and Archaeological Context
Darling Harbour is located in the central area of the Sydney basin, which is generally characterised by contrasting sandstone escarpments, and gently undulating shale hills. The Powerhouse site is located 500m southwest of Darling Harbour and on the eastern edge of the Ultimo-Pyrmont Peninsula, which itself is oriented approximately north west/ south-east. Mainly due to sandstone mining, major changes to the topography of the peninsula were undertaken prior to detailed mapping of the area. However, it is generally understood that the Pyrmont peninsula prior to 1788 generally consisted of sandstone rises and outcrops, grading down towards the water on all sides. The study area is located on the sandstone topography of the Ultimo-Pyrmont Peninsula in close proximity to the original shoreline of Cockle Bay. The approximate location of the study area is highlighted in red in Figure 3.10 below. The location of the site in relation to the original topography and landform of the peninsula is shown in Figure 3.11.

The Darling Harbour area would have constituted a rich resource zone (both marine and land based), including a variety of vegetation, which would have in turn provided a diverse habitat for varied fauna, to be utilised by Aboriginal people inhabiting the area prior to European arrival.

Land reclamation along the southern end of Darling Harbour took place in 1874 (with the exception of Darling Island, which was connected to the mainland of the peninsula earlier). Further land of reclamation within the head of Cockle Bay was undertaken in 1918. The subject site is located in close proximity to the eastern boundary between what would have been the original shoreline of the southern end of Daring Harbour (pre-1788), and land reclamation works undertaken in the late 19th century (Figure 3.12). Although the impacts from land reclamation occurred adjacent to the site, it is likely the Powerhouse site is located enough on the fringes of those land modifications to not have too much of an impact on the natural soils within.

There are currently no registered Aboriginal archaeological sites directly within the study area, however three registered Aboriginal archaeological sites are located in close proximity, which include:

- AHIMS #45-6-2652, 'Ultimo PAD 1', a PAD site located 50m north
- AHIMS #45-5-2979, 'UTS PAD 1, 14-28 Ultimo Rd Syd', a PAD site located 60m south
- AHIMS #45-6-3217, 'Darling Central Midden', is a shell midden, artefact and Aboriginal Ceremony and Dreaming site 200m north east

The relatively even dispersal of sites suggests that Aboriginal archaeological sites may exist across the entire Sydney CBD and Pyrmont Peninsula area, wherever conditions allow them to survive (i.e. incomplete levels of ground disturbance, along the edge of the original sandstone outcrops and geology, along water sources, and where natural soil profiles are still present.

Numerous archaeological assessments and Aboriginal archaeological excavations in the Sydney CBD and Darling Harbour area have demonstrated the potential for Aboriginal archaeological deposits to remain in situ, particularly along the original shoreline of Darling Harbour, dependent of the level of historical disturbance that the area has been subject to. The presence of existing buildings or development at a location, cannot be generally used as a factor to confirm that any soils with the potential to retain intact Aboriginal archaeological deposits have been highly disturbed or removed. In fact, numerous Aboriginal archaeological excavations have demonstrated the ability for in situ Aboriginal archaeological deposits to be present and relatively undisturbed beneath existing buildings (e.g. Wynyard Walk, SICEEP excavations beneath the Convention Centre).

Summary of Aboriginal Archaeological Potential
The Powerhouse site is located in close proximity to the original foreshore of Darling Harbour. While the area was not developed extensively until the late 1800s, early historical accounts provide evidence that extensive use was made of the shell middens that lined the bay to provide mortar in lime kilns for civic development programs for the early colony.

The Ultimo- Pyrmont Peninsula and Darling Harbour would have been a focus for Aboriginal occupation and habitation prior to 1788, likely including the subject site. While the subject site has been historically subject to industrial uses associated with the Ultimo Power Station and Ultimo Tram Line, this does not mean that all natural soil profiles (i.e. the soil profiles capable of retaining an Aboriginal archaeological signature) have been removed. Environmentally, the study area is considered to have potential to retain an Aboriginal archaeological signature, supported with the geotechnical investigation of the study area and the alluvial/residual soils confirmed to be present.

Conclusions and recommendations with respect to Aboriginal archaeological potential and its management for the Powerhouse site are summarised as follows:

- There is **moderate to high potential** for natural intact soil profiles to be retained within the Powerhouse site.
- Aboriginal archaeological deposits, should they be present within or in the vicinity of the Powerhouse site, would be most likely to consist of stone artefact sites, shell midden sites, or a combination of both.
- Any future ground-disturbing activities that have potential to impact to a depth of the natural soil profiles across the site, will have potential to impact Aboriginal archaeology, and therefore will require management and mitigation in accordance with relevant legislation and statutory guidelines.
- Any substantial excavation works proposed for the Powerhouse site are likely to require Aboriginal archaeological test excavation to further investigate and confirm the nature of Aboriginal archaeological potential within the Powerhouse Ultimo study area.

Possible management requirements for future development works within the Powerhouse site that have potential to impact Aboriginal archaeology may include:

- Preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR), prepared in accordance with relevant Heritage NSW statutory guidelines; and
- Further Aboriginal archaeological assessment and archaeological test excavation under a Section 90 AHIP under the NPW Act.

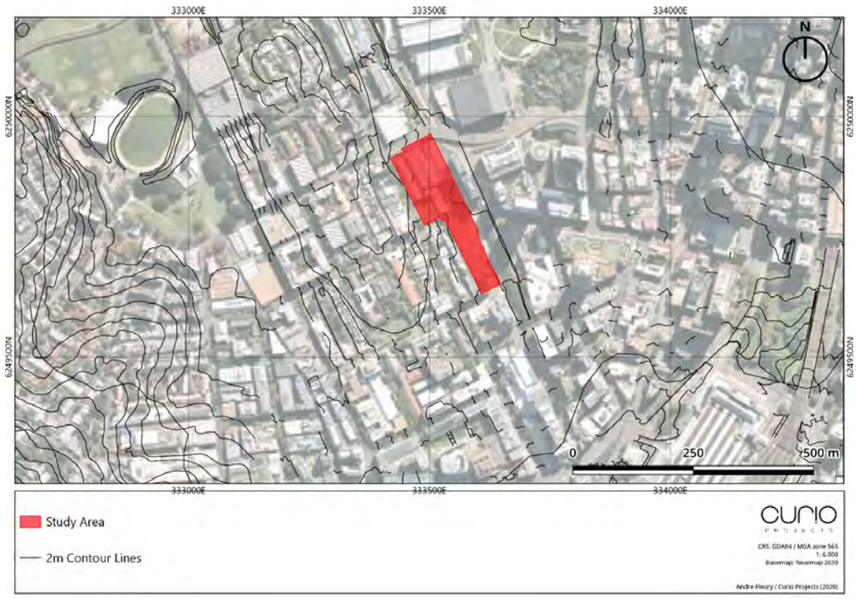


Figure 3.10 Land Contours of Powerhouse site and surrounds (Source: Curio 2020)

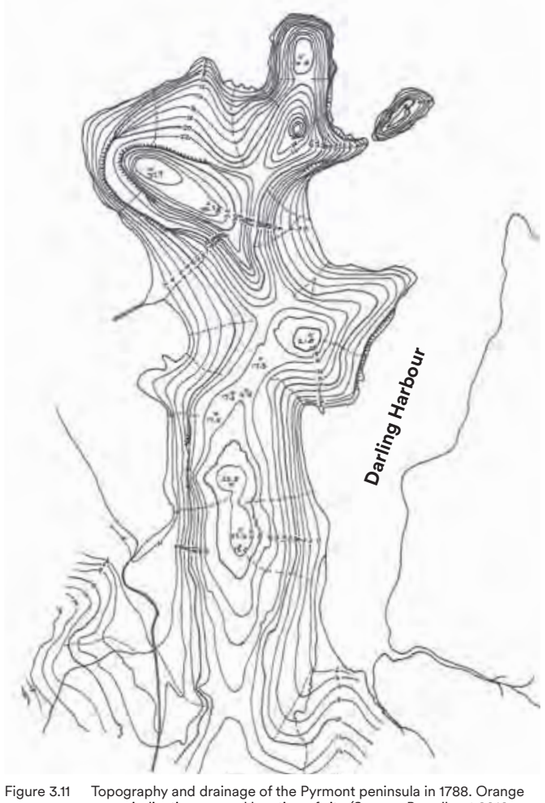


Figure 3.11 Topography and drainage of the Pyrmont peninsula in 1788. Orange arrow indicating general location of site (Source: Broadbent 2010, p. 54)

3.4.2 Historical Archaeology

Preamble
A historical archaeological assessment was undertaken of the Powerhouse site in 2018 (AMBS 2018, attached as an Appendix to this CMP). The 2018 archaeological assessment concluded that the survival and integrity of the historical archaeological resources across the Powerhouse site are likely to be variable, and that the construction of the Ultimo Power House and replacement of the Sydney Tramway and Omnibus Company (STOC) stables by the Tram Depot for stabling electric trams in 1899 would have altered the local landform, with a significant impact on the underlying archaeological resource. In particular, the 2018 AMBS assessment noted that:

> The basements and machine beds associated with the Ultimo Power Station, particularly in the Engine Hall, Boiler House, Turbine Hall, Office Building (and to a lesser extent, the Wran Building), will have impacted the archaeological resources of the site. The Engine Hall basements range from approximately 3.5m to 6.7m deep, the Boiler House basements range from approx. 3.3m to 6m deep, those in the Turbine Hall are approx. 3m deep, the Office Building basement is approx. 4m, and the Wran Building basement is approx. 4.5m deep.[5]

Curio note however, that at similar industrial site types such as the former Honeysuckle Railway Yards in Newcastle and at the former Eveleigh Railway Workshops (former ATP, now South Eveleigh) in Eveleigh, that quite often there is an inaccurate assumption that such industrial development works would have had an extensive impact on earlier cultural landscapes or archaeological resources. Archaeological investigations have often revealed that substantial remains still exist below the ground. Such resources either have a direct association with the workings of the site itself (sub-surface infrastructure) or survive surprisingly intact, from earlier occupations of the site. For example, the neighbouring site at Bullecourt Place, when excavated in May -June 2002, revealed an extremely intact historical archaeological resource to be present beneath existing modern development,[6] as have numerous other nearby sites in and around Darling Harbour. As part of the 1980s development works of the Powerhouse Museum at the site, the prediction that the site would have highly disturbed archaeological resources turned out to be incorrect, resulting in a construction delay of several months in 1988.

Previous investigations such as those noted above demonstrate that intact historical archaeological resources have been regularly found at nearby comparative sites and at industrial sites of similar types, and indicate the potential for a similar historical archaeological resource to be present within the Powerhouse site. Therefore, despite the thoroughness of the AMBS assessment, it is considered likely that the subject site has a slightly higher potential for intact historical archaeological resources, or evidence of earlier landscapes, to survive at the Powerhouse site than previously assessed.

Further to this point, results of the 2019 geotechnical investigations undertaken within the site have confirmed the presence of buried intact natural soil profiles across much of the site, as well as some presence of terracotta, brick and ceramic fragments at depth (between 2-3.1m below ground level) to the south of the Harwood Building (e.g. BH104 and BH202). This geotechnical information confirms the ability for archaeological resources to remain at the site regardless of historical impact and development, with the southern boreholes being possibly representative of an historical archaeological resource in this location.

It is also noted that neither the 2018 Archaeological Assessment (nor the 2003 CMP) identified the subterranean s170 heritage asset "Water Cooling System and Manifold". This heritage asset is not technically defined as an archaeological 'relic' in accordance with the relics provisions of the NSW Heritage Act, but rather as a 'work' as part of the working structure and built fabric of the former Power House. Nevertheless, the location of this significant heritage asset within the Powerhouse site, its listing on the Property NSW S170 Heritage Register, and inclusion within the SHR Ultimo Power House listing, means that this subterranean feature requires acknowledgement, additional assessment and consideration in the context of the historical archaeological potential of the site.

Introduction
The 2018 (AMBS) assessment was used as a baseline for the following summary of historical archaeological potential for the Powerhouse site, supplemented by additional primary research and assessment undertaken by Curio Projects, specific to the historical occupation and use of former structures on the site prior to the construction of the Ultimo Tram Shed and Power House, in order to further clarify the historical archaeological potential of the Powerhouse site.

As described in Section 2.2 (Historical Evidence) of this CMP, the historical occupation and use of the Powerhouse site has been summarised into five main phases, of which, historical features, structures and uses during *Phase 2 (1803-1894)* and *Phase 3 (1895-1940s)* have been identified as requiring further research and assessment with respect to the potential for historical archaeological resources from this phase to survive at the site, and the likely archaeological significance should such a resource be present.

Phase 2—Ultimo-Pyrmont Peninsula and 19th Century Occupation (1803–1894)
The earliest records of historical structures built across the Harris Estate are from the mid-1840s, with the 1845 Phillip Ward Rate Assessment Book recording that several huts of mud, brick, wood or wattle with bark roofs been constructed across the land. Other historical features within the site in the first half of the 19th Century included sandstone quarrying (Figure 3.13 and Figure 3.14).

The earliest detailed historical plans available of the structures present in the northern block of the Powerhouse site (i.e. bounded by William Street, Pyrmont Street, Macarthur Street, and Harris Street—Block 23 of the Ultimo Estate Subdivision, land inherited by Miss Margaret Harris) depict seven buildings (Figure 3.15), referred to in the following assessment as the following street addresses:

- 137 William Henry Street (c.1873–1913)
- 517-523 Pyrmont Street (c.1870s–1898)
- 554-556 Harris Street (c.1870s–1922)

Development on the southern block of the Powerhouse site (i.e. bounded by Macarthur Street, Pyrmont Street, Mary Ann Street, and Harris Street—Block 20 of the Ultimo Estate Subdivision, inherited by Mr John Harris) by the 1870s included construction of a stables for the Sydney Omnibus Company (1871), stables for the City Carrying Company at the southern end of the block by 1883, and feed cutting works located between the two stables (Figure 3.16).

By the turn of the century, the majority of the northern block between William Henry Street and Macarthur Street had been resumed for the construction of the Ultimo Power House, resulting in the demolition of the houses at 517-523 Pyrmont Street, while the houses at 137 William Henry Street and 554-556 Harris Street were retained until the 1920s. Details of the occupants and history of each of the former structures at the three addresses are provided in the following subsections.

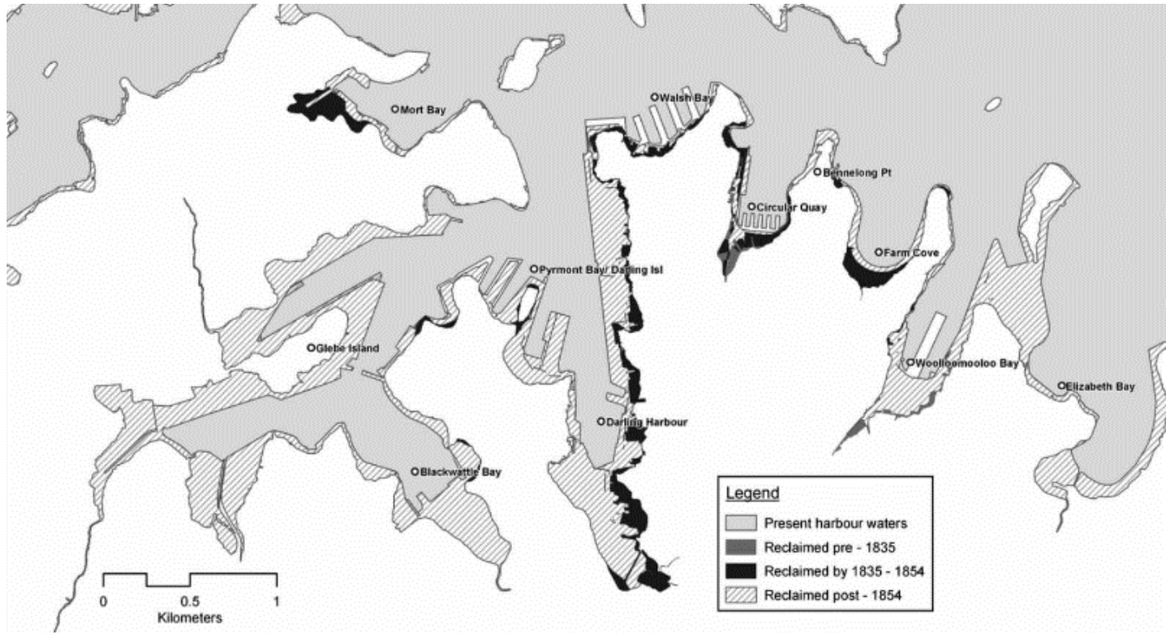


Figure 3.12 Land reclamation in Sydney (Source: Birch et al 2009)

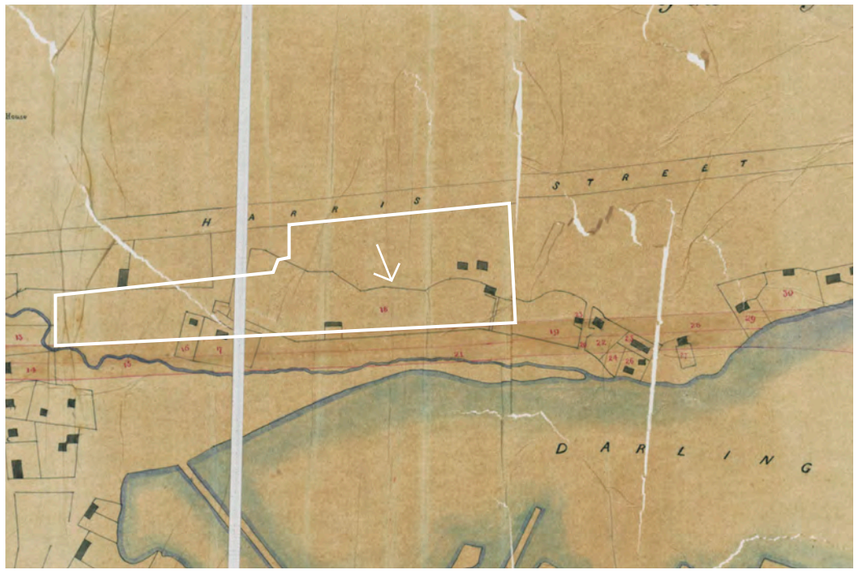


Figure 3.13 Detail from plan of the Darling Harbour Branch of the Sydney Railway, 1853, in Surveyor General sketch book folio 28-71 showing early structures across the Harris Estate. Area resumed for Darling Harbour Goods Line in orange [Powerhouse site outlined with quarry indicated by arrow]. (Source: Source: State Archives and Records Authority of New South Wales NRS-13886-1-[X764]-Volume 6 Part 2-14)

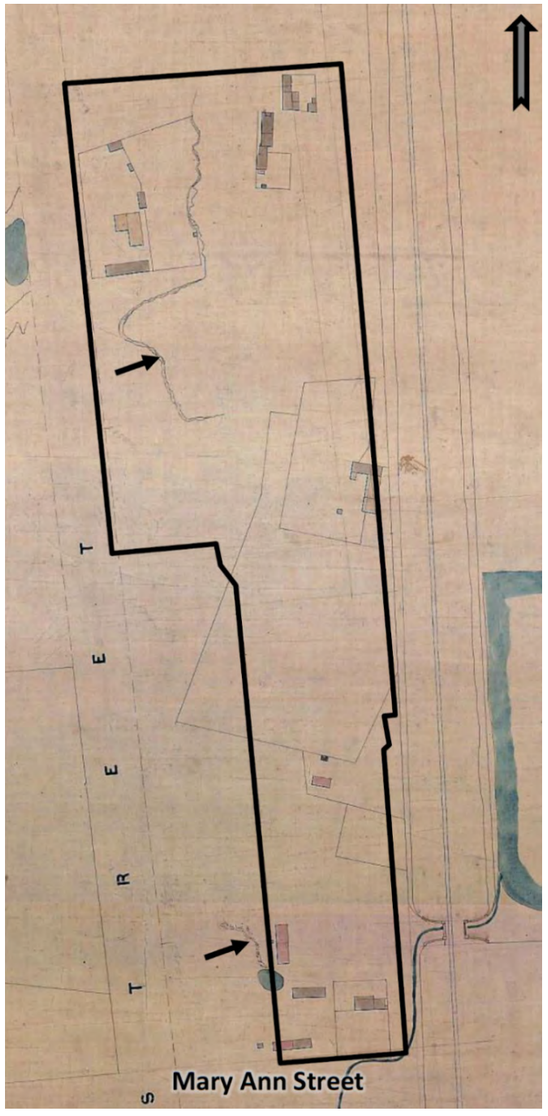


Figure 3.14 Detail from Trig Survey of Sydney 1855-1865, showing early structures across the Harris Estate. Powerhouse site outlined. Areas of sandstone quarrying indicated by arrows. (Source: City of Sydney Archives CN-0080)

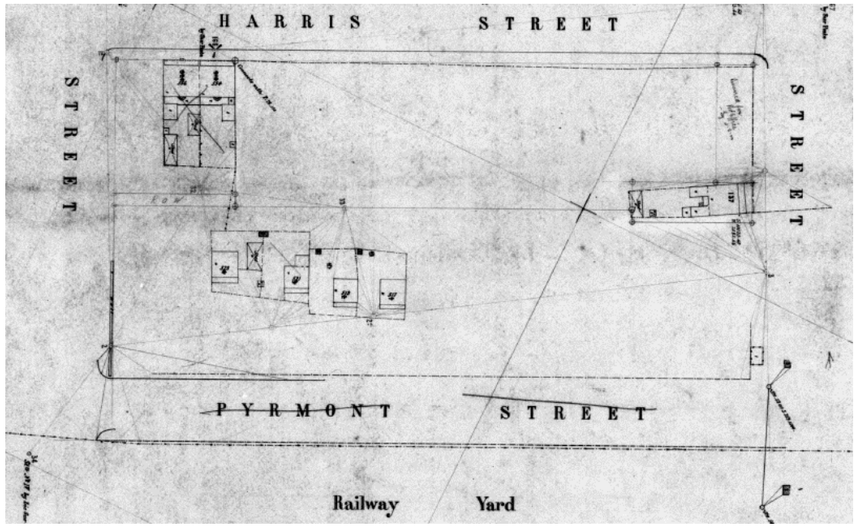


Figure 3.15 1886 plan of northern block (William Henry St to Macarthur St) of current Powerhouse Museum site, depicting houses at 137 William Henry Street, 517-523 Pyrmont Street, and 554-556 Harris Street. (Source: Sydney Water PWDS 1544-S206)

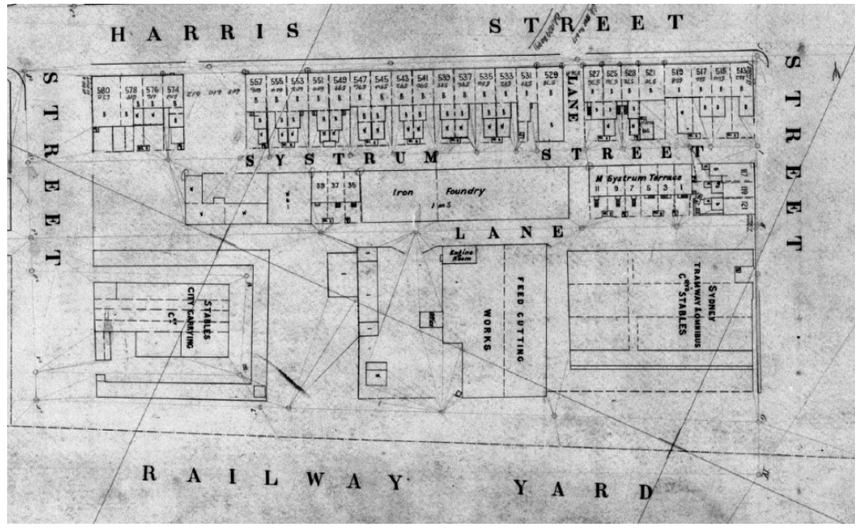


Figure 3.16 c.1886 Plan of Southern Block (Macarthur St to Mary Ann St) of current Powerhouse Museum site. (Source: Sydney Water PWDS 1544-S209)

Figure 3.17 N J Caire, Anglo-Australasian Photo Company, detail from 1878 photo taken from Sydney Town Hall including the current Powerhouse Museum site, depicting the Sydney Tram Company Stables (left), as well as the houses at 517-523 Pyrmont Street, and 554-556 Harris St (Source: State Library NSW SPF/994)

137 William Henry Street

By 1873, a house was located at 137 William Henry Street, Ultimo, shown in a 1886 map (Figure 3.18), and depicted in a 1903 photograph (Figure 3.19), as being located between the Ultimo Post Office and the North Annex (Offices) building. The building at 137 William Henry Street was recorded as a two storey house, possibly rebuilt at some time during its history, with the structure variably referred to in historical accounts as being constructed of brick, stone, and wood.

The 1876 Sands Directory records the house at 137 William Henry Street as leased from the Harris family by Thomas Bladen, an iron manufacturer/moulder/smelter. Bladen is recorded in the 1877 Council Rates Assessment Book as living in a 'two storey, brick and stone house with a shingled roof'. Bladen remained in occupation at 137 William Henry Street until around 1881-1882, at which point the house was then leased by butcher William Carroll from 1882 to 1889.[7] In 1882 the building at 137 William Henry Street is recorded as being a 2 storey, 7 room wooden house with a shingled roof, rented by Carroll from Miss Margaret Harris.[8] The 1886 Sydney Water plan of the site depicts 137 William Henry Street as having an outside toilet (W.C) and shed at the rear of the property (Figure 3.18). The house was occupied from 1890 to 1896 by drayman William McCaffrey, with a stables recorded as present on the land in 1896.[9] The Sands Directory records the house at 137 William Henry Street as occupied from 1897-1899 by butcher James O'Grady and Mrs Henrietta Meikle, and by Thomas Love in 1900-1901.[10] It is possible that these three tenants had sublet the land from William McCaffrey, who is again recorded at the address in the 1901 Council Rates Assessment Book. The Sands Directory records George Taylor as occupier in 1904-1905 followed by Charles Lacey from 1906 until 1913.[11]

The house at 137 William Henry Street was demolished to make way for the construction of the Ultimo Tram Instruction Room Building in 1913-14.[12] While it is likely that the main house and greater part of the backyard would have been disturbed by the construction of the Tramway Instruction Room (since demolished), and the subsequent construction of the Wran Building in 1987, there remains however:

> ...potential for some archaeology associated with the house, including foundations and underfloor deposits, to be extant in the empty space between the Office Building and the post office. There may also be some remains within the backyard, including yard surfaces, outbuildings, cesspits and rubbish pits beneath the Wran Building foundations to the south.[13]

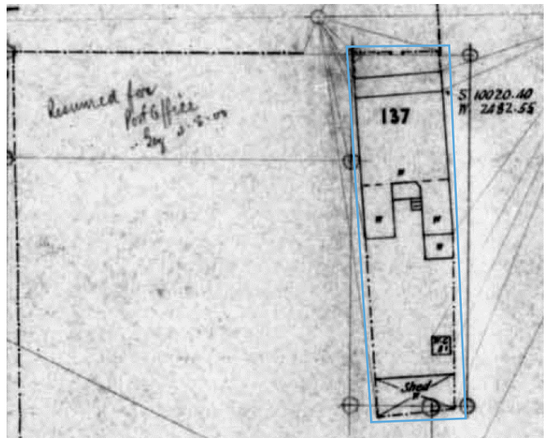


Figure 3.18 Detail from 1886 plan of northern block (William Henry St to Macarthur St) of current Powerhouse Museum site, depicting the house at 137 William Henry Street. (Source: Sydney Water PWDS 1544-S206)

Figure 3.19 Detail from figure 2.14 showing house at 137 William Henry Street c. 1901
(Source: State Archives and Records Authority of New South Wales, NRS-4481-2-[4/8610]-559)

517–523 Pyrmont Street

The 1877 Council Rates Assessment Book records several single storey houses owned by the Harris family as located 'off Harris Street' at Pyrmont Street towards William Henry Street, including houses occupied by William Pierce and Robert Riley. An 1878 photograph depicts four houses located along what appears to be Pyrmont Street (Figure 3.17), which are recorded in the 1882 Council Rates Assessment Books as being one storey, four room, wooden houses with shingled roofs located on Pyrmont Street '240 feet from William Henry Street', all leased by Miss Margaret Harris for £26.

The houses at 517-523 Pyrmont Street were renumbered over time, first numbered as 1-4 Pyrmont Street, and renumbered by 1882 as 501-507 Pyrmont Street (Figure 3.20). The occupants of the Pyrmont Street houses are noted in 1882 (Council Rates Assessment Book) as being: William Pierce at 501 (517); Robert Riley at 506 (519); Michael Leo at 505 (521); and Michael Brown at 507 (523)—with the southern most structure (523 Pyrmont St) recorded as being located 40 feet from Macarthur Street.[14] The 1891 Council Assessment Book records P. O'Hallaran at 517 Pyrmont Street (one storey, four roomed wooden building with shingled roof), T. McCarthy at 519 Pyrmont Street (one storey, four roomed wooden building with shingled roof), I. Davey at 521 Pyrmont Street (one storey, five roomed wooden building with iron roof), and M. Brown off 523 Pyrmont St (one storey, four roomed wooden building with iron roof). In the 1896 Council Rate Assessment book, P. O'Hallaran, Thomas McCarthy and Michael Brown are still recorded as the occupants at 517, 519 and 523 Pyrmont Street (respectively), while the occupant of 521 Pyrmont Street is recorded as Luke Darby.

The land and structures of the Pyrmont Street houses would have been included in the 1898 sale of Margaret Harris' land to the Department of Public Works for the construction of the Power House, with the houses demolished in the late 1890s as part of the preparation works for construction of the Ultimo Power House.[15]

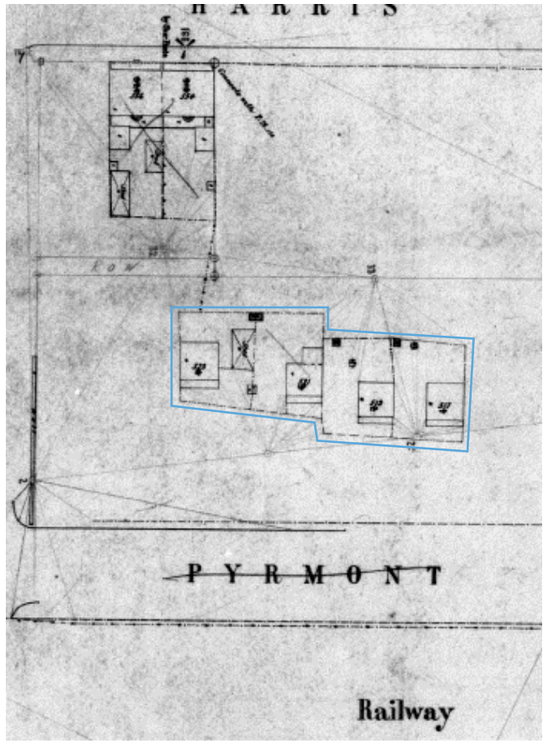


Figure 3.20 Detail from 1886 plan showing houses at 517–523 Pyrmont Street (Source: Sydney Water PWDS 1544-S206)

Figure 3.21 N J Caire, Anglo-Australasian Photo Company, detail from 1878 photo taken from Sydney Town Hall depicting houses at 517–523 Pyrmont Street (Source: State Library NSW SPF/994)

554–556 Harris Street

By 1871, a pair of semi-detached, single storey six-roomed brick houses with shingled roofs were recorded as being present at 554-556 Harris Street (Figure 3.22 and Figure 3.23). The Sands Directory records two houses as being located on Harris Street between William Henry and Macarthur Streets by 1871, initially numbered as 472 and 474 Harris Street, renumbered from 1879 to 518 and 520 Harris Street, and finally renumbered by 1886 (as shown on a Sydney Water plan-Figure 3.22), as 554 and 556 Harris Street. which appear to be the later numbered 518 and 520 Harris Street as John Lowe is recorded there from 1879.[16]

John Lowe, a cabman, is recorded in the Sands Directory as the occupant of the house at 556 Harris Street from 1879. The 1883 Sands Directory records the Harris Street houses as occupied by John Grant, a contractor, at 518 (554) Harris, and John Lowe at 520 (556) Harris Street. By 1886 the house at 556 Harris Street is depicted as having two sheds constructed in the rear yard (Figure 3.22 and Figure 3.24). The 1896 Council Rates Assessment book records 554 Harris Street as a brick house and stable, leased by Margaret Harris to Mrs Mary Black. The brick house and stable at 556 Harris St continued to be leased by John Lowe until c. 1909, replaced by relative Miss L Lowe from 1910.[17] Council Rates Assessment books record Agnes Dooley at 554 Harris St and John Connolly at 556 Harris St from 1911-1914. By 1918, Mrs Agnes Dooley remained at 554 Harris Street while Mrs Annie Houston was recorded as the occupant at 556 Harris Street in the 1918 Sands Directory. Both Harris Street houses were demolished in 1922.

Sydney Tramway and Omnibus Company's Stables

The 1877 Council Rate Assessment book records Thomas Hales as occupant of a brick and wood house and stables for 'S.U.O Company. Stalls for 200 Horses', facing Macarthur Street and depicted in a 1878 photograph (Figure 3.17). The 1880 Rates records the United Omnibus Co. Stalls, Chaff Store, Old forge and New Forge located on the land, in addition to John Wood's house, John Woods & Co Stores and Stables.[18] The 1882 Assessment books show that John Woods and Co had wooden stables with an iron roof on Mary Ann Street between Harris Street and the Railway fence.[19]

The 1886 Sydney Water Plan depicts the Macarthur to Mary Ann Street block as occupied by the Sydney Tramway and Omnibus Company from the central lane (present Omnibus Lane) east to the Railway Yard (Goods Line) with stables located at the northern Macarthur Street end of the block, bordered to the south by a feed cutting works which also contained an office and an engine room while the Mary Ann Street frontage of the block is occupied by Stables for the City Carrying Company (Figure 3.16). Parallel to the "Feed and Cutting Works" area indicated on the 1886 plan (between what is now Omnibus Lane and Systrum Street), an Iron Foundry is depicted, likely associated with the stables. The 1896 Council Rates Assessment book records John Wood of the Sydney Tramway and Omnibus Company's Stables and Stores as occupying a two storey, four-roomed wooden building with an iron roof. The southern block (between Mary Ann Street Macarthur Street) was resumed in 1897 for the construction of the Ultimo Car House, including demolition of the former Stables and associated structures.[20]

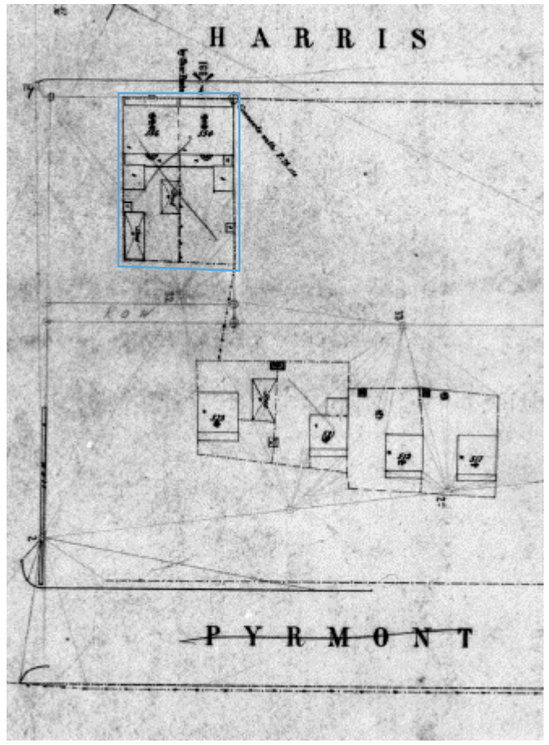


Figure 3.22 Detail from 1886 plan showing houses at 554–556 Pyrmont Street (Source: Sydney Water PWDS 1544-S206)

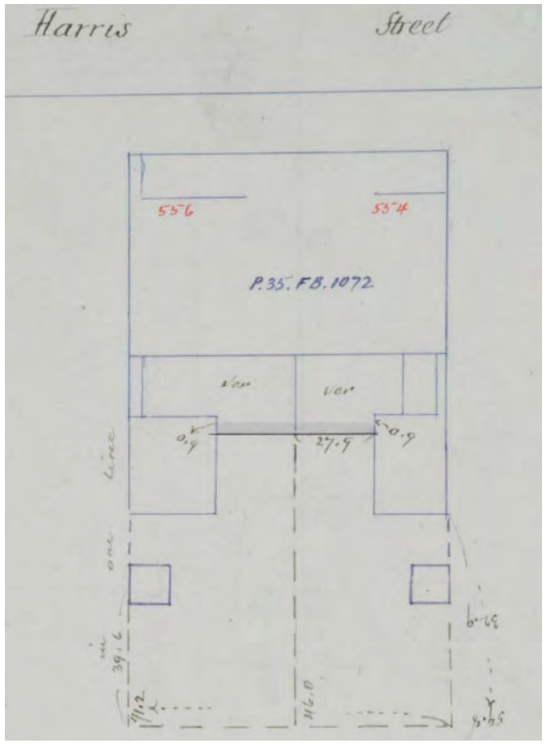


Figure 3.24 1893 updated field survey notes of 554-556 Harris Street (Source: Sydney Water PWDF B2412)

Figure 3.23 Semi-detached brick house pair at 554-556 Harris Street prior to demolition in 1922, with Ultimo Power House behind (Source: City of Sydney Archives NSCA CRS 51/992).

Phase 3—Ultimo Power House, Tram Shed and Post Office (1895-1946)

Historical development at the Powerhouse site in Phase 3 focused mainly on construction of the extant buildings of the Ultimo Power House (1898), Tram Shed (1898), and Post Office (1901). However, several other structures along William Henry and Harris Streets were also constructed at the site during this phase, including:

- Ultimo Tramway Instruction Room (William Henry Street—c.1913-1984)
- Sydney Glass Co et al (496-504, 506-542 Harris Street, 1902-1954)
- Railway Commissioners Workshop (552-560 Harris Street—corner Harris and Macarthur Street) (1914-1938)
- Maize Products Pty Ltd Warehouse/Manassen Building (552-560 Harris Street—corner Harris and Macarthur Street) (1938-1984)
- Ampol Service Station (1957-1984)
- Dalton Building (1960-1984)

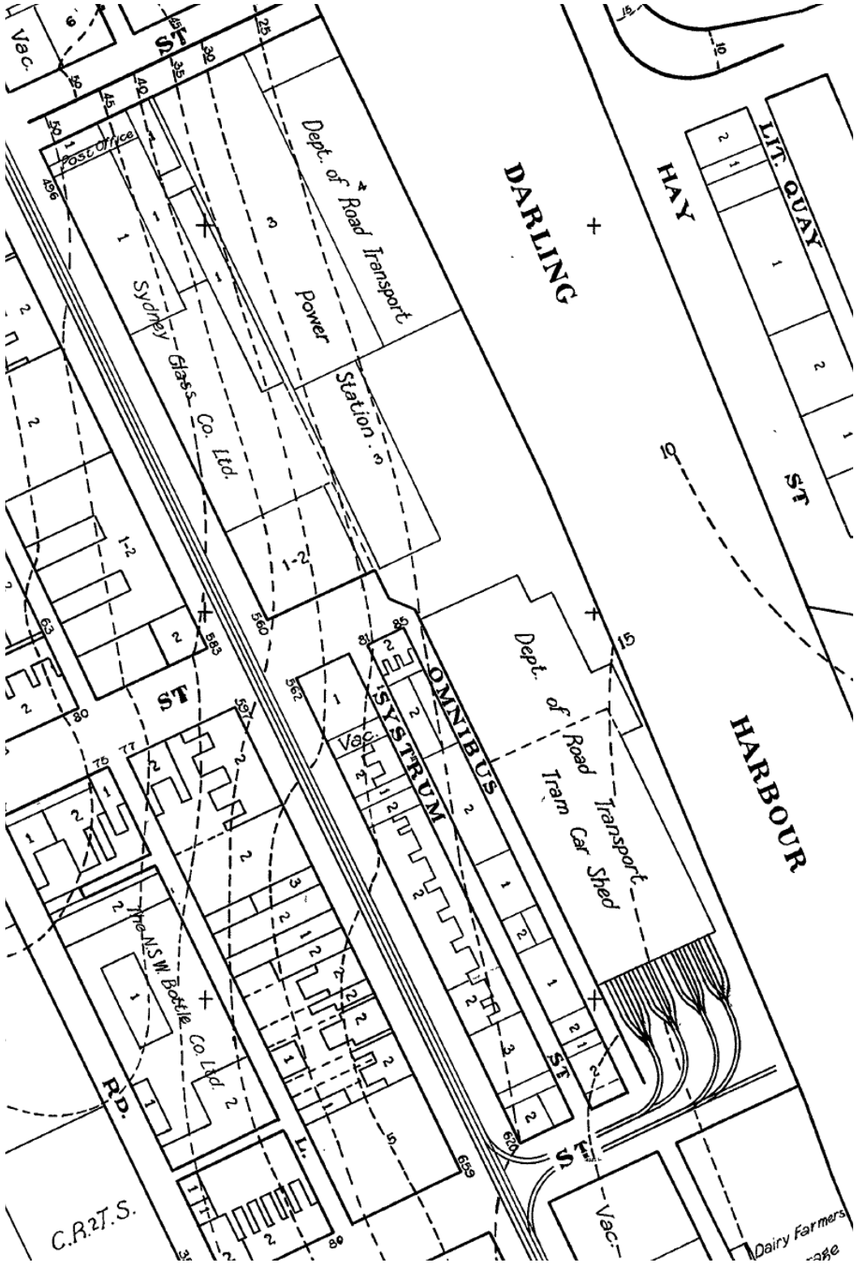


Figure 3.25 Detail from 1938-1950 Civic Survey Map. Sydney Glass Co Ltd fronting Harris Street (Source: City of Sydney Archives Map 22 - Ultimo, Haymarket)

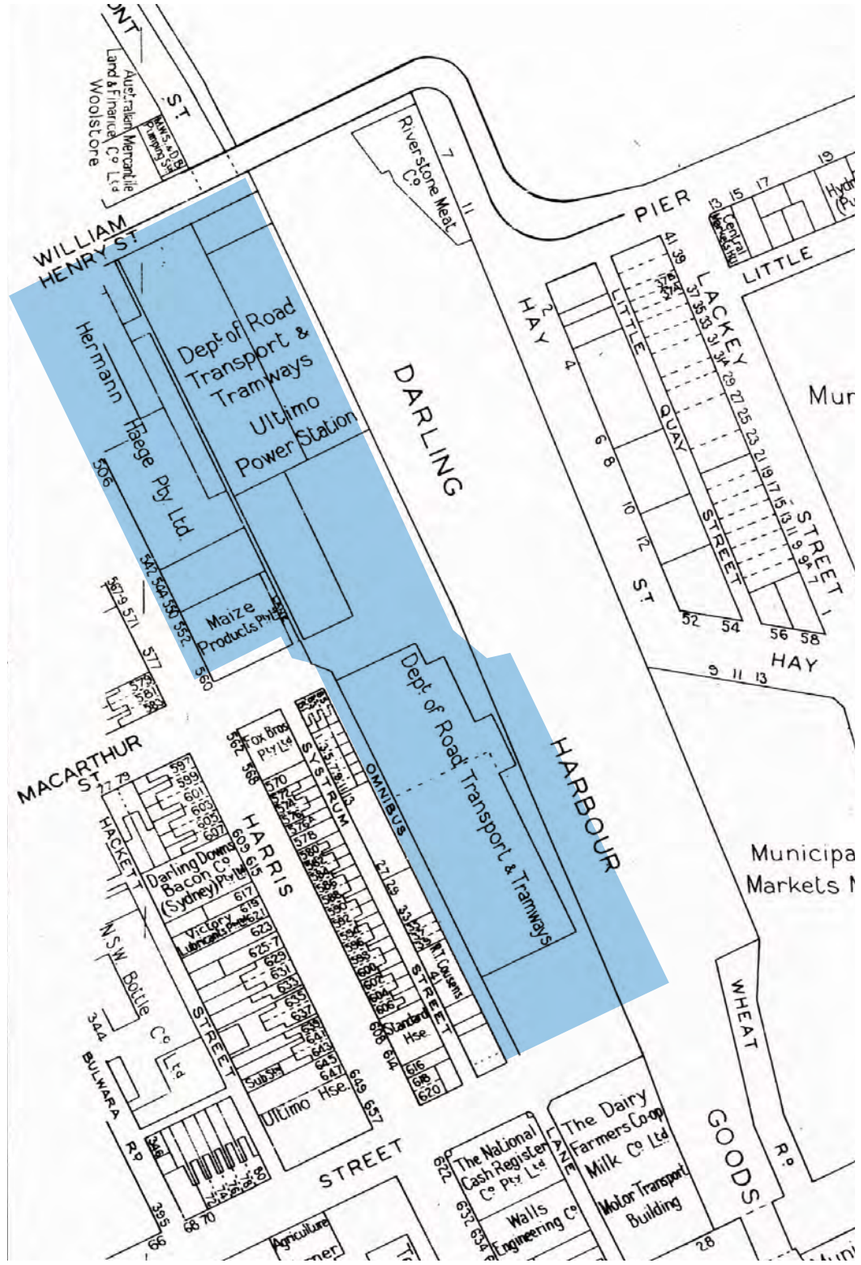


Figure 3.26 Detail from 1949-1972 Building Surveyor's Detail Sheet depicting later buildings along Harris Street. (Source: City of Sydney Archives Sheet 10 - Central with Curio overlay)

Tramway Instruction Room

The Tramway Instruction Room was built between 1913-14 (recorded in both the Sands and the Council Rates Assessment Books by 1914), and was a sizable one storey, one room brick building with an asbestos shingle roof, extending along William Henry Street between the Ultimo Post Office and the Power House Office (North Annex) (Figure 3.28 and Figure 3.29). The building contained significant tram car equipment which was used in training for the electric tram drivers.[21] The final accessible Council Rates Assessment book (1948), records the Tramway Instruction Room located adjacent to the Ultimo Power House along William Henry Street, Ultimo. The Tram Instruction Room building was vacated in 1953 when a new training school opened in Randwick, and by 1954 it was being used as a storeroom for the Electrical Commission of NSW.[22] The building appears on the 1963 Sydney Water Plan of the site and remained within the site until its demolition in the mid 1980s as part of Stage Two development of the Powerhouse Museum (recorded as being present by Godden et al in the 1984 heritage report[23] (Figure 3.32).

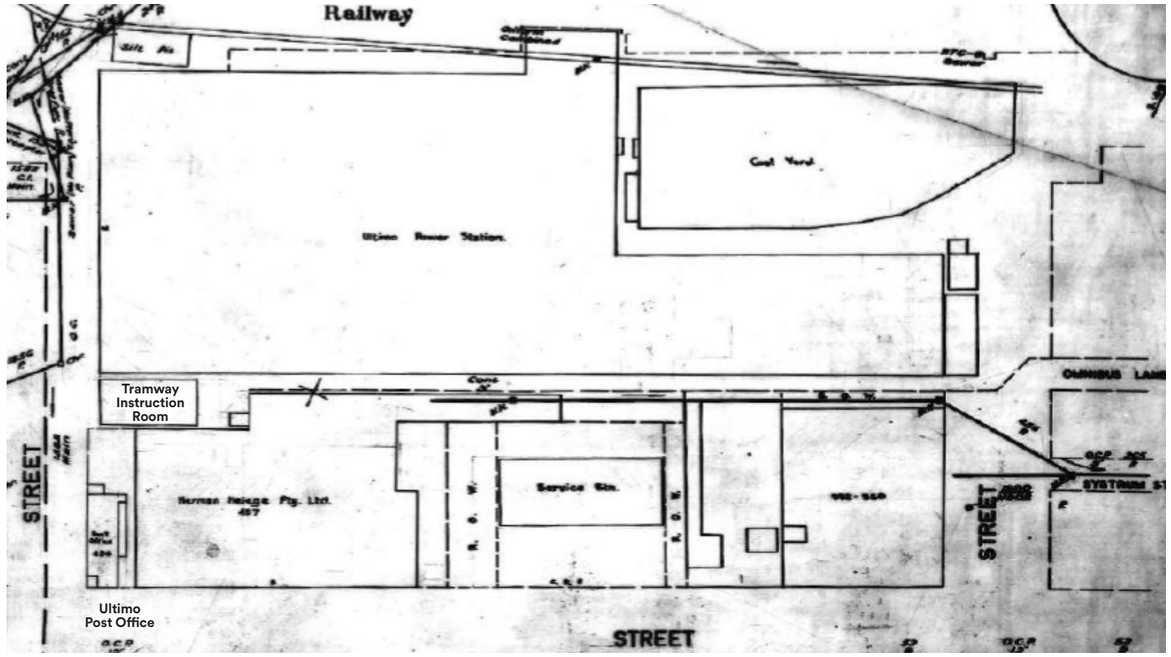


Figure 3.27 1963 plan of structures fronting Harris Street and Tramway Instruction Room along William Henry St (Source: Sydney Water DS3725 (2))

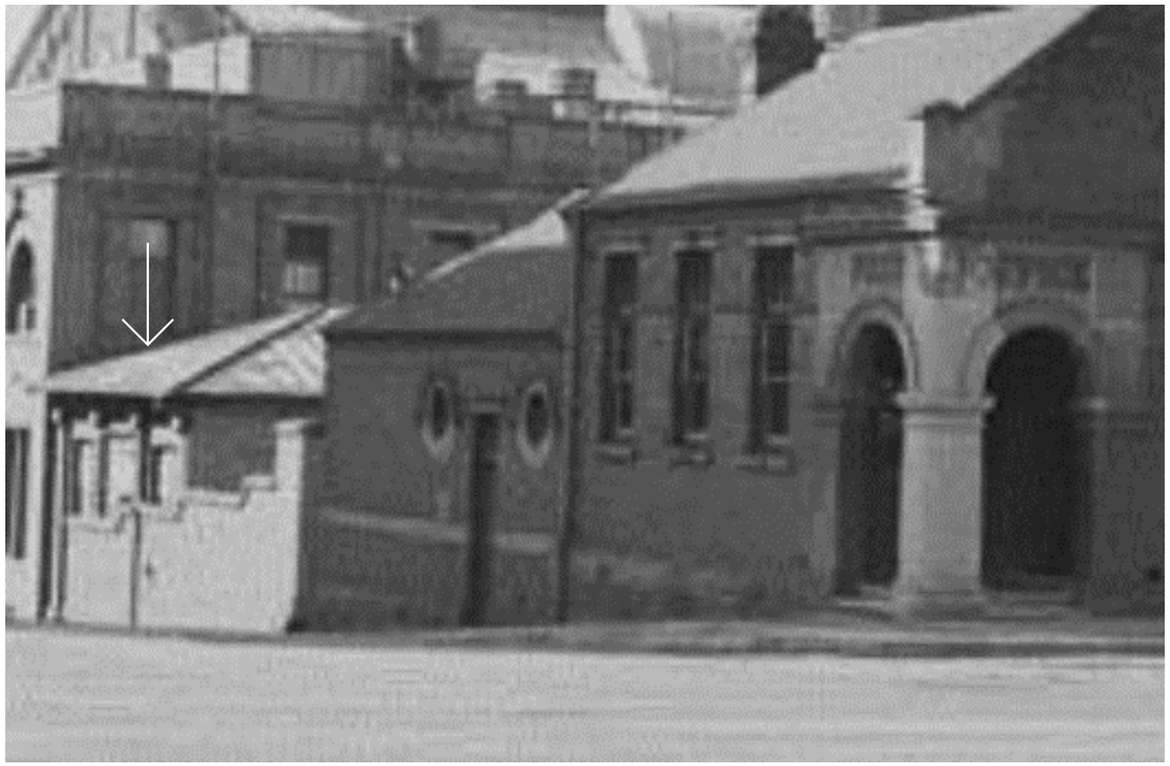


Figure 3.28 Tramway Induction Room (arrowed) between Ultimo Power House Administrative Offices and Ultimo Post Office, 1947 (Source: National Archives of Australia C4078, N3009)

Figure 3.29 North Annex (L) and Former Tramways Instruction Room (R), 1965 (Source: City of Sydney Archives NSCA CRS 48/4603)

Harris Street (William Henry Street to Macarthur Street) (496-500, 506-542, and 552-560 Harris Street)

From December 1901, until at least the final Council Rates Assessment Book in 1948, the Sands Directories and Council Rates Assessment Books identify the Sydney Glass and Tile Company (also known variably as the Sydney Glass Co. Ltd/Pty Ltd) as lessees and occupiers of an area of 1 acre, 13 ½ perches at 496-504 Harris Street—adjacent to the south of the Ultimo Post Office on the corner of Harris and William Henry Streets. The Sydney Class Company constructed a building fronting Harris Street, identified in 1911 as a double storey, two room stone workshop and offices, on land leased from Margaret Harris. The 1911 Council Rates Assessment book records Wright Sheards sub-leasing a wood and coal yard consisting of a single one-storey, one-room timber wood and coal yard with an iron roof, from the Sydney Glass and Tile Co on Harris Street, recorded in by 1918 in the Sands Directory as being leased by Harry Chapman as the fuel merchant on this land.

The Sydney Glass and Tile Co purchased their initial site from Margaret Harris in September 1922 for £10,000,[24] and by 1927 the Sydney Glass Co Ltd owned all the land along Harris Street between their factory at 496-504 Harris Street (next to the Post Office) along Harris Street to the intersection with Macarthur Street. The 1927 Council Rates Assessment book records Harry Chapmen as remaining at 552 Harris Street, leasing the land from the Sydney Glass Co Ltd for a wood and Coal Yard which included a brick shed and weighbridge. In 1948 the Council Rates books describes the Sydney Glass Co building as a two storey brick three and five roomed factory and offices with a basement and iron roof, although this is the only recorded mention of the building having a basement in the entire history of the company's occupation of the site, so this reference to a basement may be inaccurate.[25]

The 1914 Council Rates Assessment book records a Railway Commissioners workshop located on the corner of Harris street before Macarthur St (i.e. 552-560 Harris Street). In July 1923 Margaret Harris sold the block on the northern corner of Harris and Macarthur Streets to Maurice Newstead who mortgaged it to the E.S.& A. Bank who took possession of it after his 1938 death, selling it to Maize Products Pty Ltd who constructed a single storey warehouse on the property. The Maize Products warehouse at 552-560 Harris Street abutting Macarthur St is described in the 1948 Council Rates Assessment book as a single storey brick warehouse with an iron roof. The Maize Products warehouse building at 552-556 Harris St is depicted in the c.1963 Sydney Water map (Figure 3.31). By 1980, this warehouse building is referred to as the Manassen Building (Figure 3.32).

In 1948 the block of land at 550 Harris Street was purchased by the NSW Government Railways allowing a Harris Street frontage to the Power House. In January 1954 the Sydney Glass Co sold their land to the paper merchants Herman Haege Ltd, after which time a section of the land was leased to Ampol for use as a petrol station from December 1957.[26] In 1960 the ''Dalton Building' and store was constructed on Harris Street on the site of the former Sydney Glass Co Building.[27] The 1963 Sydney Water map shows the Post Office on the corner of William Henry Street followed by Herman Haege Pty Ltd, a right of way, and a service station (Figure 3.31).

In 1980-81, as part of the redevelopment of the former Power House site and surrounds for the Powerhouse Museum, the Minister for Public Works resumed and demolished all buildings along the entire Harris Street block, including The Dalton Building, a Store, and Ampol Service station, the NSW Government Railway land, and the Manassen Building at the corner of Harris and Macarthur Streets[28] (Figure 3.32).

In 2022, the land formerly occupied by the Harris Street structures is occupied by the Wran Building and Harris Street forecourt, completed in 1988.

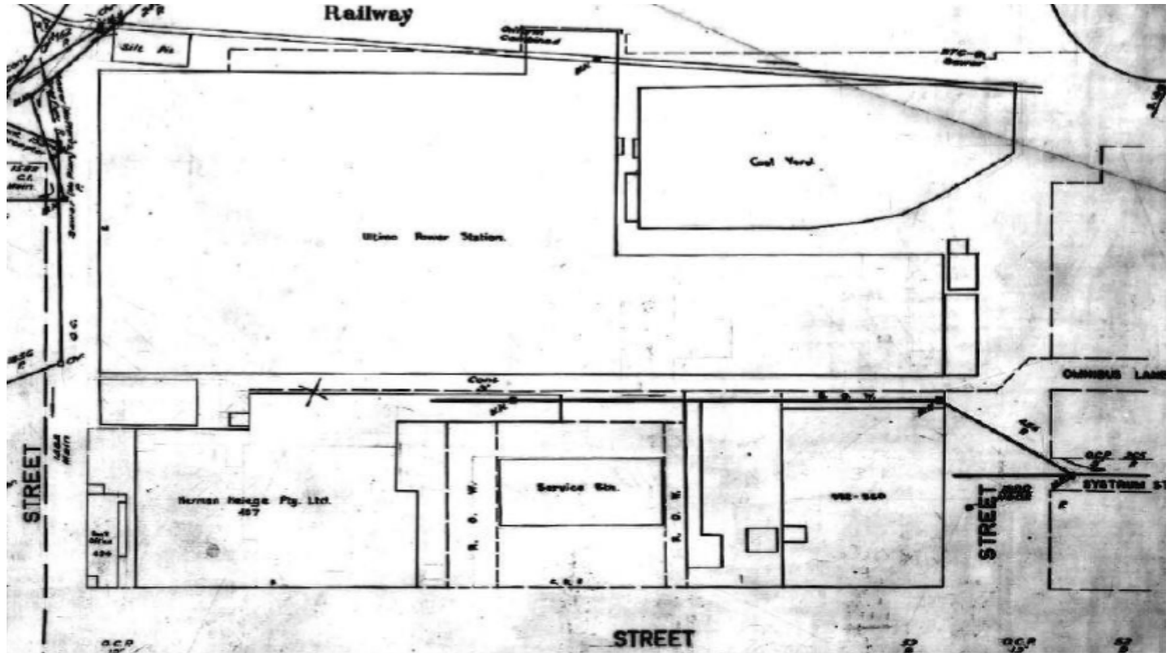


Figure 3.31 1963 plan indicating building at 552-556 Harris Street, corner of Macarthur Street (Source: Sydney Water archive plan DS3725 (2))

Figure 3.30 1964 Image showing the Ultimo Post Office on the corner of Harris and William Henry Streets with the Herman Haege Building and service station behind with frontages to Harris Street (Source: City of Sydney Archives).

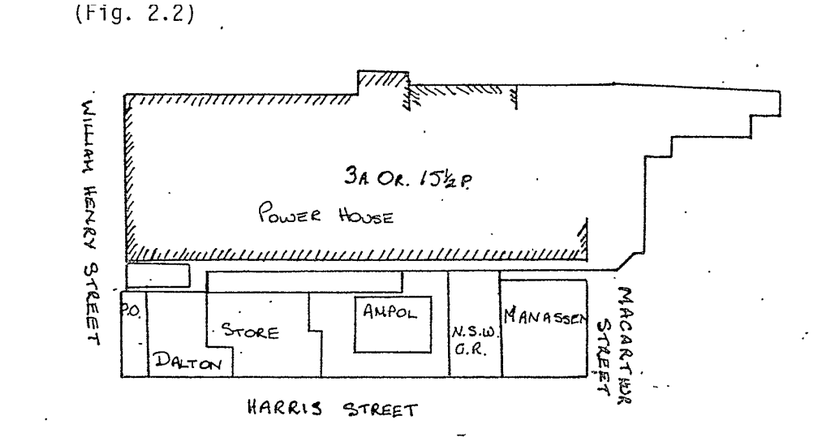


Figure 3.32 Block 23 at time of resumption by the Public Works Dept c.1980, note the buildings fronting Harris Street (Source: Godden et al 1984 p. 30)

Summary of Historical Archaeological Potential and Significance

While each successive phase of occupation and historical use of the Powerhouse site may have impacted evidence of earlier land use activity across the site, previous archaeological work in the surrounding area and at similar industrial sites has demonstrated that levels of more recent ground disturbance are not sufficient to have removed/completely disturbed remains associated with earlier phases of site use. Many historical archaeological sites in the surrounding area that were initially assessed by archaeologists as likely to be highly disturbed, have been demonstrated during construction works to have extremely rich archaeological profiles which yielded significant cultural and environmental information.

While the construction of the basements of former Ultimo Power House Engine Hall/Turbine Hall and Boiler House would have significantly impacted and likely removed the majority of historical archaeological resources from the basement footprints, the Powerhouse site retains potential for historical archaeological resources to be present outside of these basement footprint areas.

The key historical activities/features with potential for associated historical archaeological resources to remain within the Powerhouse site are summarised in Table 3.3, with main areas with potential for archaeology of State significance shown in Figure 3.33.

Table 3.3 Summary of Key Historical Activities and Historical Archaeological Potential

HISTORICAL PHASE	DESCRIPTION OF ACTIVITY/ HISTORICAL FEATURE	POTENTIAL ARCHAEOLOGICAL RESOURCES	SUMMARY OF ARCHAEOLOGICAL	POTENTIAL SIGNIFICANCE
Phase 2 (1803-1894) Ultimo-Pyrmont Peninsula and 19th Century Occupation	Natural landscape features and Early Sandstone Quarrying	– Evidence of early swamp landscape and reclamation such as palaeobotanical evidence (pollen etc) – Evidence of sandstone quarrying	Although land reclamation around Darling Harbour was undertaken from the 1820s until the 1860s, the Harris Estate remained relative undeveloped and modified through the 1800s. There is potential for surviving evidence of reclamation of the swamp to be present and also of evidence of the underlying swamp landscape, which may have been modified prior to erection of houses, particularly along the south eastern part of the site.	Local/State
	Early 1840s and 1850s (undocumented) dwellings	– Building foundations, underfloor deposits, yard surfaces, gardens, outbuildings etc. – Artefact deposits – Post holes – Rear rubbish pits, wells, cesspits, cisterns etc. – Palaeobotanical evidence of early land reclamation and modification works	Despite impacts from subsequent development, it is possible that archaeological remains of some of the earlier houses on the Harris Estate remain outside of the footprint of the Power House buildings basements.	Local/State
	137 William Henry Street (c.1873-1913)	– Building foundations, underfloor deposits, yard surfaces, gardens, outbuildings etc. – Artefact deposits – Post holes – Rear rubbish pits, wells, cesspits, cisterns etc.	The main house and greater part of the backyard would have been disturbed by construction of the former Tramway Instruction Room Building and then the later construction of the Wran Building in 1987. However, there is potential for some archaeology associated with the house to be extant in the empty space between the North Annex and the Post Office, as well as beneath the Wran building foundations further to the south.	Local/State
	517-523 Pyrmont Street (c.1877-1898)	– Building foundations, underfloor deposits, yard surfaces, gardens, outbuildings etc. – Artefact deposits – Post holes – Rear rubbish pits, wells, cesspits, cisterns etc.	The house at 517 Pyrmont Street would have been located within the footprint of the Boiler House and Turbine Hall, and therefore it is unlikely that there will be any surviving physical evidence of this house, with construction of the basements for these extant buildings likely to have removed all evidence. The sites of these houses are located mostly within the footprint of the Level 1 cafe courtyard, while a small part of the 521 and 523 Pyrmont Street properties extending to beneath the location of the Switch House. The depth of the Switch House foundations and the presence of a basement cannot be ascertained from the plan of the Northern part of the Switch House. It is possible that some part of these properties may be extant but likely in a disturbed state. Archaeology beneath the café courtyard may be assumed to be relatively undisturbed with good integrity.	Local/State
	554-556 Harris Street (c.1870s-1922)	– Building foundations, underfloor deposits, yard surfaces, gardens, outbuildings etc. – Artefact deposits – Post holes – Rear rubbish pits, wells, cesspits, cisterns etc.	The two houses at 554 and 556 Harris Street would have been located approximately within the footprint of the Harris Street forecourt. An historical archaeological resource with good integrity associated with 554-556 Harris Street is likely to exist within the footprint of the Harris Street forecourt.	Local/State
	Sydney Tramway and Omnibus Company (STOC) (c.1871) and City Carrying Co. stables (c.1883)	– Stone pavers over floors – Post holes demarcating stables and walls – Artefact deposits	The Ultimo Tram Depot which overlies the earlier stables associated with the Sydney Tramway and Omnibus and City Carrying Companies. While there may be some disturbance from the construction of the tramlines traversing the Tram Shed southern forecourt, there is potential for physical evidence associated with the City Carrying Company Stables and the earlier houses appearing on the Trigonometric Survey map to survive.	Local

Recommendations
The Powerhouse site has potential for local historical archaeological resources to be present. If present with good integrity, some of these potential archaeological resources may meet the criteria for State significance, and as such, the historical archaeological potential of the Powerhouse site will require management in accordance with the relevant requirements of the NSW Heritage Act 1977. The key areas of the Powerhouse site that have highest potential for substantial historical archaeological deposits and resources of State significance to be present are presented in Figure 3.33.

If planned for, archaeological risks can be minimised and managed as part of most redevelopment programs. The key, however, is that any proposed impact to potential archaeology should be investigated and considered early and upfront in any future development process, as well as in discussion with relevant statutory authorities where appropriate (i.e. NSW Heritage Council, City of Sydney, NSW DPIE etc), to ensure that there are mutually agreed protocols in place for the management, investigation and/or removal of local or State significant relics, if required.

The following key recommendations are made for the Powerhouse site with respect to historical archaeological potential and resources:

- The management of historical archaeological resources should be considered early in any the planning of any future proposed works for the site, to allow the archaeology to be proactively managed early in the process, rather than as an 'unexpected archaeological find' during any subsequent onsite construction programs
- Future development works that will impact the ground surface will have potential to impact the potential historical archaeological resources within the site.
- Any proposed future works that will disturb the ground surface within the site will require the preparation of a detailed historical archaeological impact assessment, with respect to specified development impacts and location, in order to determine the requirement for, or extent of, historical archaeological potential and associated mitigation that may be required.
- Work should be undertaken to more clearly identify the accurate location, breadth and depth of the Water Cooling System and Manifold within the Powerhouse site, to ensure that it is protected and conserved in situ without physical impact. Works to investigate or manage the Water Cooling System and Manifold should include consultation with Property NSW as the owner of this heritage asset.

Figure 3.33 Areas of the Powerhouse site with greatest potential to retain State significant historical archaeology. N.B. Archaeological potential is not contained to these locations only. (Source: AMBS 2018 Figure 5.1)

3.5 ENDNOTES

1 AMBS Ecology & Heritage, 2018, p. 1.
2 Fitzgerald & Golder, 1994, p. 11.
3 Design 5, 2021, pp. 42, 43, 59.
4 ibid.
5 AMBS Ecology & Heritage, 2018, p. 32.
6 Godden Mackay Logan, Bullecourt Place, Ultimo: archaeological excavation report, prepared for Australand Holdings Ltd, 2004.
7 Bladen is recorded as the tenant at 137 William Henry St in 1880 (*Sands Directory 1880*) whilst Carroll is recorded there by 1882 (*Assessment Books Denison Ward*, 1882, p. 86), until 1889 (*Sands Directory*, 1883-1889)
8 City of Sydney Archives, *Assessment Books Denison Ward*, 1882, p. 86.
9 *Sands Directory* 1890, 1892; 1893; 1894; 1895; Assessment Books Denison Ward, 1896, p. 93.
10 City of Sydney Archives, *Sands Directory* 1897, 1900, 1901.
11 *Sands Directory* 1904-1905, 1906-1913.
12 *Sands Directory*, 1914; *Assessment Books Denison Ward*,1914, p. 30.
13 AMBS Ecology & Heritage 2018, p. 32
14 *Assessment Books Denison Ward*, 1882, p. 122.
15 Godden et al, 1984 p. 29
16 *Sands Directory*, 1879
17 *Sands Directory*, 1910
18 Assessment Books Denison Ward, 1880.
19 ibid.
20 NSW Department of Public Works, Report of the Department of Public Works for the Year ended 30th June 1897, 1898, pp. 26-27.
21 The Institution of Engineers Australia, 1994, p. 18
22 ibid
23 Godden et al 1984 p. 1
24 Godden et al 1984 p. 30
25 AMBS 2018 p.14
26 AMBS 2018 p. 15; Godden et al. 1984 p. 31
27 Godden et al. 1984 p. 30.
28 ibid

4 ASSESSMENT OF HERITAGE SIGNIFICANCE

4.1 PREVIOUS ASSESSMENTS

4.1.1 Ultimo Power House (SHR 02045/LEP)

The SHR listing for the Ultimo Power House (SHR #02045) includes the Office Building, Engine Room, Turbine Hall, Switch House, Boiler House, and has the following Statement of Significance:

> The Ultimo Power House is of state significance historically for being the first large state-owned electricity generating station in NSW and the original generating station for the supply of electricity to power the electric tramway network throughout Sydney. It was one of the largest and most important generating stations in NSW for many years. It was the site where most major technological advancements in electrical generation, including steam turbines and large-scale, alternating-current generation, were trialled by NSW electricity authorities. The station also played a major part in the development of the Ultimo/Pyrmont area.
>
> This Federation power station has associations with the electrification of the suburban tramway and railway systems and with the general reticulation of electrical power in Sydney. The power house also supplied power to and has close association with Pyrmont Bridge (SHR No. 1618), Glebe Island Bridge (SHR No. 1914), Sewage Pumping Station No.1 (SHR No. 1336) at Ultimo (and 15 other low level sewage pumping stations in Sydney).
>
> The power house is of state heritage significance for its major part in the 20th Century development of the Ultimo/Pyrmont area and in the wider heritage conservation movement in NSW. The transition of a major industrial location to a cultural, educational and tourism precinct was part of the Darling Harbour Bicentennial citywide adaptation project.
>
> The historical purpose and function of the former power station is readable today through the building fabric, structure, in-situ engineering structures, gantry cranes and chimney bases.
>
> These power station buildings are of state significance as a landmark group of buildings which relate closely to the visual and architectural industrial context of the area. It is of museological and architectural significance as a landmark early example of the adaptive reuse of a large-scale industrial heritage site, which was then a radical and exhilarating new approach to museum making for NSW. The transformation of the Power House through conservation and adaptation was recognised with several awards and was influential in the urban design of the later buildings in the precinct. It's fabric, form and uses is held in demonstrable public esteem by engineers, architects, museum associates and the wider public.[1]

The Statement of Significance for the Local Heritage Listing of the Powerhouse Museum's former Warehouse buildings is as follows:

> The former Ultimo Power House, dating from 1899, is historically significant for being the original generating station for the supply of electricity to power the tramway network throughout Sydney. It was also one of the largest and most important generating stations in NSW for many years and has associations with the electrification of the suburban railway system and with the general reticulation of electrical power. It was the first place where turbine driven alternators were tried in Australia, in 1905. It was amongst the largest of any generating stations operating in Australia with Ultimo and the White Bay Power being purpose built for the Railway and Tramways Department generating stations. The abandoned status of the power station and tramway system provided a potential to reveal a past transport system which ceased in favour of motor buses, which was underway from the 1950s.
>
> The building dates from one of the key period of layers for the development of Ultimo as a direct result of subdivision of the Harris and Macarthur Estates and industrial redevelopment of the area at the turn of the Century.
>
> It represents a good example of a Federation industrial building which makes a positive contribution to the streetscape. The subsequent alterations undertaken for the building's conversion to the Powerhouse Museum is significant both for its successful re-use of the buildings and as a modern design, awarded the Sulman medal.[2]

4.1.2 Ultimo Post Office (SHR 00502/LEP I2030)

The SHR listing for the Ultimo Post Office (SHR #00502) does not provide a statement of significance, however the following Statement of Significance is provided under the LEP listing for the Post Office:

> The building dates from one of the key period of layers for the development of Ultimo/Pyrmont as a direct result of subdivision of the Harris and Macarthur Estates. It is a good example of a Federation Post Office on a prominent corner site which makes a positive contribution to the streetscape.
>
> The former Ultimo Post Office, built in 1901, is historically significant for its associations with the development of Ultimo/Pyrmont as a predominantly industrial and warehouse precinct by the turn of the Century. Construction of the post office helps to reflect the degree of development and consolidation by that time (Criterion A.4) (Historic Theme: 3.6 Establishing lines and networks of communication). The building reflects characteristics of Federation Classical and Federation Romanesque architectural styles and is important for its connection with NSW Government Architect W L Vernon (Criteria D.2 and H.1). Owing to its styling and its location on a major intersection, the former post office is an important element in the Ultimo streetscape. Further, it emphasises the scale of the former Ultimo Power House (now the Power House Museum) behind (Criterion E.1).[3]

4.1.3 Water Cooling System and Manifold

The s170 listing for the Water Cooling System and Manifold provides the following Statement of Significance (although it is also noted that the Water Cooling System and Manifold is specifically included within the 2020 SHR Listing of the Ultimo Power House site):

> The water cooling system and manifold was an integral component of the operating system of the Power Station. The former Ultimo Power Station, (now the Powerhouse Museum) dating from 1899, is historically significant for being the original generating station for the supply of electricity to power the electric tramway network throughout Sydney. It was also one of the largest and most important generating stations in NSW for many years and has associations with the electrification of the suburban railway system and with the general reticulation of electrical power. The station also played a major part in the development of the Ultimo/Pyrmont area.[4]

4.1.4 Goods Line (Darling Harbour Rail Corridor)

The s170 listing for the Goods Line (Darling Harbour Rail Corridor) provides the following Statement of Significance:

> The Darling Harbour goods line was part of the first railway opened in New South Wales in 1855, the current corridor corresponds with that purchased from the Harris family in 1853 for this purpose. It therefore has a high degree of significance as a place. The Ultimo Road Bridge is believed to be constructed in the 1850s, and is therefore one of the only remaining features of the original railway which joined Darling Harbour and Granville (Parramatta Junction) in 1855. The siting of the railway along what was the edge of Darling Harbour strongly influenced the development of Pyrmont and Ultimo. Because of it, wool stores, engineering works and other industries were built here after the 1870s, giving this part of Ultimo its industrial, rather than residential, flavour. The site also contains two railway bridges. The Railway Square road overbridge (outside the curtilage of this listing) built in 1855 is historically significant as the oldest railway bridge to be constructed and still in use in New South Wales. It is a strong connection to the first railway construction and the original Redfern (Sydney) Station. The Ultimo railway underbridge is a mid 19th century construction with classic revival inspired cast iron columns and mid 19th century sandstock brick abutments. Both items are assessed individually as historically rare, scientifically rare, archaeologically rare and socially rare.[5]

4.2 ASSESSMENT METHODOLOGY AND CRITERIA

The Assessment of Significance of the Powerhouse site is based on the principles and definitions previously consolidated in The Burra Charter, and the NSW Heritage Manual. This literature provides guidelines and criteria for the assessment of the heritage significance of a place. The Burra Charter defines cultural significance as:

- Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.
- Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.
- Places may have a range of values for different individuals or groups.

The NSW Heritage Manual correlates the assessment of the significance of a place with the understanding and description of its main uses, association with individuals or groups, archaeological potential and overall meaning of the cultural significance within those groups. This assessment is done by comparing the significance of a place with the NSW Heritage assessment criteria, in which a place can meet more than one criterion. Such process will determine the level of significance of a place – either for the local government area, for the state of NSW or the broader Australian community – and will assist in preparing a brief statement of heritage significance.

For the assessment of local or State significance of an item, the NSW Heritage Guidelines indicates that the item must meet one or more of the following criteria:

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

In addition to the significance criteria as presented above, archaeological significance is generally further informed by three key questions:

- Can the site contribute knowledge that no other resource can?
- Can the site contribute knowledge which no other site can?
- Is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?

The heritage significance of the Powerhouse site has been assessed according to each of the above criterion, summarised in relation to the overall site elements as follows.

4.2.1 Criterion (a)—Historical Significance

- The Ultimo Power House, Tram Shed, Goods Line and Ultimo Post Office are historically significant for their construction during the main development era of Ultimo and Pyrmont when the major estates of the peninsula were subdivided and sold for State government, residential, and commercial purposes.
- The Ultimo Power House is historically significant as the first state-owned, large electricity generating station, constructed in Sydney to power the Sydney electric tramway network. From 1899 to 1963 it was the largest and most important electricity generating station in the State.
- The Ultimo Power House site is historically significant as a place where the NSW electricity authorities trialled significant technological advancements in the generation of electricity. This included large scale alternating-current generation and steam turbines.
- The Water Cooling System and Manifold is historically significant for its integral role in the function of the Ultimo Power Station.
- The Ultimo Tram Shed is historically significant as the first tram depot shed in NSW.
- The 1988 museum adaption has significance to the Ultimo /Pyrmont area providing a new overlay to the Power House buildings and represents an early example of adaptive re-use in NSW. However, key elements of the 1988, museum adaption obscure visibility to and from the State-Heritage listed Ultimo Power House.

4.2.2 Criterion (b)—Associative Significance

- The Ultimo Power House is associated with the cultural history of Ultimo.
- The Ultimo Post Office has associative significance as one of a group of approximately 32 buildings constructed in a similar style by NSW Government Architect Walter Liberty Vernon between 1890 and 1910 in Sydney.
- The 1988 museum adaption is associated with the work of architect Lionel Glendenning, exhibitions designer Richard Johnson, Powerhouse Director Dr Lindsay Sharp, and the former NSW Premier Neville Wran.

4.2.3 Criterion (c)—Aesthetic Significance

- The Ultimo Power House has aesthetic significance as the group of power station buildings and are a good example of one of the most important and intact group of power station buildings in the State.
- In its day, the Boiler House was one of the largest brick buildings in NSW and for seventy years its chimneys were significant landmarks.
- The Ultimo Post Office has aesthetic significance as a good example of a Federation era post office.
- The 1988 adaptive reuse of the former Power House buildings for a museum has some architectural and museological significance and is an example of post-modernist architecture

4.2.4 Criterion (d)—Social Significance

- The Ultimo Power House has social significance as demonstrated by the public esteem of its form, fabric and uses as held by architects, engineers, educators, donors, volunteers, visitors, and communities.
- Both the individual heritage buildings and the site as a whole has social significance for their long historical association with the industrial working class of Ultimo, with both the Ultimo Power House and Tram Sheds as major employers in the area. The buildings dominated the landscape and the resident's daily lives were affected by the state of the smoke leaving the buildings.
- Following the conversion into a museum in the 1980s the Powerhouse site has retained a level of social significance for the local community and industry.
- The Powerhouse Museum has social significance for its innovative adaptive reuse of the Ultimo Power House and Tram Sheds.[6]
- The Powerhouse site has social significance for the community response to the potential closure of the Museum on the site and the subsequent decision to retain and renew the Museum.

4.2.5 Criterion (e)—Scientific Significance

- The water cooling system and manifold has some potential to provide information on the underground construction of the early water cooling systems in Sydney.
- Potential historical archaeological resources associated with former phases of historical occupation and use of the site to be present within the site represent research potential of the site to provide information and evidence of former occupation, life, and use of the site prior to the construction of the Power House. Historical archaeological resources at the site have potential to include evidence of structures and activities of former mid 19th century houses at 137 William Henry Street, 554-556 Harris Street, and 517-523 Pyrmont Street, as well as evidence of the former Sydney Omnibus Company Stables and City Carrying Co Stables.

4.2.6 Criterion (f)—Rarity

- As separate buildings, the former Ultimo Power House buildings, Ultimo Post Office, and Ultimo Tram Shed are representative examples of their types but not considered to be rare.
- The 1988 Wran Building is an example of Australian post-modernist architecture, designed by Lionel Glendenning, as part of a bicentenary program which included the National Maritime Museum and Darling Harbour.

4.2.7 Criterion (g)—Representativeness

- The Ultimo Post Office is a representative example of an early 20th Century, inner city post office.
- Collectively, the former Ultimo Power House buildings are a representative example of an early 20th Century power station.
- The former Ultimo Tram Depot (Harwood Building) is representative of the layout and arrangement of the NSW tramway system's electric tram depots.
- The Wran Building is representative of post-modernist architectural designs associated with large scale commercial developments of the 1980s and 1990s in Sydney. However, its integrity has been reduced through unsympathetic modifications made to it between 2003 and 2015.

4.2 HERITAGE CURTILAGE (SHR)

The SHR curtilage of the former Ultimo Power House buildings has been assessed and gazetted recently (August 2020) (Figure 4.1) and is considered appropriate with no current recommendations for revision.

Despite its prominent corner position, the Post Office building is cut off from the wider site both visually and physically. Visually, the Wran Building blocks the connection of the Ultimo Post Office to the original Power House buildings, dominating the landscape around the Post Office, impacting its readability and presence on site. While a more appropriate curtilage to the Ultimo Post Office (Figure 4.2) would be an extended curtilage to better reflect the historical connections between the Post Office and Power House buildings, this is not physically possible due to the dominating presence of the Wran Building in the intervening space between the two SHR listings.

Figure 4.1 Ultimo Power House, 500 Harris Street, Ultimo, SHR Curtilage

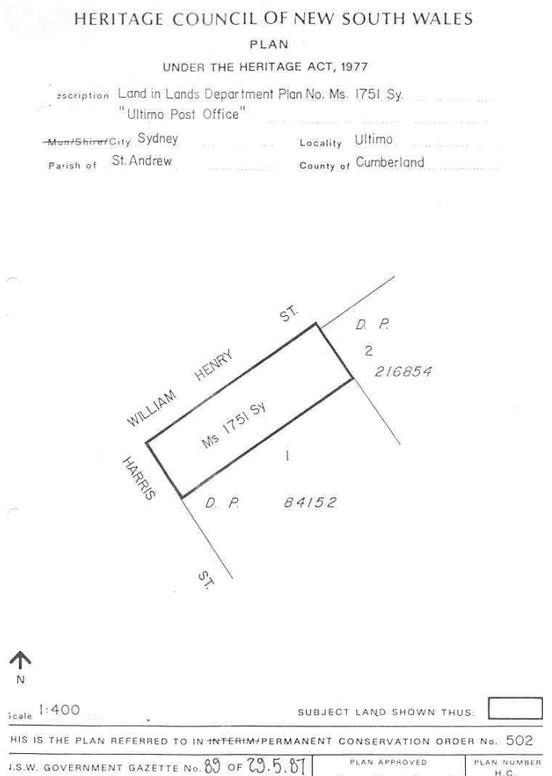


Figure 4.2 Ultimo Post Office SHR Listing

4.4 COMPARATIVE ANALYSIS

The following section identifies similar sites to the Powerhouse site, within NSW, Australia, and internationally, to consider the Powerhouse site's relative significance in terms of cultural heritage values.

Figure 4.31 QV MAG (Source: Kspilling, Wikimedia Commons, CC by 3.0)

4.4.1 QV MAG, Launceston, TAS

The Queen Victoria Museum and Art Gallery (QV MAG) opened on the site of the former Launceston railway yards in Inveresk in 2001. The Museum and Art Gallery has a long history in Tasmania dating back to 1897.[7] The Launceston Railway Yards are one of Tasmania's largest industrial complexes and one of Tasmania's most significant industrial heritage sites.[8] From 1998, the museum developed other sites for its collections, including the Launceston railway yards in Inveresk (natural sciences and history), which allowed for the original museum at Royal Park to be dedicated to being an Art Gallery.[9]

Statement of Significance

The Launceston Railway Workshops is of historic cultural heritage significance as one of the state's most significant industrial complexes. Spanning over a century, the site has witnessed the evolution and advances in rail technology, technological innovation specific to the site and the employment of thousands of workers often including multiple generations of families. The Launceston Railway Workshops and adjacent Tramway buildings, are a rare example of an intact industrial site, still exhibiting internal and external characteristics of rail-related technology and operations. The site has the potential to reveal information on the operations of the workshops, including subsurface remains and cultural deposits, which may provide further information not available in the written record. The Launceston Railway Workshops are an example of technical and creative achievement, particularly in relation to the use of diesel locomotives, pioneering employment of concrete, and war-time production of munitions. The site has meaning for the Launceston community since for over a century it provided employment, recreational and social opportunities on a scale not comparable in Tasmania. Many lifelong friendships and relationships were formed by employees and their families. The site has a special association with pioneering engineer Edward Stone (1876-1947) responsible for the main workshops building, now known as the Stone Building. The Launceston Railway Workshops is a particularly fine example of an industrial aesthetic in Tasmania, where its form, scale, setting, materials and new buildings combine to create a visually distinctive site. Other elements of the complex such as the Blacksmith Shop have a strong sensory impact from the sight, smell and sounds of a once dirty and hot workplace.'[10]

Figure 4.32 The Casula Powerhouse (Source: Ben Williams)

4.4.2 Casula Powerhouse, Casula NSW

The Casula Powerhouse (known as the Liverpool Powerhouse at the time of construction) was built by the NSW Electricity Commission in 1951. In 1955, the four chimneys that were in place were replaced by a 250 ft stack that is now situated on the site due to the complaints of excessive smoke production in the area. The Powerhouse was closed by 1976 and over the next decade became significantly neglected, before the suggestion of converting it into an arts centre by 1987. From 2006-2008, the centre went through a significant refurbishment to update and improve its facilities as an exhibition space.[11]

Statement of Significance

'The Powerhouse Regional Arts Centre demonstrates the development of Casula during a period when economic conditions of industrial expansion and residential growth in the region required a interim local generating capacity and power supply facility. The complex in its design, construction and use as a Power Station indicates a level of technical achievement and traces the evolution of the technologies used in the generation and supply of electricity since the 1950s. The complex is representative of the power station constructed immediately after World War II and represents the end of the transition from steam to electricity as a major power source.

Aesthetically the scale of the powerhouse and adjacent chimney stack and its prominent sitting on a ridge along the banks of the Georges River, adds a landmark quality to the complex. Socially the complex is now a Arts Centre and the grounds of the complex are part of the "Liverpool Peace Park" dedicated to various groups effected by nuclear testing in South Australia. There is the potential to gain more information on the complex from further architectural, archaeological and documentary research"[12]

Figure 4.33 Brisbane Powerhouse (Source: Brisbane City Council, Flickr, CC by 2.0)

4.4.3 Brisbane Powerhouse, Brisbane, QLD

The Brisbane Powerhouse is the arts and cultural precinct located in the former New Farm Power House, positioned on the northern bank of the Brisbane River. Constructed in stages between 1926 and 1940, the New Farm Power House was Brisbane's the first council-operated power station (earlier Brisbane power stations had been operated by private companies), and supplied electricity to the entire tramway system of Brisbane as well as power and lighting loads for surrounding suburbs.

After decommissioning in 1971, the Brisbane Power House building was used variously as a works depot, a chemical store and military exercises by the Australian Defense Force becoming increasingly run down and derelict between the 1970s and 1990s. In 1989, Brisbane City Council again acquired ownership of the building, and architect Peter Roy was commissioned to design the adaptive reuse of the Power House as an arts venue. The redeveloped Brisbane Power House opened in 2000, and remains today as a Brisbane hub for creativity, art and cultural innovation.[13]

Statement of Significance

This is a place of local heritage significance and meets one or more of the local heritage criteria under the Heritage planning scheme policy of the Brisbane City Plan 2014. It is significant because:

- as evidence of the scale of the former Tramways network.
- as a powerhouse structure that retains the robust form of the original buildings and allows remnant structures and equipment to evoke its past functions.
- as an important element in the historic urban landscape of the New Farm peninsula.
- for the evidence it provides, along with the Tramway substation network, of the architectural work of R.R. Ogg.[14]

Figure 4.34 Fremantle Arts Centre (Source: David Stanley, Flickr, CC by 2.0)

4.4.4 Fremantle Arts Centre, Fremantle, WA

The Fremantle Arts Centre is situated in an Australian gothic building that was built by convicts in the early 1860s, and was originally used as a Lunatic Asylum and invalid depot for criminal offenders. In 1909 and until 1941, the asylum was converted into a Poor House for the poor and elderly women. After WWII, the building was turned into a Technical School.

The building was threatened with demolition in 1958 yet was saved and restored by Sir Frederick Samson (the Mayor of Fremantle) who hoped to convert the site into a Mariner's Museum and Arts Centre, which was completed by 1970 and named the Fremantle Arts Centre.[15]

Statement of Significance

The Fremantle Museum and Arts Centre complex has cultural significance for the following reasons:

- it has historic significance as a major demonstration of the building program undertaken in the colony during the convict era,
- it has strong associations with the treatment of mental health and women in 19th century colonial society,
- it is an outstanding local example of colonial gothic architecture, demonstrating the design capabilities of E.Y.W. Henderson and George Temple Poole,
- it has social significance as the first major restoration project in Western Australia,
- and the place is held in high regard for its colonial architecture and its more recent use as a focal point for cultural activities in Fremantle[16]

Figure 4.35 Carriageworks (Source: Adobe Stock)

4.4.5 Carriageworks, Eveleigh, NSW

Carriageworks is Australia's largest multi-arts centre.[17] The Carriageworks were constructed between 1880-1889 as part of the Eveleigh Railway Workshops precinct. The railways provided thousands of jobs opportunities for the community and played a huge part in shaping the development of Sydney and its transport to what it is today. In 2007, the Carriageworks was redeveloped as part of the larger cultural precinct scheme for the site and has become one of the most prominent multi-arts centre in Australia.[18]

Statement of Significance

The largest intact, high quality workshops site that survive from the steam era in Australia. The Carriageworks represent the prestige of the New South Wales Railways at its peak and its fabric tracks the changes and eventual decline of the industry until its closure in 1988. In contrast to the railways of other nations, the NSW Railways, hence Eveleigh, were a government enterprise rather than privately owned. The main workshops building is a rare surviving example of the work of George Cowdery and the high level of technological innovation and design undertaken by local industries and builders. It is also associated with John Whitton, who was instrumental in establishing the NSW Railways. Many of the buildings retain a high level of integrity and authenticity along with some of their ancillary structures, including the line shafting that powered machinery, rails and cranes.

An historical landmark in the area. Viewed from the train line, with the Locomotive Workshops on the other side, the Eveleigh Railway Complex is a gateway into and out of the southern end of the city. It is also from the main line that the industrial scale and proportions of the site can be appreciated. A place of high potential for industrial archaeology and interpretability. Underfloor components include rails and pits exist in some bays. The high retention many of the site's buildings and systems have the potential to demonstrate the former industrial processes.

The contribution that the place made to the development of the surrounding suburbs and associated community, state and nation is immense. Eveleigh was seminal in many major industrial strikes, the ramifications of which were felt throughout the nation. It is of national significance for its part as one of the biggest employers of migrant labour and for its history in the employment of women starting with World War II. The place is held in high esteem by former workers and the surrounding community, confirmed by the their ongoing interest and engagement.[19]

Figure 4.36 Tate Modern (Source: cceliaphoto - stock.adobe.com)

4.4.6 Tate Modern, London, UK

The Tate Modern gallery is housed by the former Bankside Power Station, which was built in two separate phases between 1947 and 1963, before closing in 1981. The Station features a turbine hall that is 35 metres in height and 152 metres long, a boiler house that runs alongside the hall and a central chimney. The building framework mainly consists of steel structures and brickwork, the original features still remain today after its conversion into a gallery in May 2000.

Statement of Significance

In December 1992 the Tate Trustees announced their intention to create a separate gallery for international modern and contemporary art in London.

The former Bankside Power Station was selected as the new gallery site in 1994. The following year, Swiss architects Herzog & de Meuron were appointed to convert the building into a gallery. That their proposal retained much of the original character of the building was a key factor in this decision.

The iconic power station, built in two phases between 1947 and 1963, was designed by Sir Giles Gilbert Scott. It consisted of a stunning turbine hall, 35 metres high and 152 metres long, with the boiler house alongside it and a single central chimney. However, apart from a remaining operational London Electricity sub-station the site had been redundant since 1981.

In 1996 the design plans were unveiled and, following a £12 million grant from the English Partnerships regeneration agency, the site was purchased and work began. The huge machinery was removed and the building was stripped back to its original steel structure and brickwork. The turbine hall became a dramatic entrance and display area and the boiler house became the galleries.

In 2009 Tate embarked on a major project to develop Tate Modern. Working again with Herzog & de Meuron, the transformed Tate Modern makes use of the power station's spectacular redundant oil tanks, increasing gallery space and providing much improved visitor facilities.[20]

Figure 4.35 South Eveleigh (Source: Curio 2022)

4.4.7 Locomotive Workshops, South Eveleigh, NSW

The Locomotive Workshops, South Eveleigh an iconic legacy of Australia's Industrial Revolution has been given new life and transformed into a dynamic cultural heritage tourism and commercial retail hybrid hub whilst still retaining an active Blacksmith within Bays 1 and 2 South, which was always historically used as the blacksmiths' work bays. The State-Heritage Listed, Locomotive Workshop, has been the subject of a meticulously crafted adaptive reuse construction program that has conserved, adaptively reused, and created exhibitions and interactive interpretative elements to revitalise itself as a core contributor to the social and economic fabric of Eveleigh and the surrounding suburbs once more. The careful adaptive reuse of the Locomotive Workshops celebrates the stark industrial heritage character of the building and its landmark place in the surrounding precinct as part of the site's revitalisation.

Statement of Significance

ATP (South Eveleigh) provides important evidence of the founding and gradual expansion of the largest railway workshops in NSW over a period of 100 years. The Eveleigh Railway Workshops was a highly significant and ambitious public endeavour of a type that rarely occurs today. Eveleigh was a government-established and government-run industrial workshop designed to provide self- sufficiency for the Sydney and NSW railways, without reliance on private operators who did not possess the funds or workforce to cope with demand during the nineteenth century. It employed and developed the best technology available at the time and continued to innovate in response to changes in the NSW railways system and management policy throughout its years of operation.

The ATP (South Eveleigh) site contains an amalgam of land gradually resumed for railway use during the nineteenth and twentieth centuries. The land was resumed for a number of expansions of the Locomotive Workshops, establishment of the Alexandria Good Yard and construction of the Eastern Suburbs Railway connection to the Illawarra line, and involved demolition of an area of housing north of Henderson Road. At its peak, the area was the most important rail precinct in NSW.

Three of four remaining buildings and a significant machinery collection from the State- significant Eveleigh Locomotive Workshops are contained within the ATP (South Eveleigh) site. The Locomotive Workshops building, New Locomotive Shop and Works Manager's Office form a historically and aesthetically significant group that demonstrates the scale and importance of the Eveleigh Locomotive Workshops and are a landmark along the western railway. The distinctive, highly detailed industrial buildings provide powerful evidence of the importance of the workshops as a major industrial undertaking in NSW during the late nineteenth century. Individual items of the Locomotive Workshops Machinery Collection remain significant items of technical achievement. These range from the Davy Press, a unique machine in Australia and rare in a world context, to the Departmental Lathe, a precision machine built locally. While the Machinery Collection is not entirely intact, it retains a high level of significance and the collection within the blacksmiths workshop is relatively complete.

The ATP (South Eveleigh) site holds great significance for members of the local community and current and former workers within the NSW railways and is central to many local community members' connection with the Redfern/Darlington area. As the site of the former Eveleigh Locomotive Workshops, ATP (South Eveleigh) is emblematic of a type of work no longer common in NSW and the remaining buildings are seen as a testament to the many thousands of workers and their families that made their living within its walls. The pride in the history of the Eveleigh Locomotive Workshops is evident through the dedication of the many volunteers that continue to work in the Large Erecting Shed, the blacksmith business in Bays 1 and 2 South and the open days and tours led by former workers, as well as the many views expressed during the community consultation process.

The ATP(South Eveleigh) site has strong historical connections with the surrounding area, including North Eveleigh and Redfern Station, as well as a historical connection with the expansion, pattern and type of development that occurred in adjacent suburbs. While the former Eveleigh Locomotive Workshops are significant in their own right, this significance is increased by their relationship to the Eveleigh Railway Workshops as a whole, including the former Carriage and Wagon Workshops at North Eveleigh and the former Macdonaldtown Gas Works.[21]

Figure 4.35 Canberra Glassworks (Source: Knightsbridge Canberra)

4.4.8 Canberra Glassworks

Canberra's oldest public building, the Kingston Powerhouse, now known as the 'Canberra Glassworks', originally powered the development of Canberra; housed its telecommunications system; and provided employment for many people across the region. The Power House and the Fitters Workshop were the first to provide power to Canberra in 1915 and demonstrate the beginning of electricity generation for the city. Unlike the Ultimo Powerhouse, the life of the Power House was short and shut down in 1929, with reactivation occurring in short periods between 1936 and 1942.

It was successfully adapted into a dedicated world-class contemporary glass art workshop and production centre in 2007 by the ACT Government. The Canberra Glassworks that provides glass art making equipment, promotes arts, craft and design, runs courses houses artists in residence and provides cultural heritage tours.[22] Key to it's success is the celebration of its industrial past and its strong aesthetic within the landscape.

Statement of Significance

The Power House and Fitters' Workshop are of industrial and architectural significance. Other intrinsic features assist in demonstrating the industrial use of the site for power generation. The Power House is a landmark structure in its Lakeside setting. The Power House generated the first power to the Federal Capital in 1915. The Power House and its associated Fitters' Workshop are early examples of buildings that housed coal fired steam powered electricity generation equipment. The Power House, Fitters' Workshop, base of the second chimney stack and remnant railway embankment and existing railway track to the north west of the Power House demonstrate the technology and process of early electricity generation in the Federal Capital. The siren and whistle located on the main power house building was an important soundscape feature throughout Kingston. The landscape elements are remnants of Thomas Charles Weston's 1920s windbreak plantation along Interlake (now Wentworth) Avenue and have an evident relationship with the establishment and development phases of the Federal Capital. The Power House was the first permanent public building in the Federal Capital. Its existence was fundamental to the development and establishment of the City. It is an example of early 20th century industrial architecture and the first building in the Federal Capital designed by John Smith Murdoch, a major figure in the creation of the 'Federal Capital' architectural style. The Power House retains numerous internal fittings demonstrating its substantial industrial use. The Fitters' Workshop (Bulk Supply Store) is the second permanent structure in Canberra designed by J. S. Murdoch. The remnant railway embankment and existing railway track are part of the original rail system and were associated with the delivery of coal to the Power House. The Power House ceased to provide power to the National Capital in 1929 when a cheaper source of electric power became available. It was reactivated for short periods in the years 1936-42 when repairs to the Burrinjuck Dam (which supplied water to the Burrinjuck Hydro Electric Scheme then servicing Canberra) were required, and in 1948-57 when post war construction in NSW placed severe strain on the NSW Grid. The 1948 switch room provides evidence of this later period of reactivation.[23]

Figure 4.35 Cockatoo Island (Source: Sarah Nicholson)

4.4.9 Cockatoo Island

Cockatoo Island, Australia's largest shipyard in the 20th century was built by convicts in 1857. It ceased operation in 1997 and was transformed into a tourism destination. Managed by the Sydney Harbour Foreshore Authority, many of the original buildings have been conserved and adaptively reused as accommodation. In addition to heritage accommodation, the site offers a campground, BBQ facilities and cafés and hosts a range of cultural events from art exhibitions through to concerts and functions. Visitors can undertake guided or self-guided heritage tours.[24]

From 1839 to 1869, it operated as a penal establishment, where convicts endured harsh living conditions and backbreaking work. Today, the island's remnant convict structures provide visitors with a window into an era when people were exiled to Australia and put to work on the colony's ambitious building projects.

These structures include Fitzroy Dock – both the earliest graving dock commenced in Australia and the only surviving example, nationally, of a dry dock constructed by convicts. Other landmarks from this period are Cockatoo Island's Guardhouse, Mess Hall, Solitary Confinement Cells, Grain Silos and Biloela House, all constructed from sandstone quarried by convicts.

On 31 July 2010, Cockatoo Island Convict Site was inscribed on the UNESCO World Heritage List with 10 other heritage sites nationwide. Collectively known as the Australian Convict Sites World Heritage Property, these sites feature outstanding examples of convict era structures. The island has also been inscribed on the National Heritage List since August 2007, and several of its convict structures are included on the Commonwealth Heritage List. Since 2001, the Harbour Trust has sought to deliver heritage conservation works and public programs that reveal and amplify the island's convict legacy.[25]

Statement of Significance

Cockatoo Island is highly significant for its associations with convicts and the nature and extent of its remains demonstrate the principal characteristics of a dual use convict site where incarceration is combined with hard labour.

Cockatoo Island operated as a penal establishment from 1839-69, primarily as a place of secondary punishment for convicts who had reoffended in the colonies. Convicts sent to Cockatoo Island were subject to harsh living and working conditions and the place is outstanding as a site of severe punishment and labour. The main form of hard labour on the Island was quarrying, labouring and construction. Convicts excavated 580 000 cubic feet of rock creating 45 feet (14 metre) sandstone cliffs to prepare an area to construct a dock. The Fitzroy Dock was constructed between 1839-1847 and is the only remaining dry dock in Australia built using convict and prisoner labour. Fitzroy Dock was strategically situated on Cockatoo Island to provide services to the Royal Navy which at that time had no depot in the South Pacific.

Convicts also constructed impressive underground silos to store wheat. These were hand hewn in rock and averaged 19 feet (5.8 metres) deep and 20 feet (6 metres) in diameter. The silos were built in response to the severe drought of 1837-39 and were part of a strategy to reduce the colony's reliance on infrequent grain shipments.

Cockatoo Island contains an extensive suite of extant buildings and fabric related to the administration, incarceration and working conditions of convicts and has considerable potential to contribute to our understanding of the operation of a convict industrial site.

Cockatoo Island is also important to the nation as a pre and post Federation shipbuilding complex. It operated for 134 years between 1857-1991. It was Australia's primary shipbuilding facility for much of this time and contributed significantly to Australia's naval and maritime history. It was Australia's first naval dockyard for the Royal Australian Navy (1913-21) and continued to support and build ships for the Navy through two World Wars, Korea and Vietnam. It retains extensive fabric associated with ship building (including the Fitzroy and Sutherland docks). The place demonstrates the principal characteristics of a long running dockyard and ship building complex including evidence of key functions, structures and operational layout. Cockatoo Island contains the nation's most extensive and varied record of shipbuilding and has the potential to enhance our understanding of maritime and heavy industrial processes in Australia from the mid nineteenth century.[26]

Figure 4.35 Google Campus Offices, Madrid (Source: Garath Gardner)

4.4.10 Google Campus Offices - Madrid

In 2015, Jump Studios (a Populous company) delivered a 27,000 sq ft internal retrofit scheme for Google in the Madrid Río area of Spain's capital city. The technology giant's first community hub in Spain, dubbed Campus Madrid, provides a space for 7,000 members to learn, share ideas and launch start-ups. The five-storey building, was built by Isaac Peral, famous for inventing the first successful submarine, as Spain's first ever factory for electrical storage batteries. Google, through its adaptive reuse and occupation of the building since 2012 has continued the traditional use of the site for innovative and creativity.[27] It bears many similar architectural features to the Ultimo Powerhouse, and similar to the other case studies, celebrates its strong, historic industrial architecture as part of its current adaptive reuse.

Statement of Significance

The c.1892 Former Electrical Storage Factory on Calle Mazarredo, Madrid is significant for its association with the history of innovation itself through Isaac Peral, an engineer, naval officer and inventor of the submarine. Following on from inventing the submarine, Peral funded the building's construction to create Spain's first Electric Storage Battery Factory, only a few years before his death in 1895.

Peral is important in the history of Spain, as a revered Spanish hero for inventing the world's first successful submarine in 1890. Isaac entered the Naval Academy in 1865 at the age of fourteen years and received a nickname, "The Profound Isaac," as a tribute to his mental calibre. He took part in suppressing the Carlist uprisings and during this tour of duty he wrote two textbooks on mathematics for the use of midshipmen at the Naval Academy, and began developing his idea of the submarine. Peral was an expert on the storage battery and the torpedo, and he knew all there was to know at that time about the theory and application of electro-propulsion.

He rose to an unbelievable peak of personal popularity in Spain as the news of the successful trials of his submarine became known. On his many official trips to Madrid from Cadiz, the platforms of the railway stations along the route would be jammed with Peral fans madly cheering. He would be escorted from the station in Madrid to his hotel, carried in from his carriage on the shoulders of his admirers, and then cheered from the outside until he was forced repeatedly to show himself on a balcony. Bullfighters dedicated bulls to him; streets were named after him— there is still a Peral Street in Madrid—collections from patriotic organizations for building more submarines poured in, one check for twenty thousand pounds came from an admirer in the Argentine. He was unable to answer but a fraction of the congratulatory messages he received.

After successful submarine runs in 1890, Peral's popularity showed no decline, so at the urging of his friends he offered himself as a candidate to the Cortes from the district of Puerto Santa Maria, running against the son of the new Minister of Marine. Despite his great personal popularity, and to the surprise of everybody he lost the election. The election was contested, Peral charging the opposition with fraud, and the ballots were sent to Madrid for a recount, but Peral was declared the loser. His popularity diminished and he was soon forgotten like many another prominent hero.

In order to make a living, following his defeat, Peral funded the construction of the country's first Electrical Storage Battery Factory in Madrid at the (now) 'Goggle' building. The business was not overly successful and as time went by an infection he had acquired in the Philippines began bothering him more and more. He went to Germany for treatment, and there he died on May 24, 1895. The building is one of the only surviving legacies of the nation's once revered hero, Isaac Peral, and is significant as the first factory constructed in Spain for Electrical Storage Batteries.

4.5 STATEMENT OF HERITAGE SIGNIFICANCE

The location of the Powerhouse Ultimo site on the original western shoreline of Tumbalong / Darling Harbour and is recognised to have high social and spiritual significance to the local Aboriginal community.

Should sub-surface Aboriginal objects be present within the remnant nature soil profiles within the study area, the study area may have scientific significance for its ability to contribute knowledge to the archaeological record about Aboriginal occupation of this area of coastal Sydney.[28] Depending on the resource this may vary from local to State significance.

The Ultimo Power House may have moderate historical significance for the early interactions and connections between Aboriginal people and early settlers in this area should evidence for contact archaeology be identified within the potential sub-surface natural deposits associated with the study area. If found, it would meet the criteria of Local Significance, and if highly intact, may be of State Significance.

The potential historical archaeological resources of the study area have the potential to demonstrate significant aspects of the social, economic and industrial characteristics of the site's former occupants, uses and industrial evolution, and if found would meet the criteria of Local Significance and if highly intact, may be of State significance.

The Federation-Era Ultimo Power House is of State significance historically for being the first state-owned large electricity generating station in NSW. Built in 1899, it was the first power station constructed to provide electricity for Sydney's "new" electric tram system. It was one of the largest and most important generating stations in NSW and was the site where most major technological advancements in electrical generation, including steam turbines and large-scale, alternating-current generation, were trialled by NSW electricity authorities

The Ultimo Power House also has associations with the electrification of the suburban tramway, railway systems, and with the general reticulation of electrical power in Sydney. The Ultimo Power House supplied power to and has close association with Pyrmont Bridge (SHR No. 1618), Glebe Island Bridge (SHR No. 1914), Sewage Pumping Station No.1 (SHR No. 1336) at Ultimo (and 15 other low level sewage pumping stations in Sydney). There is historical significance in the relationship between the Ultimo Tram Depot and the Ultimo Power House, in addition to the relationship between the Goods Line and the Ultimo Power House.

The Ultimo Power House is of State significance, aesthetically, as a landmark group of buildings which relate closely to the visual and architectural industrial context of the area, with the historical purpose and function of the former power station readable today through the building fabric, structure, in-situ engineering structures, gantry cranes and chimney bases. The landmark Power House played a major role in the development of the Ultimo/Pyrmont area.

The Ultimo Power House and the site as a whole has social significance, at a local level, for their long historical association with the industrial working class of Ultimo, with the Ultimo Power House being a major employers in the area. The buildings dominated the landscape and the resident's daily lives were affected by the state of the smoke leaving the buildings.

The Ultimo Power House is of State heritage significance for its transformative role in the 20th century redevelopment of the Ultimo/Pyrmont area from a major industrial location to a cultural, educational and tourism precinct that was part of the Darling Harbour Bicentennial citywide adaptation project. Specifically, the Ultimo Powerhouse is significant as a landmark early example of the successful adaptive reuse of a large-scale industrial heritage site for as a publicly accessible cultural asset in the form of a museum, which was at the time in the 1980s considered a radical and exhilarating new approach to museum making for NSW. The transformation of the Ultimo Power House was recognised with several awards.

The site has associative significance with the former NSW Premier Neville Wran, the work of architect Lionel Glendenning, exhibitions designer Richard Johnson and Powerhouse Director Dr Lindsay Sharp as a result of the 1988 museum adaption of the Power House.

Following the conversion into a museum in the 1980s the Ultimo Powerhouse Museum has retained a level of social significance for its cultural and educational contribution to the State of NSW. This includes the social significance that the museum holds for the local community, as demonstrated by the community response to the potential relocation of the Museum from the site.

4.6 GRADINGS OF SIGNIFICANT COMPONENTS

In order to develop a holistic understanding of the significance of the wider Powerhouse site, it is important to assess the level of heritage significance of the individual elements that compose the historical fabric of the existing buildings, with relation to their contribution to the overall heritage values of the place. Some individual heritage elements of a place may contribute to a greater or lesser degree than others to the overall heritage values of a place, as well as possessing varying distinct levels of intactness and integrity depending on the development history and condition of each element.

The assessment of significance for each built elements of the site, as well as the individual elements of each heritage building, has been ranked in accordance with the Heritage NSW criteria, as defined by the NSW Heritage Manual (2001), and summarised in Table 4.1.

This section presents an overall summary of the key elements of the Powerhouse site as a whole, and their relevant heritage significance. Grading of significant components of which each individual heritage item is composed have been provided in the individual section for each building in Part C of this CMP.

4.6.1 Overall Site Elements

Table 4.2 presents the gradings of significance for the key built elements of the Powerhouse site. These gradings are depicted in Figure 4.30. Gradings of significant fabric of each of the individual site elements have been detailed in the relevant individual item sections in Part C of this CMP.

Table 4.1 Gradings of Significant Components (After Heritage NSW guidelines)

GRADING	JUSTIFICATION	RECOMMENDATION	STATUS
● EXCEPTIONAL	Rare or outstanding element directly contributing to an item's local or State significance	Retain, conserve (restore/reconstruct) and maintain. Intrusive elements and fabric should be removed. Sensitive adaptation of heritage items of exceptional significance may be appropriate provided that it is in accordance with Burra Charter principles and with the specific guidance provided in this CMP.	Fulfils criteria for local or State Listing
● HIGH	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Retain, conserve (restore/reconstruct) and maintain. Intrusive elements and fabric should be removed. Adaptation is appropriate provided that it is in accordance with Burra Charter principles and with the specific guidelines provided in this CMP.	Fulfils criteria for local or State Listing
● MODERATE	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.	Retain, adapt and maintain. Demolition/removal may be acceptable provided that there is no adverse impact on the significance of the place. Retention in some cases may depend on factors other than assessed values, including physical condition and functionality.	Fulfils criteria for local or State Listing
● LITTLE	Alterations detract from significance. Difficult to interpret.	Retain, alter or demolish/remove as required provided that there are no adverse impacts on the heritage significance of the place. Sensitive alteration or demolition/removal may assist with enhancing the heritage significance of components of greater heritage significance.	Does not fulfil criteria for local or State listing
● INTRUSIVE	Damaging to the item's heritage significance.	Demolish/remove when the opportunity arises while ensuring there are no adverse impacts on the significance of other more significant components. Components that are actively contributing to the physical deterioration of components of higher significance should be removed as a matter of priority.	Does not fulfil criteria for local or State listing

Table 4.2 Grading of Significant Components of Powerhouse Site

GRADING	ELEMENTS
● EXCEPTIONAL	– North Annex – Engine House – Turbine House – Boiler House – Switch House – Ultimo Post Office (excluding 1980s extension) – Water Cooling System and Manifold – Goods Line (section of track located within site boundary)
● HIGH	– Harwood Building – Former Pump House (remains)
● MODERATE	– Wran Building
● LITTLE	– Harris Street Forecourt – Modern shade sails/structures in Level 1 courtyard – 1980s extension to Post Office
● INTRUSIVE	– Level 1 Café – Covered Walkways (Rear yard of Post Office, between Boiler House and Harwood Building) – Lattice security fence (Harris Street) – Coloured vertical coverings over modern lifts and stairs along southern façade of Boiler House

Figure 4.30 Gradings of Significance of Powerhouse site elements (Source: Curio 2021)

4.7 SIGNIFICANT VIEWS

Several key views of heritage significance have been identified for the Powerhouse site in relation to external heritage items and landscape character that influence, enhance, and contribute to the significance of the heritage items contained within the site, as well as the site in its wider heritage context in Ultimo. These key views are identified as:

1. Views from Darling Harbour
2. Views to the site from Harris and William Henry Streets
3. Views from William Henry Street Bridge
4. Views from The Goods Line
5. Views and Access from Darling Drive, Exhibition light Rail Station, and Hay Street

4.7.1 Views from Darling Harbour

Historically, the main view line of the Ultimo Power House was from Darling Harbour, although the chimneys were a dominant element within the wider Ultimo skyline from many directions. The 2003 Architectural Projects CMP described an opportunity to enhance the view of the Power House buildings from Darling Harbour,[29] however recent development in Darling Harbour and adjacent to the subject site, most notably the 2016 development of the high rise Urbanest student accommodation, has significantly reduced the ability for views from Darling Harbour to the site.

The impact of the construction of the Urbanest development on view lines between Darling Harbour and the Powerhouse site was noted in the 2013 Statement of Heritage Impact for the Urbanest Development (TKD Architects), concluding:

> Views to the Powerhouse Museum will be affected by the two residential blocks in the Haymarket Precinct situated within the Rail Corridor, which will also be impacted. However, the principal views to the Powerhouse Museum are available from Harris Street and will not be affected by the proposed development, while views to the building are of secondary importance. Also, the presence of the residential blocks will have no impact on the physical fabric of the Darling Harbour Rail Corridor because the area of the Corridor on which they stand was modified in the recent past with the formation of Darling Drive. There will be little impact on appreciation of the Corridor or interpreting it – apart from the loading dock associated with the proposed Exhibition Centre (see above), there are other no impacts on the Rail Corridor resulting from development on the SICEEP site.[30]

Other eastern view lines to the site, such as from Darling Drive and Hay Street are discussed below.

4.7.2 Views from Harris and William Henry Streets

While historically the Ultimo Power House did not have a frontage to Harris Street, the former Power House buildings are highly visible from the intersection of Harris and William Henry Streets. Views to both the former Power House buildings as well as Ultimo Post Office from the corner of Harris and William Henry Streets is important to maintain. The green and red lattice fencing on the Harris Street frontage currently obstructs the view lines to the buildings. The views from these frontages could be improved significantly through updated fencing which allows visibility whilst ensuring the security of the corner, which has a history of car-related accidents penetrating the site. There is an opportunity to re-establish the visual connection between the small scale, former Ultimo Post Office and the large scale Power House buildings.

Figure 4.3 View of the Powerhouse Museum from the western side of Harris Street

Figure 4.4 View of the Powerhouse Museum looking towards the Ultimo Post Office from the sidewalk adjacent to Harris Street

Figure 4.5 View of the Ultimo Post Office from the western side of Harris Street

Figure 4.6 View of the Ultimo Powerhouse Museum complex from the opposite corner of the intersection of Harris and William Henry Street

Figure 4.7 A close-up view of the Ultimo Powerhouse Museum complex from the opposite corner of the intersection of Harris and William Henry Street

Figure 4.8 View of the Ultimo Powerhouse Museum complex from the opposite side of William Henry Street

4.7.3 Views from William Henry Street Bridge

While the construction of the William Henry Street overbridge resulted in a significant visual impact to the Power House buildings from this elevation, obscuring the lower sections of the northern façade of the North Annex and Boiler House, the upper sections of the Federation brick buildings remain a dominant feature from this road approach—a view that is important to retain. The bridge provides excellent views to the northern and eastern facades of the Boiler House and the northern façade of the North Annex. The pedestrian walkway along the William Henry Street Bridge affords the only publicly accessible location from which the remains of the former Pump House (demolished during construction of the overbridge) is visible.

Figure 4.9 View of the Ultimo Powerhouse Museum complex from the opposite side of William Henry Street Bridge

Figure 4.10 View of the Ultimo Powerhouse Museum complex from the opposite side of William Henry Street Bridge

Figure 4.11 View of the Ultimo Powerhouse Museum complex from the opposite side of William Henry Street Bridge

Figure 4.12 View of the North Annex from the adjacent side of William Henry Street Bridge pedestrian walkway adjacent

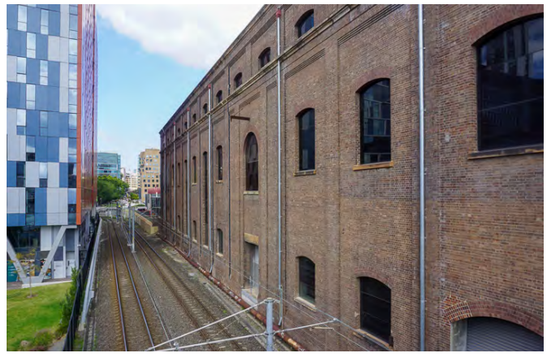


Figure 4.13 View of the Boiler House from the adjacent side the William Henry Street Bridge pedestrian walkway

Figure 4.14 View of the Boiler House from the William Henry Street Bridge pedestrian walkway

4.7.4 Views from The Goods Line

The Powerhouse site is visible on approach from The Goods Line to the east. There is an opportunity to enhance the accessibility and visibility of the Powerhouse Museum from the Powerhouse end of The Goods Line encouraging future foot traffic through this area, particularly considering the recent revitalisation and development of this area as a pedestrian and cycleway connection from Central station to Darling Harbour. At present the view of the Power House heritage buildings east from The Goods Line is obscured and hindered by the presence of the boxy, rectangular café in the Level 1 courtyard and the brightly coloured lift shafts adjoining the southern façade of the Boiler House. There is an opportunity to enhance views to the site from the Goods Line.

Figure 4.15 View of the Powerhouse Museum complex from the stairway access to the Goods Line

Figure 4.16 View of the Powerhouse Museum complex from the stairway access to the Goods Line

Figure 4.17 View of the Powerhouse Museum complex from the pedestrian platform of the Goods Line

4.7.5 Views and Access from Darling Drive, Exhibition Light Rail Station, and Hay Street

While the construction of intervening development over the past decade has hindered the ability for the Powerhouse site to be viewed from Darling Harbour, the site is still visible from closer locations in the east, notably from Darling Drive, the Exhibition Light Rail Station, and Hay Street. The visibility of the Powerhouse site from these eastern locations presents an opportunity for introduction of effective heritage interpretation and wayfinding elements to encourage foot traffic from Exhibition Light Rail Station, Darling Drive, and Hay Street. Museum signage is presently visible on the southern and eastern façades of the Level 1 Courtyard café.

Figure 4.18 View of the Powerhouse Museum complex from 41 Darling Drive

Figure 4.19 View of the Powerhouse Museum complex from 41 Darling Drive

Figure 4.20 View of the Powerhouse Museum complex from 41 Darling Drive

Figure 4.21 View of the Powerhouse Museum complex from Darling Drive near the Goods Line stairway access

Figure 4.22 The former Ultimo Power House buildings are visible from the Light Rail Exhibition Station platform

Figure 4.23 View of the Powerhouse Museum complex from the Light Rail Exhibition Station platform

Figure 4.24 View of the Powerhouse Museum complex from the sidewalk in front of the Light Rail Exhibition Station

Figure 4.25 View of the Boiler House Building from the sidewalk going towards 41 Darling Drive

Figure 4.26 View from the sidewalk going towards the Light Rail Exhibition Station from 41 Darling Drive

Figure 4.27 View of the Powerhouse Museum complex from Hay Street

Figure 4.28 View of the Powerhouse Museum complex from the Goods Line access along Darling Drive

Figure 4.29 View from the sidewalk adjacent to the Goods Line along Darling Drive

4.8 MOVEABLE HERITAGE

Heritage assessments conducted in the early 1980s prior to the redevelopment of the site as the Powerhouse Museum, recommended the retention of extant moveable heritage within the former Ultimo Power House. However, it is understood that a large proportion of the moveable heritage collection associated with the Ultimo Power House were removed and/or destroyed during the 1980s demolition and development works, as indicated by the following quote from Godden et al 1984:

> All electrical gear on the western gallery has been taken, even the brass covers and toggles from the electric light switches have been salvaged. But the salvage was not done with precision. Engines were smashed form their beds, slate panels broken to retrieve the last remaining pieces of copper, balustrades and railings torn out to allow easy access for demolition equipment.[31]

The Powerhouse Museum has retained a small moveable heritage collection of items specifically related to the former Power House and Tram Shed in their collection. A list of these items is provided at Appendix F. This list includes:

- Original plans and drawings, and microfilms of drawings, plans etc. relating to the Ultimo Power Station (P3251)
- Pressure gauge, portable recording, used at Ultimo and White Bay Power Stations (99/20/1)
- Light globe made by General Electric Company Ltd, used at the Ultimo Power Station (2007/206/1)
- 'First Aid to the Injured' book used by Lloyd Birdsall at the Ultimo Power Station (2000/26/1)

The Powerhouse Museum Collection does not form part of this CMP. The Museum Collection is subject to its own independent management plan and provisions managed under the Museum of Applied Arts and Sciences. The Collection of the Powerhouse Museum has been moved multiple times over the years with the first use of the Ultimo site not even 60 years ago. As noted by Cracknell and Longeran with respect to the Museum Collection and the Ultimo site: "...the collection has moved as it has grown, suggesting the intangibility to specific sites, and rather, more linked to the socio-cultural history than a particular place."[32]

4.9 ENDNOTES

1 State Heritage Inventory, NSW Office of Environment & Heritage, *Ultimo Power House* (State).
2 State Heritage Inventory, NSW Office of Environment & Heritage, *Powerhouse Museum Former Warehouse Buildings, including interiors* (Local).
3 State Heritage Inventory, NSW Office of Environment & Heritage, *Former Ultimo Post Office Including Interior* (Local).
4 Sydney Harbour Foreshore Authority (Property NSW), Section 170 Register, *Water Cooling System and Manifold*.
5 Sydney Harbour Foreshore Authority (Property NSW) Section 170 Register, Darling Harbour Rail Corridor.
6 Aurecon, 2022. *Powerhouse Ultimo – Conservation Management Plan Engagement*, p. 24.
7 QVMAG, *QVMAG* (website), accessed February 2021 <https://www.qvmag.tas.gov.au/About/History>
8 Tasmanian Heritage Register Datasheet, *Launceston Railway Complex*, accessed May 2021, https://heritage.tas.gov.au/Documents/Tasmanian%20Heritage%20Register%20Entry_Launceston%20Railway%20Complex.pdf
9 QVMAG, *QVMAG* (website).
10 Tasmanian Heritage Register Datasheet, *Launceston Railway Complex*
11 Casula Powerhouse, *Casula Powerhouse* (website), accessed February 2021 <https://www.casulapowerhouse.com/about/the-building>
12 State Heritage Inventory, *Casula Powerhouse (Former Power Station)*.
13 Brisbane Powerhouse, *About* (webpage), accessed May 2021, <https://brisbanepowerhouse.org/discover/about/>
14 Brisbane City Council, *New Farm Powerhouse*, accessed May 2021, <https://heritage.brisbane.qld.gov.au/heritage-places/1163>
15 *Fremantle Arts Centre: Our History* (webpage), City of Fremantle, accessed January 2021, <https://www.fac.org.au/about/our-history/>
16 ibid.
17 Heritage Council of Western Australia, *Register of Heritage Places*, 'Museum and Arts Centre, Fremantle'.
18 *Carriageworks: Our History* (webpage), Carriageworks, accessed January 2021, <https://carriageworks.com.au/about/>
19 ibid.
20 Cserhalmi, O. & Partners, *Eveleigh Carriageworks Conservation Management Plan*, Volume 1, 2002, p. 250
21 GML Heritage. Australian Technology Park Conservation Management Plan, Volume 1, 2013,p92
22 Canberra Glassworks, *Canberra Glassworks* (website), accessed 15 September 2022 <https://canberraglassworks.com/>
23 ACT Heritage Council, *Kingston Powerhouse Historic Precinct* (PDF), accessed 16 September 2022 <https://www.environment.act.gov.au/__data/assets/pdf_file/0007/148426/473.pdf>
24 Cockatoo Island, *Sydney Harbour Federation Trust* (website), accessed 16 September 2022 <https://www.harbourtrust.gov.au/en/see-and-do/visit/hello-harbour-trust>
25 Cockatoo Island, *Convict era (1839 to 1869)* (website), accessed 16 September 2022 <https://www.cockatooisland.gov.au/en/our-story/convict-era/>
26 Department of Climate Change, the Environment, Energy and Water, *Australian Heritage Database* (website), accessed 16 September 2022 <http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;place_id=105928>
27 Office Snapshots, *Google Campus Offices - Madrid* (website), accessed 16 September 2022 <https://officesnapshots.com/2016/10/31/google-campus-offices-madrid>
28 Adapted from Curio Projects 2022, *Aboriginal Cultural Heritage Assessment Report: Powerhouse Ultimo Renewal Project*, report prepared for The Department of Enterprise, Investment and Trade (Create NSW), final V2, p. 78. This significance will require updating should Aboriginal objects and/or sites be identified during any further assessment completed within the Powerhouse Ultimo site.
29 Architectural Projects, 2003, p. 104.
30 KD Architects 2015.
31 Godden 1984 p. 15-16.
32 Cracknell & Longeran 2020, p. 6.

5 OPPORTUNITIES AND CONSTRAINTS

The Burra Charter Process for development of conservation policy is underpinned by opportunities and constraints arising from several key factors including: the heritage significance of the site; owner and user requirements/resources and/or feasible uses; physical condition; and other external factors.[1]

This section therefore outlines the opportunities and constraints relevant to the Powerhouse site discussed as relevant to those arising from:

- Relevant heritage legislation and listings (Section 5.1);
- Cultural Heritage Significance (Section 5.2);
- Owner and User Requirements, including Site Management and Structure (Section 5.3);
- Physical Condition (Section 5.4); and
- Heritage Interpretation (Section 5.5).

The following section outlines the overarching opportunities and constraints for the Powerhouse site as a whole. Specific opportunities and constraints that relate specifically to individual buildings and site elements are included within the relevant sections in Part C of this CMP.

5.1 HERITAGE LEGISLATION AND LISTINGS

Heritage legislation and listings are a practical way in which the heritage values and significance of sites and their elements can be preserved and protected. The following section presents and discusses the relevant heritage listings that apply to the Powerhouse site with specific reference to the relevant legislation or statutory requirements, discussing the opportunities and constraints that such heritage listings may present to the site. Approvals for works to the site may be required under the EP&A Act, the Heritage Act (pending the outcome of the SHR listing) and/or NPW Act in accordance to the heritage listings that apply to the site and its individual elements. Table 5.1 lists the relevant statutory and non-statutory registers, listings and orders, and identifies those relevant to the Powerhouse site.

5.1.1 Heritage Act (NSW) 1977

Heritage items are afforded statutory protection in NSW under the NSW Heritage Act 1977 (Heritage Act). Heritage places and items of particular importance to the people of New South Wales are listed on the NSW State Heritage Register (SHR). The Heritage Act defines a heritage item as a 'place, building, work, relic, moveable object or precinct'. The Heritage Act is responsible for the conservation and regulation of impacts on items of State Heritage Significance. State Heritage Significance is defined as being of 'significance to the state in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item'.

The NSW Heritage Council is the approval authority under the Heritage Act for works to an item on the SHR. Section 57(1) of the Heritage Act requires Heritage Council approval if the work involves the following tasks:

a. Demolishing the building or work
b. Damaging or despoiling the place, precinct or land, or any part of the place, precinct or land
c. Moving, damaging or destroying the relic or moveable object
d. Excavating any land for the purpose of exposing or moving the relic
e. Carrying out any development in relation to the land on which the building, work or relic is situated, the land that comprises the place, or land within the precinct
f. Altering the building, work, relic or moveable object
g. Displaying any notice or advertisement on the place, building, work, relic, moveable object or land, or in the precinct
h. Damaging or destroying any tree or other vegetation on or remove any tree or other vegetation from the place, precinct or land.

Application for approval in accordance with Section 57(1) is undertaken by submission of a Section 60 Application to NSW Heritage Division. Section 60 applications also apply to any archaeological relics located within the curtilage of an SHR site.

Table 5.1 Summary Table of Heritage Listings and Registers

REGISTER/LISTING	DETAILS	LISTING NO.	STATUTORY IMPLICATIONS
National Heritage List	Not listed		N/A
Commonwealth Heritage List	Not listed		N/A
State Heritage Register	Ultimo Power House[2]	02045	Y
	Ultimo Post Office	00502	Y
City of Sydney LEP	Powerhouse Museum Former Warehouse Buildings, including interiors	I2031	Y
	Former Ultimo Post Office including interior	I2030	Y
Section 170 Heritage Register	Water Cooling System and Manifold	Section 170	Y
	The Darling Harbour Rail Corridor	Section 170	Y
Register of the National Estate	Ultimo Post Office	N/A	N
	The Powerhouse Museum Stage One (Harwood Building) and Stage Two (Power House)	N/A	N
Register of the National Trust (NSW)	Ultimo Power House	S11648	N
	Former Ultimo Depot Tram Shed (Powerhouse Museum)	S10611	N
	Ultimo Post Office	S9302	N

State Heritage Register

Heritage listing on the SHR is a way that communities can preserve and protect their most special places. The listing provides recognition of, and protection for, identified heritage items. Any proposed change to a listed place can be assessed for approval. Minor works, repairs and maintenance rarely need approval as they usually qualify as exempt development. A listing may also allow a broader range of uses than the current zoning would otherwise permit.

Listing of an asset on the SHR requires the Powerhouse to notify the Heritage Council and seek approval for any proposed works to items within the heritage curtilages as specified under the Heritage Act, unless exempt under standard or specific exemptions (summarised in the relevant section below).

Additionally, the Powerhouse must manage its heritage assets listed on the SHR in accordance with the minimum standards specified under s118 of the Heritage Act and Part 3 of the Heritage Regulation 2005.

The minimum standards of maintenance and repair of a listed item relate to the following:

i. the protection of the listed item from damage or deterioration due to weather.
j. the prevention of and the protection of the listed item from damage or destruction by fire.
k. security (including fencing and surveillance measures) to prevent vandalism; and
l. essential maintenance and repair (being maintenance and repair necessary to prevent serious or irreparable damage or destruction).

This CMP should be used as a management tool to conserve significance while balancing operational, functional and safety requirements when carrying out minimum standards of maintenance.

The following SHR listings are located within the Powerhouse site:

- Ultimo Post Office (SHR 00502)
- Ultimo Power House (SHR 02045) (including the Water Cooling System and Manifold).

Exemptions

Standard exemptions have been gazetted that apply to all SHR sites, the purpose of which is to streamline the approvals process, particularly where works are minor or have little impact on significance.

From 1 December 2020, Heritage NSW revised the Standard Exemptions for SHR listed items making the exemptions more specific to works that 'have little to no impact on an item's significance and support the item's management'. A streamlined approval pathway was also introduced for works that have (or have the potential to have) a minor impact on the heritage significance of State heritage items. The fast-track pathway offers landholders and/or owners a simplified process and determination of applications within 21 days of acceptance.

Where proposed works can be demonstrated to meet the criteria for one of the standard exemptions, the works are exempt from requiring Heritage NSW approval under Section 60. For further details of the standard exemptions, refer to the Heritage NSW website.

Site-specific exemptions relate specifically to an individual SHR item and can only be for works which have no potential to materially affect the item. Site-specific exemptions must be specifically identified as exemptions in a CMP endorsed by the Heritage Council or its delegate and use wording agreed upon prior to Heritage Council endorsement.

Excavation Permits

In addition to the general heritage protection of the Heritage Act, historical archaeological remains in NSW are provided additional protection from being moved or excavated via the operation of the 'relics' provisions under the NSW Heritage Act. These provisions protect unidentified 'relics' which may form part of the State's environmental heritage, but which have not been listed on the SHR or protected by an Interim Heritage Order. An archaeological site is defined as an area of land which is the location of one or more archaeological 'relics'.

Since amendments were made to the Heritage Act in 2009, a 'relic' has been defined as:

> any deposit, artefact, object or material evidence that:
>
> a. Relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement
> b. Is of State or local heritage significance.

Division 9 of the Heritage Act governs the 'Protection of certain relics', with Section 139 stating that:

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

Such permits are issued under Sections 140 and 141 of the Act, or under Sections 60 and 63 of the Act, in cases where 'relics' are situated within sites or places listed on the SHR. An excavation permit is also required if a relic is discovered in the course of an excavation undertaken without a permit (s139(2)).

If an excavation permit is required by s139 of the Heritage Act, an application is made under Section 140 of the Act (a Section 140 Application). To obtain an excavation permit an Archaeological Assessment and Research Design must be prepared in accordance with the relevant Heritage NSW guidelines, including Historical Archaeological Sites and the Historical Archaeology Code of Practice. For further details of these guidelines, refer to the Heritage NSW website.

In addition, Section 146 of the Heritage Act relates to the requirement to report the discovery of relics to the Heritage Council, stating:

> 146 Notification of discovery of a relic
>
> A person, who is aware or believes that he or she has discovered or located a relic (in any circumstances, and whether or not the person has been issued with a permit) must:
>
> a. within a reasonable time after he or she first becomes aware or believes that he or she has discovered or located that relic notify the Heritage Council of the location of the relic, unless he or she believes on reasonable grounds that the Heritage Council is aware of the location of the relic, and
> b. within the period required by the Heritage Council furnish the Heritage Council with such information concerning the relic as the Heritage Council may reasonably require.

In accordance with s146 of the Heritage Act, the discovery of relics is reported to Heritage NSW as a post-excavation report or similar, depending on the circumstances in which the discovery was made- and in accordance with any requirements of the Minister.

Section 170 Registers

Under Section 170 of the Heritage Act, government instrumentalities must keep a S170 Heritage and Conservation Register which contains items under the control or ownership of the agency and which are or could be listed as heritage items (of State or local significance).

Listing of a heritage asset on a heritage and conservation register does not in itself create an obligation to obtain the Heritage Council's approval for works. (The Heritage Council's approval will only be required for assets listed on the SHR, or subject to an interim heritage order under the Heritage Act). It does, however, require that not less than 14 days written notification to be provided to the Heritage Council of the intention to (a) remove any item from its register, (b) transfer ownership of any item entered in its register, or c) cease to occupy or demolish any listed place.

Property NSW maintains a section 170 register of its assets. This was formerly under the management of SHFA.

The following heritage item within the Powerhouse site are currently listed on Property NSW's (formerly SHFA) Section 170 Register:

- The Water Cooling System and Manifold
- The Darling Harbour Rail Corridor

5.1.2 NSW National Parks and Wildlife Act 1974

The NSW National Parks and Wildlife Act 1974 (NPW Act), administered by the Aboriginal Heritage Regulation Section of Heritage NSW (under NSW Department of Premier and Cabinet) (formerly referred to as part of the Office of Environment and Heritage (OEH), is the primary legislation that provides statutory protection for all 'Aboriginal objects' (Part 6, Section 90) and 'Aboriginal places' (Part 6, Section 84) within NSW.

An Aboriginal object is defined through the NPW Act as:

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

The NPW Act defines 'harm' to Aboriginal objects and places as:

> ...any act or omission that:
>
> a. destroys, defaces or damages the object or place, or
> b. in relation to an object-moves the object from the land on which it had been situated, or
> c. is specified by the regulations, or
> d. causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c), (NPW Act 1974)

The NPW Act also establishes penalties for 'harm' to Aboriginal objects and declared Aboriginal places, as well as defences and exemptions for harm. One of the main defences against the harming of Aboriginal objects and cultural material is to seek an Aboriginal Heritage Impact Permit (AHIP) under Section 90 of the NPW Act, under which disturbance to Aboriginal objects could be undertaken, in accordance with the requirements of an approved AHIP.

NSW DPIE maintains a database of Aboriginal objects and places (Aboriginal Heritage Information Management System- AHIMS) which includes 'information about Aboriginal objects that have been reported to the Director-General of Department of Premier and Cabinet; information about Aboriginal places which have been declared by the Minister for the Environment to have special significance with respect to Aboriginal culture; and archaeological reports'.

There are currently no registered Aboriginal archaeological sites within the Powerhouse site.

However, three registered Aboriginal archaeological sites are located in close proximity, and may suggest potential for subsurface sites within the site (discussed in Section 3.4.1).

5.1.3 Environment Protection & Biodiversity Conservation Act (Cmw) 1999

The Environment Protection and Biodiversity Conservation Act (EP&BC Act) established the Australian Heritage Council (formerly the Australian Heritage Commission) and provides for the protection of cultural heritage at a National level and for items owned or managed by the Commonwealth. The EP&BC Act has established two heritage registers:

- Commonwealth Heritage List (CHL): significant items owned or managed by Commonwealth Government agencies
- National Heritage List (NHL): for items assessed as being of National cultural significance.

Australian Heritage Council approval is required for works to an item on either of these lists which would impact on its significance.

No heritage items within the Powerhouse site are listed on the Commonwealth or National Heritage Lists.

5.1.4 Environmental Planning & Assessment Act 1979

An Environmental Planning Instrument (EPI) is made under the Environmental Planning and Assessment Act, 1979 (EP&A Act). An EPI can be a Local Environmental Plan (LEP), a Regional Environmental Plan (REP), or a State Environmental Planning Policy (SEPP). The applicable EPIs in this instance are as follows:

- City of Sydney Local Environmental Plan 2012 (LEP 2012)
- City of Sydney Development Control Plan 2012 (DCP 2012)

Sydney Local Environmental Plan 2012

Clause 5.10 of the Sydney Local Environmental Plan 2012 (LEP) sets out objectives and planning controls for the conservation of heritage in the City of Sydney.

The LEP states that development consent is required for works that will involve:

> a. demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance)—
> i. a heritage item,
> ii. an Aboriginal object,
> iii. a building, work, relic or tree within a heritage conservation area,
>
> b. altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,
> c. disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,
> d. erecting a building on land—
> i. on which a heritage item is located or that is within a heritage conservation area, or
> ii. on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,

Clause 5.10(7) specifically relates to the management of archaeological sites:

> The consent authority must, before granting consent under this clause to the carrying out of development on an archaeological site (other than land listed on the State Heritage Register or to which an interim heritage order under the Heritage Act 1977 applies):
>
> a. (a)notify the Heritage Council of its intention to grant consent, and
> b. (b)take into consideration any response received from the Heritage Council within 28 days after the notice is sent.

Schedule 5, Part 1 of the Sydney LEP establishes locally listed heritage items.

The following heritage items within the Powerhouse site are listed on the Sydney LEP:

- "Powerhouse Museum Former Warehouse Buildings, including interiors" (I2031)
- "Former Ultimo Post Office Including Interior" (I2030)

The Powerhouse site is also located adjacent to the Harris Street Conservation Area (C67), which also includes a number of individually listed items.

Harwood Building (former Ultimo Tram Shed)

In March 2020, the National Trust submitted a nomination to Heritage NSW to list the former Ultimo Tramshed (Harwood Building) on the NSW SHR. This nomination was presented at the NSW Heritage Council meeting on Wednesday 30th September 2020, at which the Heritage Council determined that the Harwood Building does not meet the heritage criteria for State significance and determined to close the nomination. Minutes from this meeting on this topic (Item 5.2 Powerhouse Museum Matters; Resolution 2020-87) included an invitation to City of Sydney Council to consider local listing of the Harwood Building.

As at April 2022, the Harwood Building remains unlisted on the Sydney LEP. Non-Statutory Heritage Registers

A number of organisations maintain registers of buildings or sites which they have assessed as having cultural heritage significance. These registers have no statutory authority; however, the inclusion of a place on a non-statutory register suggests a certain degree of community esteem and appreciation. Non-statutory registers include the National Trust (NSW) Register, the NSW National Trust Industrial Archaeology Sites List, the RAIA 20th Century Register of Significant Buildings and the Art Deco Society of NSW's Art Deco Building Register.

Register of the National Estate

The Australian Heritage Council is also responsible for keeping the Register of the National Estate (RNE). The RNE can no longer be added to, and for Commonwealth properties, has been superseded by the Commonwealth and National Heritage Lists. The RNE is now an indicative list of significant places with no statutory controls, except for properties owned by the Commonwealth.

The following items within the Powerhouse site were previously listed on the (now defunct) RNE:

- Ultimo Post Office (Listing 2381, 27 March 1984)
- Powerhouse Museum (Stage One) (former Ultimo Tram Depot/Harwood Building) (Listing 100691, 27 Oct 1998)
- Powerhouse Museum (Stage Two) (Listing 100690, 27 Oct 1998)

National Trust of Australia (NSW)

The National Trust (NSW) Register was established in 1949, and maintains a 'register of landscapes, townscapes, buildings, industrial sites, cemeteries and other items or places which the Trust determines have cultural significance and are worthy of conservation'. While the Register does not have statutory authority, it does fill the role of raising public awareness of heritage issues.

The following items within the Powerhouse site are listed on the National Trust of Australia (NSW) Register:

- Ultimo Post Office (S9302, 28 June 1982)
- Former Ultimo Depot Tramshed (Harwood Building) (S10611, 30 July 1997)
- Ultimo Power House (Former Turbine Hall, Boiler Houses and Switch House) (S11648, 24 June 2015). NB. This listing does not include the 1988 additions.

Australian Institute of Architects (AIA) Register of Significant Buildings (NSW)
Since 1949 the NSW AIA has maintained a register of significant architecture in NSW, focusing on 20th Century heritage

The following item within the Powerhouse site is included in the AIA Register of Significant Buildings (NSW):

- The Powerhouse Museum 1983-1988 construction, by Lionel Glendenning (#4701884).

5.2 COMMUNITY CONSULTATION TO INFORM CMP DEVELOPMENT

5.2.1 Stakeholder and Community Consultation

Stakeholder and community consultation for the development of this Conservation Management Plan took place in March 2022, the results of which have been published in Aurecon's Powerhouse Ultimo Conservation Management Plan Engagement Consultation Report, March 2022.[3]

Advertising, social media and email reached an estimated audience of 17,000 people.[4] Community engagement included online surveys in addition to an open weekend that was held at the Powerhouse on March 19-20, 2022. 762 people completed the online survey and over 3,500 people attended the open weekend with 300 people attending facilitated workshops and Q&A sessions.[5]

The report highlighted that 94% of people engaged with viewed the Ultimo Powerhouse as being important or very important. Key elements of the Powerhouse that were seen as highly valued included the exhibitions, collections and the history of the building, with the most memorable exhibition being the Boulton and Watt Steam Engine.[6]

Areas that were seen as working well included the exhibitions, heritage conservation and customer service, yet, along with maintenance, heritage conservation and wayfinding were also noted as the main things that could be improved.[7] Almost 88% of respondents noted that wayfinding signage within the museum was important due to the difficulty navigating the museum once inside[8].

During the live consultation sessions, some of the opportunities suggested for the buildings and facilities were 'Keep the brick work exposed', 'Reinstate painted historical signage', 'Grass outdoor area'[9]. There were also suggestions to open the Museum at night and to have a focus on community within the museum.[10]

The feedback from these engagements has assisted in identifying opportunities and constraints and guide conservation policies for the Powerhouse site (Section 6).

5.2.2 Aboriginal Community Consultation

Aboriginal community consultation for the Conservation Management Plan took place in March 2022 as part of Conservation Management Plan engagement.[11]

A First Nations session[12] was hosted by the Museum's First Nations Directorate and facilitated by Terri Janke.[13] The questions raised explored memories of the Powerhouse, valuing and visiting the Powerhouse, what stories First Nations communities want to tell and how the Powerhouse can reflect First Nations Values.[14]

The importance of First Nation's representation in the Museum was highlighted. This included artwork and design that reflects First Nation's culture, in addition to the inclusion of Aboriginal history, contributions and notable individuals in the exhibition content. It was noted that there was a desire for community involvement in Museum events including night markets and stalls.[15]

Suggestions to improve visitation to the Powerhouse were:

- Inclusion of indigenous engineers, sciences and STEM.
- Appreciate the involvement of indigenous people during the early inventions.
- Celebrate the entirety of the history including the British arrival, indigenous resilience and the arrival of the multi-cultural brother and sisters.
- Having something that is First Nations outside clearly front and centre would draw people.
- Indigenous performances during school holiday[16]

Suggestions for how the Powerhouse Ultimo can reflect First Nations cultural values were:

- Value the space between the inside and outside.
- Indication of country – have markers on the history of the place.
- Invest First Nation Values.
- Include the First Nation experience of living in Urban environments and how they can invite non-indigenous peoples to see and learn.
- Focus on contemporary aboriginality and what that means.
- Think beyond the Museum as a cultural space but more about culture itself.
- Include night markets and stalls from First Nation creators.[17]

The feedback from this session has helped to identify opportunities for the Powerhouse site and has guided the draft Aboriginal Cultural Heritage Policies proposed (Section 6, Policy 8).

5.3 CULTURAL HERITAGE SIGNIFICANCE

The Powerhouse site contains a number of heritage listed items of both local and State significance. The opportunities and constraints that arise from the Cultural Significance are mainly related to the need to conserve the significant values and fabric of the heritage items within the site in accordance with accepted best-practice conservation principles, including *The Australia ICOMOS Charter for Places of Cultural Significance, The Burra Charter* (2013). The Burra Charter is widely accepted across Australia as an underlying methodology by which all works to sites/buildings that have been identified as having heritage significance may be undertaken.

Significance should not be considered as exclusively a constraint to development, as there are many opportunities available to retain and enhance heritage values and fabric, which would be beneficial to the future use, and future development of the site.

5.3.1 Opportunities

The opportunities arising from the cultural heritage significance of the place include:

- Retaining, conserving and enhancing the heritage significance of the place including spaces, elements and fabric of significant buildings and structures.
- Ensuring that new works, such as alterations and additions, and new buildings, retain the heritage significance of the Powerhouse site.
- Opportunities to communicate the significance of the heritage items and wider Powerhouse site through programmatic interpretation (see Section 5.5- Heritage Interpretation, below) and appropriate ongoing and future use.
- The 1988 adaptive re-use of the Power House Buildings into the Powerhouse Museum, including the construction of the Wran Building, further obscured rather than enhanced the industrial history of the site. Future use of the site should seek to identify any opportunities to re-connect with and explore the industrial history of the site, possibly via future development choices, heritage interpretation initiatives etc. The industrial context of the site is particularly apparent when viewed from the Goods Line entry to the site, where the industrial buildings are more prominent.
- There are opportunities for unsympathetic modifications made to the Wran Building in 2003-2005 and 2011-2013 to be removed and the building's original fabric and form reinstated or changed and adapted to complement the heritage-listed portion of the site's historic character and buildings, and to ensure the future success and sustainability of the cultural and museuology functions of the precinct (site) on par with the International contemporary museum practice.
- Opportunities to consider through built form clearer separation between back of house and front of house operation.
- Opportunities to celebrate and communicate design philosophies of the 1980s adaptive reuse through interpretation, adaptations or additions.
- Museum has opportunity to radically rethink what a museum is through the Renewal process in the same way this opportunity was provided in the 1988 renewal
- Opportunities to reintroduce communication and recognition of the industrial and historical context of the site (mostly lost during the 1980s redevelopment), including accentuation of technological innovation that took place at the site during its function as the Power House, and evolution to a science and technology museum.
- Reinstate and enhance the architectural integrity of original Power Station, including reinstating integrity and grandeur of turbine halls
- Opportunities to engage and enhance the social history of the site through further community engagement, oral histories and First Nations story telling.
- Where possible, enhancing and/or re-establishing view lines between the State significant buildings (i.e. Power House buildings, Post Office) present opportunities to enhance the visual and historical connections between the site's significant buildings.
- Opportunities to engage in local First Nations community consultation to identify and explore Aboriginal and Torres Strait Islander cultural heritage values associated with the Powerhouse site and surrounds.
- The use of the site by the First Nations communities and its importance for the community is presently under-represented across the site. There is an opportunity to address and explore this through an indication of Country, in addition to future development, interpretation and museum programming.[18]
- There is an opportunity to ensure the representation of First Nations people through the use of art and design across the Powerhouse site.[19]
- Removal and/or replacement of intrusive site elements could present a positive impact to the overall cultural heritage significance of the site, for example removal of the existing café in the Level 1 Courtyard, and replacement with more transparent element/boundary fence could allow for improved view lines to the former Power House buildings and overall site from eastern site entry points and approaches.
- As part of the redevelopment of the site for the Powerhouse Museum in the 1980s, the majority of the former Power House and Tram equipment, machinery, and moveable heritage etc was removed from the site. If any of this removed movable heritage is able to be located at other sites, there is an opportunity to return these items to the Powerhouse and to interpret them in their original setting.
- When the Powerhouse Museum opened in 1988 there were a small number of interpretation panels which explored the history of the site, however these have long since been removed, with the only small acknowledgements of the site's history remaining present in exhibits such as the tram display in the Boiler House and the steam exhibits in the Engine Room. While the Turbine Hall and Boiler House have housed numerous exhibitions over the last 30 years of the museum's operation at the Ultimo site, these exhibits are almost always removed from the history of the site. As a functioning museum, there is an opportunity for the Powerhouse to create interpretation exploring the history of the Powerhouse site and its buildings.
- There is also an opportunity to develop programming in consideration of the architectural spaces and features of the heritage buildings, particularly those in the Engine House and Boiler House, to allow the immensity and impressiveness of the interior spaces to be read, in addition to the focus of any gallery exhibition.

The heritage significance the Powerhouse site does not preclude changes to the place that can enhance its uses and viability. The ongoing use of a place is the best way to ensure its conservation into the future.

5.3.2 Constraints

The constraints that arise from the cultural significance of the place include the following.

- Significant physical heritage elements and associated values of the Powerhouse site should be retained and conserved, to be repaired and restored where necessary/ required (including the former Power House buildings, Harwood Building, Ultimo Post Office, Goods Line, and Water System and Manifold).
- Need to conserve and enhance the landmark qualities of the site.
- While the Wran Building forms part of the adaptive reuse of the Ultimo site for the Powerhouse Museum, and was architecturally innovative and significant at the time of construction as a purpose-built museum space, it must also be acknowledged that this building presents a constraint in its physical location, and the significant contrast it presents to the Power House buildings and industrial history of the site, both in relation to architectural design and to physical presence. This is discussed further in the following subsection.

Constraint—Wran Building
The Wran Building was architecturally innovative at its time of construction as part of the adaptive reuse of the original Power House buildings, the combination of which won the 1988 AIA Sulman Award to the site for its adaptive reuse as the Powerhouse Museum. However, the construction of the Wran Building in 1988 also resulted in visually impacting the former Ultimo Power House buildings making it difficult to appreciate both the scale of the buildings and the site's industrial history. The size and fabric of the Wran Building has impacted the visibility of and view lines to the State Heritage listed buildings on the site. The former visual connection, highlighting the scale of the small Ultimo Post Office to the immense Power Station buildings is no longer accessible when the site is viewed from Harris Street.

For this reason, the constraints of the Wran Building with respect to the conservation and communication of the site's industrial history are appropriate to acknowledge in this section of the CMP, further explored in the following notes.

- The Wran Building, as part of the 1980s additions to the site, conceal much of the former Power House buildings which, makes it difficult to appropriately interpret and appreciate the heritage buildings.
- The Wran Building has been subject to numerous design changes over the years, limiting the ability for the building in its current iteration to convey the original design intent of the 1980s adaptive reuse of the site.
- The location and presence of the Wran Building impacts on the readability and interpretation of the earlier, State Heritage listed items and associated history of the site.
- Consideration should be given to the destruction of and alteration to the earlier, highly significant industrial landscape as part of the broader 1980s 'Bicentennial' vision building program in and around Darling Harbour which saw many clean, bright buildings such as the Wran Building, constructed to conceal the industrial heritage of the area. The facades of the Engine and Turbine Halls have been obstructed by the Wran Building, now only visible from within the Wran Building, The position of the Wran Building has blocked the former connection of the Ultimo Post Office to the original Power House buildings. Most notably with the Post Office, it has impacted its readability and presence on site and provided an obstacle in establishing a more appropriate extended curtilage for the SHR listed Post Office Unsympathetic relationship to Harris Street and the public domain of Ultimo and utilisation limitations with forecourt.

Figure 5.1 View of the Wran Building from Harris Street, mostly obscuring views to the facades of the former Power House buildings

Figure 5.2 Ultimo Post Office along William Henry Street, with Wran Building as dominant background context, obscuring visual connection between the Post Office and former Power House buildings

Figure 5.3 Setting of the Post Office on the corner of William Henry and Harris Streets. The position of the Ultimo Post Office provides a visual link between the predominantly two storey residential Victorian buildings in Pyrmont, and the larger form, scale and function of the industrial buildings of the Ultimo Power House

5.4 OWNER AND USER REQUIREMENTS

Practical and effective policies for the heritage conservation of the Powerhouse site need to consider opportunities and constraints arising from the needs of the Powerhouse for museum and program utilisation, visitor experience and precinct operations.

5.4.1 Site Use, Management and Structure

The Powerhouse site will remain in use as a museum and creative industries precinct. Opportunities and constraints in relation to this utilisation are:

Opportunities

- Museum practice has changed significantly since the opening of Stage One (1981) and Stage Two (1988). The ongoing function and adaptive re-use of the former Ultimo Power House site needs to be developed concurrently with the expectations and requirements of contemporary museum practice and programming.
- Ongoing use of the site presents an opportunity to enhance and improve the Museum's position within the context of surrounding development that has occurred since the Museum's establishment on site in the 1980s. Future renewal and development on the site should consider and take advantage of increased pedestrian traffic from surrounding development and public domain areas such as the redeveloped Darling Harbour, The Goods Line and the Light Rail.
- The existing site forecourts/courtyards are currently underutilised and therefore have potential for revitalisation and utilisation for museum programming:
  - The Level 1 forecourt area (adjacent to the Boiler House) also has potential for larger scale utilisation, connecting the site to the wider Ultimo/Darling Harbour precinct
- There is an opportunity to utilise the non-heritage forecourt brick wall facing Macarthur Street for wayfinding, interpretive or promotional signage.
- There is an opportunity to explore options for the adaptive re-use of the Ultimo Post Office that celebrates its heritage significance, and provides public access.
- The Powerhouse Museum will be embedded in an active creative industries precinct, operated by the Museum. This could be developed and enhanced through increasing utilisation opportunities.
- Opportunities exist for programming and interpretation exploring the industrial history of the site.
- There is an opportunity to re-design internal exhibition spaces according to visitor experience modelling, to clarify circulation, enhance visitor experience, separate back of house and front of house operations and maximise the potential uses of the existing available space.
- Develop agile design of internal spaces that allow for diverse utilisation.
- Increase the porosity of the site to make it more permeable with multiple entrance points and pedestrian connections to neighbouring precincts and streets.
- Create a climate positive precinct to achieve sustainability targets and as a method of interpretation of the sites original purpose and function.

Constraints

The ongoing use of the Powerhouse site as a contemporary museum, which is safe and accessible for both visitors and staff, entails constraints such as:

- The need for clear and legible circulation across the site and integrated wayfinding identification related to the museum, both internally within the site as well as wayfinding from surrounding areas (i.e. Pyrmont, Ultimo, Darling Harbour precinct etc)
- Requirement for spaces that are acoustically and light isolated for exhibitions, programs and museum utilisation.
- A requirement for appropriate, safe and equitable access to, and circulation within, the museum spaces, separating back of house and front of house operations.
- The provision of an appropriate amount and standard of facilities and amenities as required by both museum visitors and staff.
- The requirement for appropriate and functional entrances to the site from both Harris Street and The Goods Line.

The Museum's existing management systems should include information with respect to appropriate and specialised treatment required for heritage items and fabric, to avoid application of regular maintenance techniques that may not be appropriate for heritage fabric or items with specialised technical requirements, including specialised cleaning requirements and clear conditions and constraints for exhibition installation.

5.4.2 Site Access

Opportunities relating to the ongoing use of the site as a public accessible museum and precinct, particularly in relation to user access and circulation, include:

- Opportunities to encourage pedestrian traffic from the east of the site, such as from Hay Street, Darling Drive, the Light Rail Station, and Central/UTS via the Goods Line.
- Creation of a through-site pedestrian access directly from William Henry Bridge/Light Rail Station through to the Former Ultimo Power House (via the site of the former Pump House) could be explored to improve site access. Site-through access directly to the William Henry Bridge approaches that would allow for the unique historical 'ruin' of the former Pump House to be publicly accessed and further facilitate interpretation of this area in the northeast of the site.
- Reconsideration of the existing entry area to better accommodate access for different groups.
- Improve site wayfinding that is currently constrained by the internal layout of the museum.
- Removal of the existing sheltered walkway travelling between Harwood Building and the main Powerhouse building as it currently offers little protection from the elements for staff, moveable assets and visitors.

5.5 PHYSICAL CONDITION

The policies within Section 6 of this CMP include recommendations to prepare a maintenance and conservation register for the site to guide the ongoing conservation of heritage fabric. Cursory inspections undertaken by Curio in the preparation of this CMP suggest that the condition of fabric of site buildings appears to be generally good, with potential issues indicated below. Specific opportunities and constraints relating to individual built items have been detailed in the relevant sections of Part C of this CMP.

The following items noted with respect to condition in the 2003 CMP[20] still apply to the site (Powerhouse to advise/review current situation of each point and delete if no longer relevant):

- The Switch House's perimeter box gutters overflow and cause water damage, however the extent of this damage is concealed by internal walls.
- Maintenance problems of the Wran Building including:
  - Galvanic action due to incompatible materials in the roof material.
  - The atrium leaks.
  - The smoke vents required manual closing and if left open would allow water penetration.

In addition to the above noted on condition made in the 2003 CMP, Curio's visual observations of the site in 2021 identified the following considerations with respect to the site's condition:

- Various locations across the buildings of the site have sandstone and/or brickwork with evidence of water damage and/or vegetation growth that should be addressed to avoid deterioration or damage to heritage fabric and integrity of the site's buildings and structures. This was predominantly noted on the remains of the former Pump House and the Harwood Building.
- Ongoing issues with box gutters on all Power House buildings.
- Ongoing maintenance of heritage buildings.

The AFM 2020 Remote Location Servicing Report[21] noted that during a period of heavy rainfall in February 2020, the box gutters on the roof of the Harwood building overflowed, resulting in internal water leaks from the roof. The storage areas were not damaged at the time and the gutters were reported as being cleaned twice a year.

Other opportunities and constraints relating to the physical condition of the site include:

- Opportunities to upgrade existing, and installation of new, lighting across the site.
- Opportunity to upgrade environmental conditioning.
- Respond to condition reports, compliance reviews, cyclical maintenance programs developed and maintained by the Powerhouse facilities team.
- Ability to meet current statutory requirements (i.e, fire, BCA and DDA).
- Management of building fabric in accordance with the policies of the CMP, balancing heritage values and statutory requirements.
- Rectification of the Building Maintenance Unit (BMU) (the moveable walkway that allows for cleaning the windows at the upper level) in the Boiler House, requiring works to make this item functional and recertified for use.
- Removing old, worn carpet throughout the Museum

5.5.1 Archaeology

The archaeological potential of the Powerhouse site (both Aboriginal and historical) has been summarised in Section of this CMP. The known and/or potential archaeology present within the site presents physical constraints within the site-particularly in relation to any future works within the site that propose below ground impacts.

Known and potential archaeological resources within the site also present a significant opportunity for integration with future interpretation initiatives for the site, including both physical integration of archaeology within future development, as well as potential for use of archaeological relics for educational and interpretation purposes within the site.

While the Water Cooling System and Manifold is technically considered a work as opposed to an archaeological 'relic' in accordance, as a subterranean asset located within the boundaries of the Powerhouse site, the location of this significant heritage item requires consideration and protection during any archaeological assessment or investigation at the site, and should be included as part of any over-arching archaeological management strategy for the site. Where possible, further research should be undertaken in order to accurately locate and identify the accurate location, breadth and depth of the Water Cooling System and Manifold within the curtilage of the Powerhouse site, so that potential future impacts to the item can be managed and avoided.

5.5.2 Significant Views

Section 4.5 of this CMP identifies the key significant heritage views of relevance to the Powerhouse site. Any future site development will need to consider both the opportunities and constraints presented by the location of the Powerhouse Ultimo in its heritage context and significant views and vistas, including both inter and intra-site views. The visual relationship between the former Power House buildings is important to understanding and communicating their historical function and heritage significance, and therefore should be enhanced and protected. Future management of the site should seek to aim to enhance and retain visibility of/view lines to the Power House heritage buildings (i.e. Engine and Turbine Hall) from Harris Street, where possible. View lines with potential to impact other heritage items needs to be considered in any future development works.

While the 2003 CMP described an opportunity to enhance the view of the Power House buildings from Darling Harbour,[22] recent development in Darling Harbour and adjacent to the Powerhouse site—most notably the 2016 development of the high rise Urbanest student accommodation adjacent to the Powerhouse site on Darling Drive has significantly reduced the capacity for views from Darling Harbour to the Powerhouse site.

5.6 HERITAGE INTERPRETATION

Heritage Interpretation is a way of communicating the significance of a site to those that visit, allowing them to gain a better understanding of, and appreciation for, the site.

Article 1.17 of The Burra Charter states:

> Interpretation means all the ways of presenting the cultural significance of a place

Further explaining this in the notes as:

> Interpretation may be a combination of the treatment of the fabric (e.g. maintenance, restoration, reconstruction); the use of and activities at the place; and the use of introduced explanatory material[23]

The Powerhouse site presents substantial and existing opportunities to introduce programmatic heritage interpretation in relation to the site.

Whilst use of the site since the 1980s as the home of the Powerhouse Museum has played an important role in the history of the Powerhouse site, there is also a significant opportunity to interpret the original structures and function of the site as the Ultimo Power House in an innovative and sustainable way. Incorporation of interpretation within the Ultimo site, particularly opportunities both within the existing heritage items, as well as within areas of public domain and landscaping, have great potential to enhance the heritage setting and aesthetic of the site, presenting significant positive benefit to the wider Ultimo site and its heritage significance. There is an opportunity to embrace this history and explore the history of the Post Office, Power House, and Tram Sheds; as well as the relationships between these structures and Darling Harbour through the Goods Line and the Darling Harbour Rail Corridor.

Potential Interpretation Initiatives
Incorporation of interpretation initiatives and elements within Powerhouse site, particularly opportunities both within the existing heritage items, as well as within areas of public domain and landscaping, have great potential to enhance the heritage setting and aesthetic of the site, presenting significant positive benefit to the entire Powerhouse site and its heritage significance. Potential interpretation for the site should be programmatic. Interpretative lighting of heritage facades and ground inlays could be integrated into the built form and there is opportunity to re-insert the scale of the industrial halls as a key element of interpretation.

Inspiration for concepts and ideas for the interpretation of industrial heritage of the Powerhouse site could be sought from recent works at similar industrial heritage sites, both locally and internationally, such as Casula Powerhouse, Musée D'Orsay (former Gare d'Orsay), and Tate Modern (formerly Bankside Power Station, London) (Figures 5.4–5.9).

Site Stories
The site has a long and varied history which has little representation on the site and within the Museum. Potential stories for interpretation at the Powerhouse site could include:

- First Nations history of the site.
- Harris Estate and subdivision.
- Role of the Goods Line and the connection to Darling Harbour via the rail corridor.
- Development of the Ultimo Power House and its importance in the early 20th Century/Industrial history of the wider Pyrmont Peninsula.
- Ultimo's role in the electrification of Sydney.
- Omnibus Stables and the history of the Omnibus in the late 19th Century.
- Ultimo Tram Shed and Sydney's Tram history.
- Water Cooling System and Manifold and how water cooling systems were developed from the late 19th Century and how they were then adapted for modern use.
- Conversion of the site to a museum.

Figure 5.4 Casula Powerhouse exterior (Source: Ben Williams)

Figure 5.6 Tate Modern exterior (Source: cceliaphoto - stock.adobe.com)

Figure 5.8 Musée D'Orsay exterior (Source: Mistervlad - stock.adobe.com)

Figure 5.5 Casula Powerhouse Turbine Hall (Source: Chantal Bann)

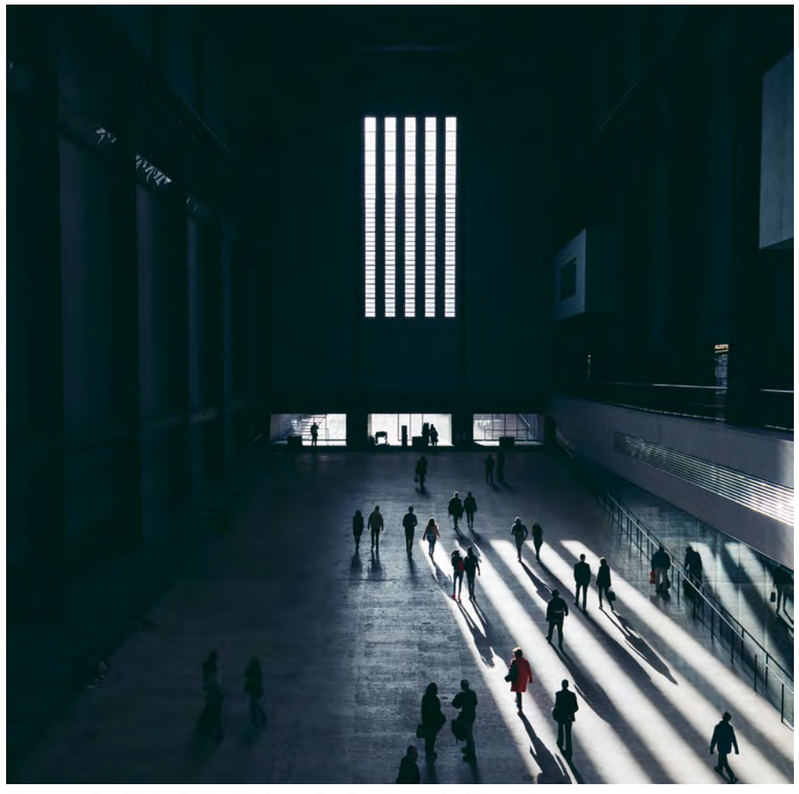


Figure 5.7 Tate Modern Turbine Hall (Source: Tom Eversley - stock.adobe.com)

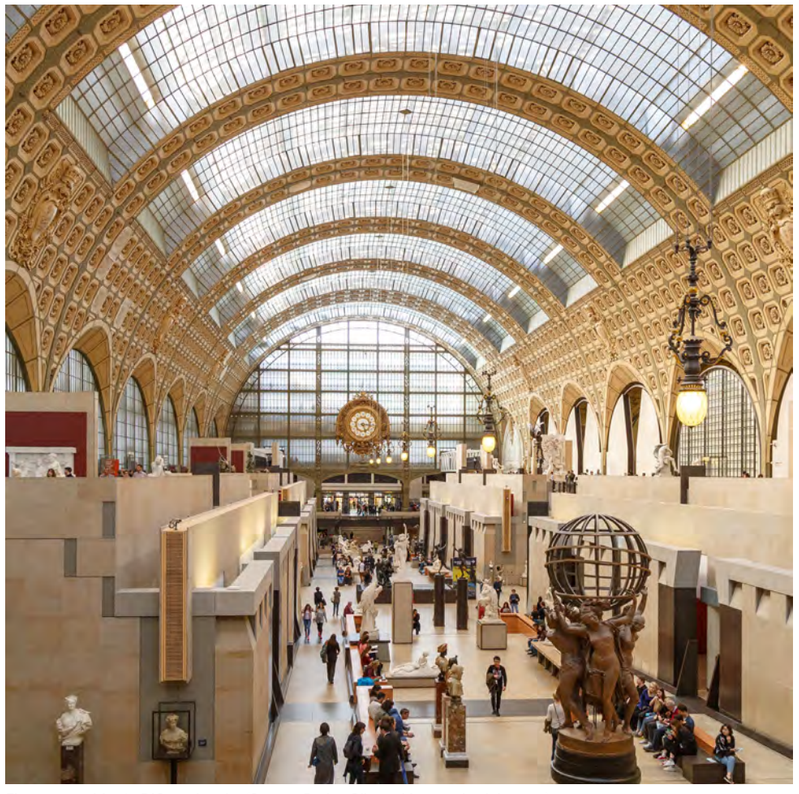


Figure 5.9 Musée D'Orsay interior (Source: Ruslan Gilmanshin - stock.adobe.com)

5.7 ENDNOTES

1 Kerr, J. S., *The Conservation Plan*, (7th ed), Australia ICOMOS, 2013, p. 22.
2 Including former Power House Buildings, as well as section of the Water Cooling System and Manifold within the Powerhouse Ultimo site.
3 Aurecon 2022, Powerhouse Ultimo- Conservation Management Plan Engagement 'What we heard' Consultation Report, prepared for NSW Government, March 2022.
4 ibid, p. 4.
5 ibid.
6 ibid.
7 ibid.
8 ibid.
9 ibid, p. 33.
10 ibid.
11 Aurecon 2022, Powerhouse Ultimo- Conservation Management Plan Engagement 'What we heard' Consultation Report, prepared for NSW Government, March 2022.
12 ibid, p. 4.
13 ibid.
14 ibid, p. 10.
15 ibid, p. 11.
16 ibid, p. 26.
17 ibid, p. 27-28.
18 ibid, p. 27.
19 ibid.
20 ibid, p. 28.
21 AFM, Remote Location Servicing Report, NSW Self Insurance Corporation Museum of Applied Arts and Sciences (Powerhouse Museum), 2020
22 ibid, pp. 26, 28.
23 The Burra Charter, The Australia ICOMOS Charter for Places of Cultural Significance 2013 p3

POWERHOUSE ULTIMO

CONSERVATION MANAGEMENT PLAN 2022

PART B

6 CONSERVATION POLICY

6.1 CONSERVATION POLICY DEVELOPMENT

Conservation can be regarded as the management of change. Therefore, conservation seeks to safeguard that which is significant to an item or place of heritage significance within a process of change and development. It is essential to establish criteria, policies and recommendations for conservation and ongoing use of a heritage item to ensure best practice heritage management and preservation of heritage significance for the future. Within this framework, owners and managers of the heritage item or place will be able to formulate suitable proposals, and planning authorities will be able to assess those proposals against the site-specific heritage criteria.

The conservation policies developed here for the Powerhouse site are intended to assist in the long-term utilisation, maintenance, conservation and renewal of the site. These policies are intended to manage change, rather than prohibit it. The conservation policies provide the essential guiding aims for the site, which should be adopted by the Powerhouse and relevant approval authorities. The fundamental principles providing the overarching context behind policy development are:

- The future conservation and development of the place should be carried out in accordance with the principles of the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (Burra Charter).
- The approach and options recommended for the conservation of specific fabrics, spaces, elements and qualities of the place should be endorsed as a guide to future work, the recommendations having been related to the principles of the Burra Charter.
- Future potential uses should be developed for locations assessed as having lower levels of heritage significance, which do not compromise the character and significance of those areas or the wider site.
- Care should be taken in any future development to avoid or minimise any adverse effect on elements of the site with State heritage significance.
- Policies should consider practical options for management of built fabric, both heritage and modern, and encourage opportunities for replacement of intrusive elements with more sympathetic options or seek to reinstate heritage finishes where possible.

6.2 CONSERVATION POLICIES

For clarity and ease of use, the conservation policies for the Powerhouse site have been grouped and presented under five categories, seen to be those of critical importance to the conservation of the cultural significance of the site. Each category is accompanied by a brief explanatory segment intended to highlight the intent behind the policies.

The policy categories for the Powerhouse Ultimo site are:

- General Conservation Policies and Cultural Significance (Section 6.2.1)
- Fabric and Place (Section 6.2.2)
- Maintenance and Repair (Section 6.2.3)
- Site Use, New Work and Future Planning (Section 6.2.4); and
- Application of this CMP (Section 6.2.5).

Each policy is accompanied by a succinct background description followed by a series of explanatory and strategic guidelines to support the policy, to ensure that future decisions regarding heritage are made in an informed manner, ensuring the conservation of the significance of the place. For policies with action items, these are listed below the policy.

Policies for the Water-Cooling System and Manifold and Darling Harbour Goods Line will require input from, and collaboration, with Property NSW, as the owner of these Section 170 listed assets, parts of which are located within the Powerhouse site boundary. Any future development/s that may directly or indirectly impact the Water-Cooling System and Manifold and Darling Harbour Goods Line would be managed through the development and implementation of a heritage management plan in consultation with Property NSW.

POLICY CATEGORY	POLICY
General Conservation Policies and Cultural Significance (Section 6.2.1)	Policy 1: Best Practice Heritage Management
	Policy 2: Recognising and Protecting Heritage Significance
	Policy 3: Statutory Obligations
	Policy 4: Management of Change
Fabric and Place (Section 6.2.2)	Policy 5—Buildings and Structures
	Policy 6—Setting, Context and Associated Sites
	Policy 7—Fabric
	Policy 8—Aboriginal Cultural Heritage
	Policy 9—Historical Archaeology
	Policy 10—Aboriginal Archaeology
Maintenance and Repair (Section 6.2.3)	Policy 11—Moveable Heritage
	Policy 12—Cleaning, Maintenance and Repair
	Policy 13—Materials, Treatments and Techniques
	Policy 14—Services, Facilities and Amenities
Site Use, New Work and Future Planning (Section 6.2.4)	Policy 15—Compatible Use
	Policy 16—Adaptive Reuse
	Policy 17—Change of Use, Owner or Occupier
	Policy 18—Site Access
	Policy 19—New Work and Development
	Policy 20—Security
	Policy 21—Building Standards, Hazardous Materials and Safety
	Policy 22—Signage, Customer Information and Lighting
Application of this CMP (Section 6.2.5)	Policy 23—Records and Documentation
	Policy 24—Review of this CMP
	Policy 25—Experience, Skills and Co-ordination
	Policy 26—Interpretation and Education

6.2.1 General Conservation Policies and Cultural Significance

General conservation policies below relate to the overarching management of cultural heritage significance of the Powerhouse site, in consideration and acknowledgement of current best practice heritage conservation protocols.

POLICY 1: BEST PRACTICE HERITAGE MANAGEMENT

Background: The primary purpose of this Conservation Management Plan (CMP) is to develop a functional and practical policy to retain the heritage significance of the Powerhouse site via best practice heritage management.

1.1 Future conservation and development of the Powerhouse site should be undertaken in accordance with the principles of the Australia ICOMOS Charter for Places of Cultural Significance 2013 (the Burra Charter)

1.2 Any works required to be undertaken that have the potential to impact the cultural significance of the Powerhouse site, either tangible or intangible, should be undertaken in accordance with the Burra Charter principle cautious approach to change of 'as much as necessary, as little as possible'.

1.3 This CMP should be endorsed and adopted by the Powerhouse as the primary heritage management document for the Powerhouse site, used as a consistent reference framework and the basis for ongoing heritage management for the Site.

1.4 The analysis and recommendations of this CMP should be coordinated with other planning documents for the site and integrate and be directed by all First Nations policies, procedures and plans developed to support the ongoing operations of the Powerhouse and its renewal.

1.5 Contractors, consultants, and project managers engaged to work on the Powerhouse site should have appropriate conservation skills, experience, and techniques appropriate to the work or services required, and work within the principles, policies and guidelines established in this CMP.

1.6 For any barriers, fencing or utilities permanently installed by others that are adjacent to, or abutting the site, should be designed to be recessive and should not detract from the design intent of the site.

POLICY 2: RECOGNISING AND PROTECTING HERITAGE SIGNIFICANCE

Background: The former Ultimo Power House has site-specific heritage significance as a major suburban industrial site. It has historic and built heritage elements of exceptional significance to the State of NSW, heritage significance of which must be recognised and protected in its totality, as well as exceptional significance in the broader context of the surrounding Ultimo locality.

2.1 The Powerhouse site should always be considered manifestly connected to and dependent upon the significance and presence of the former Ultimo Power House buildings and the former Ultimo Post Office. The significance of the Powerhouse site as a whole is lead and enhanced by its relation to these State heritage elements.

2.2 The Statements of Significance, Grading of Significant Fabric, and Policies presented within this CMP should be adopted as the basis for the understanding of the significance of the site.

2.3 A Heritage Induction Program based on the policies of the CMP should be developed for all Powerhouse staff at all capacity of employ, to provide education and awareness to all parties working within the site of its cultural significance to avoid unintended heritage impact arising from ignorance.

Actions:
- Develop a heritage induction program for Powerhouse staff.

POLICY 3: STATUTORY OBLIGATIONS

Background: The Powerhouse site should be managed in ways that are consistent with applicable heritage legislative requirements and statutory heritage listings that apply to some of the site buildings. Works required to comply with building code and other legislative requirements should aim to avoid or minimise impacts on the site's heritage significance.

3.1 The Ultimo Power House (SHR 02045) and the Ultimo Post Office (SHR 00502) are listed on the NSW State Heritage Register and the City of Sydney LEP 2012 (LEP I2031 and LEP I2030 respectively) and must be managed in accordance with the statutory requirements of the NSW Heritage Act 1977, and the provisions of the Sydney LEP 2012. This may include the requirement for a Section 60 and/or Section 57(2) Exemption under the Heritage Act, dependent on the nature of works and statutory approval planning process proposed.

3.2 The Water-Cooling System and Manifold and Darling Harbour Rail Corridor (Goods Line) are heritage items listed on the Property NSW Section 170 Heritage and Conservation Register and require management in accordance with the relevant provisions of the NSW Heritage Act 1977.

3.3 It will be necessary to submit the appropriate Development Application (DA) for any proposal which alters a place, be that via an Integrated Development Application (IDA) to the City of Sydney, or a State Significant Development (SSDA) to the Department of Planning (future development approvals pathways will depend on nature and scope of development works proposed). The relevant DA approval body must include the NSW Heritage Council in the approval process.

3.4 A Heritage Impact Statement will likely be required to assess proposed future works to the site with respect to potential impact to heritage significance, and in accordance with the principles of this CMP.

3.5 Works required to achieve compliance with the Building Code of Australia (BCA)/National Construction Code (NCC) 2019 and any subsequent updates to these codes should be undertaken in a manner that does not damage the significance of the site or its heritage listed buildings and significant fabric. Where works are required to significant heritage fabric to achieve WHS/NCC compliance, alternative solutions to minimise heritage impact are encouraged.

POLICY 4: MANAGEMENT OF CHANGE

Background: It is recognised that the Powerhouse site is presently used as a functional museum and includes; offices, exhibition workshop/production area, conservation area, collection storage, retail and creative residency spaces. The Powerhouse will have ongoing requirement for change to support contemporary museum practice, visitor experiences and volume, operational requirements, and infrastructure to support the evolving needs of the site and to remain an internationally relevant museum.

Any decisions for changes should be carefully considered and guided first and foremost by the significance of the place and understanding of impacts of change, as presented in this CMP.

4.1 Decisions for changes to heritage items and/or significant heritage fabric should incorporate appropriate heritage impact analysis in the early planning phase in order to encourage sympathetic design and avoid adverse impact on heritage significance.

4.2 Any change to elements and/or fabric of exceptional or high heritage significance should be carefully considered and adopt a cautionary approach (as much as necessary, as little as possible). Wherever possible, changes to significant items and fabric should select a reversible outcome without damage to significant heritage fabric.

4.3 Any alterations or additions to significant heritage structures and buildings should be minor in nature. Any required additions should be of a materiality and colour scheme commensurate with, but subservient to the heritage fabric. Additions should be sympathetic to the heritage values without attempting to imitate the original form and be readily differentiated from the heritage fabric.

6.2.2 Fabric and Place

Assessment and understanding of heritage fabric and setting in its general context and associated sites contribute to the overall heritage significance and understanding of place, which helps to determine appropriate conservation management policies.

POLICY 5: BUILDINGS AND STRUCTURES

Background: The Powerhouse site contains a number of statutory listed significant built heritage items. Conservation of significant buildings and structures is to be undertaken in a manner that is consistent with the Statements of Significance and Gradings of Significant Components as set out in Section 4 of this CMP.

5.1 Elements of **exceptional** heritage significance should be retained on site and conserved with minimal changes.

Elements of **high** heritage significance should be retained on site and conserved; minor changes may be possible so long as significant fabric and heritage values are retained without adverse impact.

Elements of **moderate** heritage significance have been altered or modified or do not demonstrate a key aspect of significance of the place, however they may contribute to the place's overall heritage significance. Changes to elements of moderate significance is possible, so long as it does not adversely affect values and fabric of exceptional or high significance and is undertaken in accordance with the statutory requirements for the precinct.

Elements of **little** significance do not substantially add to the significance of the place in a positive way, though neither do they detract from its overall significance. Modification/removal/alterations to elements of little significance are possible, so long as it does not adversely affect values and fabric of exceptional or high significance.

Intrusive elements are damaging to the place's overall heritage significance, and should be considered for removal, modification and/or revision.

5.2 The readability and presentation of the interior open space of the Engine House, Turbine Hall, and Boiler House is a significant feature of the former Power House buildings and should be retained.

5.3 Any new insertions within the key heritage items of the former Ultimo Power House (Engine House, Turbine Hall, and Boiler House) should retain and encourage visibility of significant industrial heritage features and elements such as gantry beams and cranes, columns, overhead tracks, etc, and respect the internal scale and sense of space. New elements, if required to be introduced into heritage spaces, should act as stand-alone lightweight elements that can be readily reversed in the future.

POLICY 6: SETTING, CONTEXT AND ASSOCIATED SITES

Background: The Powerhouse site is significant for its heritage listed buildings, locational context, and wider landscape setting, including main street approaches and views. The cultural landscape and aesthetic of the industrial Power House complex should be retained.

6.1 The overall layout of the heritage items across the site, including position and location to each other, is of exceptional significance, representative of the original design layout of the Ultimo Power House, as well as reinforcing the interconnected relationship both between the site's heritage items, as well as the relationship between the site's heritage items and the wider suburb of Ultimo.

6.2 Future works and development should seek to re-establish and enhance, where possible, the physical and visual connection between the heritage buildings on site, including between the former Power House Buildings, The Goods Line and the Ultimo Post Office.

6.3 Opportunities to re-establish the original size contrast and relationship between the Ultimo Post Office and the former Ultimo Power House buildings should be explored where possible.

6.4 Any new uses and development adjacent to (but outside of) the Powerhouse site should be compatible with the wider setting of the site and its heritage buildings. Approval authorities should consider the heritage significance of the setting and context of the Powerhouse site including significant views and vistas (as presented through this CMP), in their consideration of future design and approvals for adjacent works and future development in the immediate vicinity.

POLICY 7: FABRIC

Background: Significant heritage fabric and design integrity should be retained through the conservation of the materiality of the fabric in accordance with its assessed level of significance. The gradings of significant fabric provided for each heritage item in Part C of this CMP should be adopted as the basis for future conservation of significant fabric of the Powerhouse Ultimo site.

7.1 Fabric of **exceptional or high** heritage significance should be retained and conserved.

Fabric of **moderate** heritage significance should be preferentially retained, although sensitive adaption and modification is possible where reasonable justification and rationale is available, or where modification of moderately significant fabric will result in positive outcomes for fabric of higher significance, and/or to the enhancement of the overall heritage values of a heritage item or overall site.

Built fabric of **little** significance can be replaced or removed to enhance heritage values and significance. Any removal of fabric of little significance should ensure that significant fabric is not damaged.

7.4 Intrusive fabric should be removed or modified (or where appropriate replaced with more sympathetically designed elements) to reduce adverse impact to heritage fabric and significance. Removal of intrusive fabric should ensure that fabric of heritage significance is not damaged.

7.5 Demolition of heritage fabric is generally not acceptable, although exceptions may exist in cases where minor demolition of significant fabric will serve as a conservation measure (for example, in the case of deteriorating fabric, the removal of which would prevent surrounding fabric from deteriorating further). However, removal or demolition of significant heritage fabric should generally be considered as a final option, after exploration and exhaustion of all other possibilities.

7.6 Where impact to significant fabric is unavoidable, works should aim to minimise adverse heritage impact as much as possible.

7.7 Unsympathetic modern additions/fabric should be considered for removal, relocation, revision and/or replacement with fabric and form, to be more sympathetic to the heritage values of the site.

7.8 Alterations to existing fabric should seek to remove and replace intrusive elements with those that will have a neutral impact or positive contribution to the cultural significance of the Powerhouse Ultimo Site.

POLICY 8: ABORIGINAL CULTURAL HERITAGE

Background: Policies relating to Aboriginal Cultural Heritage for the site will be developed in consultation with Aboriginal community stakeholders, which it is understood by Curio to be an ongoing responsibility of Powerhouse Museum and Department of Enterprise, Investment and Trade (Create NSW).

The following draft Aboriginal Cultural heritage policies have been developed in collaboration with the Powerhouse Director, First Nations and informed by feedback received at the March 21 community consultation session.

We understand that these policies will be further developed by the Powerhouse and Department of Enterprise, Investment and Trade (Create NSW) in consultation with Aboriginal community stakeholders.

8.1 Aboriginal stakeholders for the site will be identified and consulted with in order to identify the Aboriginal cultural heritage values associated with the site, from which these management policies will be further developed. Once identified, the Aboriginal stakeholders will be consulted with for any future site works or initiatives relating to Aboriginal cultural heritage and significance.

8.2 Any development planning process for the Powerhouse Ultimo site will include consultation with the Aboriginal community and the preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR), which will be prepared in consultation with nominated Registered Aboriginal Parties (RAPs). Aboriginal community consultation and report preparation will be undertaken in accordance with all relevant statutory guidelines.

8.3 Protocols will be developed for ongoing Aboriginal community engagement and consultation as part of the ongoing management of the Powerhouse site. These protocols will be reviewed regularly to ensure relevancy.

8.4 The Museum should maintain their appointment of a Director, First Nations and a First Nations team to develop and guide Museum policy and practice.

8.5 Any development planning process for the Powerhouse Ultimo site will include the preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR), required to be prepared in consultation with nominated Registered Aboriginal Parties (RAPs). Aboriginal community consultation and report preparation will be undertaken in accordance with all relevant statutory guidelines.

POLICY 9: HISTORICAL ARCHAEOLOGY

Background: The Powerhouse Ultimo site has potential to retain a historical archaeological resource potentially of local and/or State significance, which requires management in accordance with the provisions of the NSW Heritage Act 1977, and all relevant best practice guidelines for historical archaeology.

9.1 An archaeological management plan should be developed for the Powerhouse site to further delineate archaeological potential across the site and allow upfront planning of any future development at the site in consideration of archaeological constraints.

9.2 Any future works requiring excavation and/or below ground impacts should be proceeded by a historical archaeological assessment, specific to the location and nature of the proposed impact.

9.3 Where archaeological assessment determines that archaeological investigation of a potential historical archaeological resource is required within the Powerhouse site, archaeological investigation should be guided by a Historical Archaeological Research Design (ARD), and will require excavation permits in accordance with the relevant section of the NSW Heritage Act 1977, dependent on the location of the proposed investigation works as follows:

- Within the curtilage of a SHR listing (i.e., Ultimo Power House and Ultimo Post Office)—Section 60 Excavation Permit
- Outside the curtilage of a SHR listing—Section 140 Excavation Permit or Section 139 (4) Exception.

9.4 All historical archaeological excavations undertaken within the site should be carried out under the supervision of an Excavation Director who meets the Heritage NSW criteria for directing archaeological excavations of local and/or State significance (depending on the nature of the potential archaeological resource being investigated).

Action:
- Develop an Archaeological Management Plan

POLICY 10: ABORIGINAL ARCHAEOLOGY

Background: The Powerhouse site has been assessed as having moderate to high potential for Aboriginal archaeological deposits to be present within remnant natural soil profiles, where they remain within the site. Proposed future works that will disturb the ground surface will require further Aboriginal archaeological assessment and subsequent mitigation as required.

10.1 Any future works requiring excavation and/or below ground impacts should be proceeded by an Aboriginal archaeological assessment, specific to the location and nature of the proposed impact, to be prepared in accordance with the provisions of the relevant Heritage NSW statutory guidelines and provisions of the NPW Act.

10.2 Any substantial excavation works proposed for the Powerhouse site are likely to require Aboriginal archaeological test excavation to further investigate and confirm the nature of Aboriginal archaeology. Due to the urban built-up nature of the site and potential for historical archaeology, it is unlikely that Aboriginal archaeological test excavation at the Powerhouse site will be able to proceed under the statutory guidelines "Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales" (DECCW 2010). In this case, an Aboriginal Heritage Impact Permit (AHIP) in accordance with Section 90 of the National Parks and Wildlife Act 1974 will be required to allow Aboriginal archaeological test excavation. Application for an AHIP will require:

- Aboriginal community consultation to be undertaken in accordance with statutory guidelines Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010),
- Preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR); and
- Preparation of an Aboriginal Archaeological Technical Report (ATR), including Archaeological Research Design and Excavation Methodology.

Aboriginal community consultation and report preparation should be undertaken in accordance with all relevant Heritage NSW statutory guidelines.

POLICY 11: MOVEABLE HERITAGE

Background: A small number of moveable heritage items which demonstrated associated provenance with the site were identified in the 1980s development and form a part of the Powerhouse collection.

11.1 Moveable heritage items with provenance to the site curtilage should be retained and conserved as part of the Powerhouse collection, these items are at Appendix F.

11.2 Items of moveable heritage with provenance to the site should be conserved by the Powerhouse in accordance with collection management policies and procedures.

6.2.3 Maintenance and Repair

Ongoing maintenance and repair of site assets to ensure functionality and safety of the site for all users and employees are required, including minor day-to-day activities, as well as larger-scale repairs, restoration or alteration works. Policies have been developed to guide maintenance and repair activities to avoid adverse impact to heritage values and significance through such activities.

POLICY 12: CLEANING, MAINTENANCE AND REPAIR

Background: Heritage buildings and fabric should be maintained appropriately and regularly to avoid irrevocable deterioration.

12.1 A Maintenance and Repair Plan should be developed for the site to conserve heritage fabric (to be based on documented historical evidence and knowledge of the site buildings and history), in accordance with NSW Heritage Division guidelines such as The Maintenance Series 1.1: 'Preparing a maintenance plan', (NSW Heritage Office 2004), available from www.environment.nsw.gov.au/resources/heritagebranch/heritage/maintenance11preparingplan.pdf.

12.2 It is understood that the Powerhouse makes use of management system software for asset registers and to schedule regular preventative maintenance for the site. The Maintenance and Repair Plan for the heritage assets, as developed out of this policy, should be appropriately integrated/coordinated with the Powerhouse's asset management systems and software, to ensure that the existing management systems include information concerning special treatment/management etc appropriate to heritage items and fabric specifically.

12.3 Cleaning, maintenance, and repair should:

- aim to protect fabric from further deterioration and retain the integrity of significant fabric and construction methods as much as possible;
- be consistent with The Burra Charter principles and aim to do 'as much as necessary but as little as possible'—this would include retaining significant fabric where possible rather than replacing elements in full; and
- be undertaken by staff or contractors experienced in working with historic fabric and using appropriate techniques (see Policy 1 Best Practice Heritage Management 1.5).

12.4 Appropriate traditional techniques and materials should be used for any repair works required to significant fabric, appropriate to the nature, historical period and form of the fabric requiring repair.

12.5 Adequate funding and other necessary resources should be incorporated into annual budgets for the site for ongoing cleaning, maintenance, and repair.

12.6 Regular inspections of building elements at particular risk of deterioration and decay should be undertaken, particularly timber, corrugated iron, and similar materials at high risk of weathering.

12.7 Regular inspections of heritage fabric of moderate significance and above (identified in Part C of this CMP) should be undertaken to manage and avoid future deterioration of heritage fabric.

12.8 Regular inspections of the condition of the Water-Cooling System and Manifold within the Powerhouse site (i.e., in the basement of the Turbine Hall) should be undertaken by an appropriately qualified and experienced Structural Engineer.

Actions:

- Develop and implement a Maintenance and Repair Plan.
- Identify an appropriately qualified Structural Engineer to undertake regular inspections of the Water-Cooling System and Manifold heritage item.

POLICY 13: MATERIALS, TREATMENTS AND TECHNIQUES

Background: Management, conservation, restoration and repair of heritage elements and fabric requires the application of specialist treatments, trades, materials, and knowledge. Colour schemes and treatments should be sympathetic to the heritage significance and values of the site.

13.1 Any efforts made to restore or reconstruct damaged or missing elements of significant heritage items (if possible and appropriate) should ensure historical evidence is sufficient to identify that replacement is appropriate and/or historically accurate.

13.2 Any alterations to heritage items should use appropriate materials and finishes, to be commensurate with, but not in imitation of, the original materiality of the building.

13.3 All face brickwork must remain unpainted.

13.4 Modern paint treatments of heritage fabric should be reversible.

POLICY 14: SERVICES, FACILITIES AND AMENITIES

Background: Heritage buildings were not constructed with the capacity for the modern services that are now required. Installation of new services (including technical, electrical, data, etc.), facilities and amenities specific to site function require particular attention and detail to avoid impact to heritage significance and fabric.

14.1 Installation of new services must be neat, unobtrusive, and concealed (as best possible) and respond to the existing environment within which installation is required.

14.2 Installation of new services and equipment should be carried out in a manner that avoids or greatly minimises damage or impact to heritage fabric.

14.3 Installation of new services should be reversible without damage or adverse impact to heritage fabric or significance.

14.4 Penetrations required for new services in significant fabric should utilise existing penetrations where possible.

14.5 Installation of new services shall be appropriately documented including annotated photographs.

14.6 Where possible, works undertaken for maintenance, repair and upgrade of existing services will seek to 'make good' of any previously installed services or elements that are intrusive to heritage fabric or significance.

14.7 Any potential future lift access required for the Powerhouse should carefully consider appropriate locations and avoid adverse impact to heritage fabric or view lines.

14.8 The North Annex has full smoke and thermal detection. Options to further enhance fire protection should be investigated.

6.2.4 Site Utilisation, New Work and Security

The following policies have been developed to guide the ongoing use of the site, including new work and strategic planning, to ensure heritage significance, values, and fabric can be conserved in the future. Proposals for change and future use within the site curtilage should ensure that the significant heritage values of the Powerhouse site are not unduly impacted.

POLICY 15: COMPATIBLE USE

Background: Compatible use should always respect the heritage significance of the site and its heritage items, avoiding adverse impacts and continue to allow the site's history and heritage values to be easily understood with little or minimal impact on significance.

15.1 The primary cultural significance of the site relates to the historical development of the Ultimo Power House and Ultimo Post Office.

15.2 Visual and pedestrian connections to the Ultimo Post Office and the former Ultimo Power House buildings should be retained (those existing) or developed, to enhance the significance of the historical connection between the two sites.

15.3 Future uses with substantial structural, special or services requirements that would have an adverse impact on the heritage significance of the site are unacceptable.

15.4 Any activity in the open spaces of the former Power House buildings (i.e. particularly the Engine House, Turbine Hall , and Boiler House) that would require closing in the open roof plan (i.e. such as a false ceiling), covering and/or impacts to the trusses, gantry crane and columns, would have a detrimental visual and physical impact on the significance of the building and would not be compatible or consistent with the remnant significant fabric and space. Should light, sound, and division of spatial volumes be required, then no permanent visual or physical obstructions that obstruct views to the chimneys, windows, walls and/or roof trusses should be applied.

15.5 Future management of the site should include consideration of opportunities to re-incorporate the Harwood Building into the wider use of the Powerhouse site.

POLICY 16: ADAPTIVE REUSE

Background: If significant site structures or buildings are unable to be retained for operational purposes, Powerhouse should ensure that they are adaptively reused for a compatible purpose, sympathetic to the cultural significance of the site and structure, to ensure the future conservation of these heritage items.

16.1 Adaptive re-use of heritage items should make use of design elements and techniques that are lightweight, fully reversible, and commensurate with the heritage character and style of the heritage item.

16.2 Future use of the heritage spaces should aim to reinstate the original spatial volume and visual sightlines to the full height of the columns, the overhead gantry cranes, overhead gantry tracks and associated remnant industrial fabric of the Power House buildings.

16.3 Adaptive reuse of the Ultimo Post Office that would allow restoration of public access to this State Significant building is recommended, such as space for programming or retail.

Actions:
- Develop an Adaptive Reuse Strategy

POLICY 17: CHANGE OF USE OR OCCUPIER

Background: Flexibility is required to ensure heritage significance is acknowledged and managed appropriately at the site, regardless of the change in use, owner, or occupier.

17.1 Any change of use should be sympathetic to the history and built form of the site and be in consideration of the heritage significance of the site.

17.2 Regardless of the change in use, all elements within the Powerhouse site curtilage will remain subject to the policies of this CMP.

17.3 All parties must acknowledge the significance, opportunities, constraints, and policies relating to heritage conservation of the Powerhouse site as established through this CMP.

POLICY 18: SITE ACCESS

Background: Future improvements and changes to site access to the Powerhouse site may be required over time to meet operational requirements increasing site user volume. Such improvements and changes are encouraged to consider options and solutions that would have positive and/or neutral heritage outcomes for the site.

18.1 New site access and circulation routes should look to utilise traditional and existing routes as a priority over introducing new access locations, where feasible. New access paths should avoid making additional penetrations in heritage fabric as far as practicable.

18.2 Existing site entrances should be revised to be more sympathetic to the heritage significance of the site, including but not limited to the removal of elements unsympathetic to the heritage significance of the site.

18.3 Potential appropriate new site access routes may include the lower-level space between the Switch House and the Wran Building beneath the Harris Street forecourt, and enhancement of access routes from the eastern side of the site.

POLICY 19: NEW WORK AND DEVELOPMENT

Background: New work should be readily identifiable, but also sympathetic to the heritage character setting and fabric, to ensure the heritage values and significance of the item and place is retained.

19.1 Any new work and development should not detract from the heritage significance of the place, including heritage items, fabric, and significant views and vistas both intra and inter-site.

19.2 An assessment of heritage impact should accompany any significant works proposed within the site curtilage in accordance with the relevant statutory guidelines. Heritage Impact assessments should be commensurate with the level of works proposed and specific to the proposed activities. Heritage impact should be assessed in accordance with the policies and gradings of significance as presented within this CMP.

19.3 All new work is to be of high design standards, meeting for design excellence, using quality materials and applying best design practice for heritage development as outlined in appropriate current best practice documents including but not limited to 'Better Placed, Design Guide for Heritage' (GANSW) and 'Design in Context; Guidelines for Infill Development in the Historic Environment' (NSW Heritage Division).

19.4 Any new work and development should consider Lionel Glendenning's Powerhouse Design Principles in the context of contemporary Museum practice.

19.5 New work should employ appropriate design, techniques, and colour palettes that are sympathetic to and commensurate with the heritage values of the site.

19.6 New work should prioritise exploration of options that would enhance or improve the visual connection between the state significant elements (e.g., improve the relationship between the Ultimo Post Office and former Power House Buildings)

POLICY 20: SECURITY

Background: Required security elements should be as unobtrusive to heritage values as possible.

20.1 Physical security measures should be visually and physically recessive, installed in a way to have minimal detraction from heritage values and character.

20.2 Any damage or impact on heritage structures caused by vandalism or graffiti should be addressed and repaired promptly.

20.3 Where temporary security measures are required within the curtilage to prevent unauthorised access to locations or unoccupied structures, a Heritage Specialist should be consulted to avoid irreversible impact on heritage fabric.

20.4 The visually intrusive security gates (green and red painted lattice) located to the east and west of the Ultimo Post Office are recommended for removal and replacement (and/or revision) with an element that is more sympathetic to the heritage setting and values of this State significant heritage item.

POLICY 21: BUILDING STANDARDS, HAZARDOUS MATERIALS & SAFETY

Background: Heritage values and conservation of significant fabric needs to be considered in the context of current building standards and safety, including any presence of hazardous materials on site.

21.1 Any hazardous materials on-site, including ceiling dust, lead-based paint, and asbestos should be identified, documented, monitored, and made safe or removed if appropriate. Any hazardous materials that have been identified should be included on the relevant registers e.g., Museum of Applied Arts and Sciences Hazardous Chemical -Dangerous Goods Register 2018.

21.2 The 2018 *Museum of Applied Arts and Sciences Hazardous Chemical -Dangerous Goods Register* should be reviewed annually.

21.3 An Asbestos Survey and update of the Powerhouse Museum Asbestos Register should occur every 5 years. The current version is Hibbs & Associates Powerhouse Museum Asbestos Survey February 2021.

Actions:
- Update the 2018 *Museum of Applied Arts and Sciences Hazardous Chemical -Dangerous Goods Register* to ensure it reflects the current situation.
- Ensure that a schedule is in place for the annual review of the *Museum of Applied Arts and Sciences Hazardous Chemical -Dangerous Goods Register*.
- Ensure that the *Museum of Applied Arts and Sciences Hazardous Chemical -Dangerous Goods Register* are easily accessible within their relevant buildings.

POLICY 22: SIGNAGE, USER INFORMATION AND LIGHTING

Background: Signage, lighting and customer information features should not detract from the heritage significance of the site. Signage and lighting should enhance heritage significance wherever possible.

22.1 Any original and early signage and lighting of heritage significance should be retained. If retention and ongoing use of any original signage and lighting elements are found to be no longer feasible, consideration should be given to adaptation of the elements for use as interpretative features/elements.

22.2 New signage or lighting should avoid fixture directly to heritage fabric of exceptional and high significance.

22.3 Architectural lighting applied across the precinct should be unobtrusive, unless part of a temporary exhibition, installation or event.

22.4 Wayfinding and signage should be minimal in detail and not detract from the heritage fabric, unless part of a temporary exhibition, installation or event.

22.5 Any new development should consider designing legible wayfinding and circulation into the architecture of the spaces.

6.2.5 Application of this CMP

This CMP has been developed to provide a functional framework for application by the Powerhouse to ensure the ongoing conservation and celebration of the significant heritage values of the Powerhouse site, in the context of the site's operational requirements, as one of Sydney's most important industrial heritage sites.

POLICY 23: RECORDS AND DOCUMENTATION

Background: Parties responsible for the management of the Powerhouse Ultimo site must have access to relevant records and documentation necessary to understand the significance of place and conservation policies. Compliance with all heritage and statutory requirements relevant to the site including this CMP, requires documentation as part of best practice heritage management.

23.1 A copy of this CMP is to be retained on-site and digitally for daily access and reference. In particular, the CMP should be made available to site staff responsible for day-to-day management. The individual building/element sections of this CMP (Part C) should be easily accessible for all staff and site contractors as required.

23.2 The final CMP should be made available and distributed to City of Sydney Library, Heritage NSW and the State Archives and Records Authority NSW.

23.3 Adequate and appropriate archival recording in accordance with the following Heritage NSW guidelines should be undertaken for any proposed works that will alter the structure and appearance of an item or fabric of heritage significance or that will significantly alter the overall presentation of the Powerhouse site, particularly works that will present unavoidable changes to significant elements, spaces or fabric. Guidelines include:

- Photographic Recording of Heritage Items Using Digital Film Capture (revised 2006);
- How to Prepare Archival Recordings of Heritage Items (revised 1998); and
- Maintenance series 1.2: Documenting Maintenance and Repair.

23.4 All works are required to be documented in accordance with Powerhouse policy and procedure. Any works that will alter the structure and appearance of any item of heritage fabric of heritage significance must also follow this documentation procedure in consultation with a Heritage Specialist.

Actions:
- Identify appropriate location(s) on site and online for this CMP to be located for ease of access and utilisation.
- Distribute copies of this CMP (once finalised) to relevant stakeholders as listed in the above policy.

POLICY 24: REVIEW OF THIS CMP

Background: This CMP should be reviewed to ensure up-to-date heritage values and condition are appropriately documented and conserved, as well as in accordance with any future legislative changes.

24.1 Review and update of this CMP is recommended to be undertaken every five years to ensure up-to-date heritage values and condition are properly documented and conserved, as well as in accordance with any future legislative changes.

24.2 Should major modifications be undertaken to the Powerhouse site, particularly those including extensive changes or impact to heritage values, this CMP should be reviewed once the major changes have been completed, regardless of the time frame since endorsement (i.e., prior to the recommended five-year interval)

POLICY 25: EXPERIENCE, SKILLS AND CO-ORDINATION

Background: Skilled professionals should be engaged to advise on, document, and implement any conservation and upgrade works as necessary to conserve significant heritage fabric and values

25.1 Ensure appropriately qualified and experienced personnel, consultants and contractors are engaged in the assessment of any works at the Powerhouse site that may impact heritage significance. This may include, but is not limited to, conservation architects, archaeologists, heritage landscape specialists, structural engineers, heritage and interpretation specialists.

25.2 Any works that require intervention to heritage fabric should be undertaken only by tradespeople with the relevant skills and demonstrated experience working on heritage sites.

25.3 New services and equipment should be installed by specialist tradespeople with practical experience in conservation and restoration of similar structures, materials and methods.

25.4 Proposed heritage conservation works should make use of all available expertise and knowledge and adopt an evidence-based approach to materials conservation.

POLICY 26: INTERPRETATION AND EDUCATION

Background: The history and significance of the Powerhouse Ultimo Site should be publicly communicated through programmatic interpretation.

26.1 A Heritage Interpretation Strategy should be developed for the Powerhouse site, as part of any renewal program.

26.2 Should future management or development works within the Powerhouse site include significant impact or demolition of any heritage elements and original fabric, it is important that these elements be appropriately interpreted in order to offset any heritage impact introduced by impact.

26.3 Effective interpretation should be employed to communicate the history of the site and the heritage buildings within the site. The history of the individual heritage items elements as well as the overall history of the site is important and should be interpreted to encourage public appreciation of the site both as the Powerhouse Museum, as well as the former Ultimo Power House.

26.4 Future interpretation initiatives should capture all intangible values and social significance of the site.

26.5 Key locations on site appropriate for focusing of heritage interpretation initiatives include the Pump House, Ultimo Post Office, and the Switch House.

Actions:
- Develop a Heritage Interpretation Strategy

6.2.6 Site-Specific Exemptions

Site-specific exemptions relate to a specific individual heritage item listed on the SHR (as opposed to the list of Standard Exemptions that apply to all SHR listings, that allow select work to be exempt from the requirement for a Section 60 application under the NSW Heritage Act 1977).

Site-specific exemptions can only apply to works that have no potential to affect the heritage item materiality and must be identified specifically as exemptions within a CMP for a SHR heritage item, endorsed by the NSW Heritage Council.

The Powerhouse intend to seek Standard Exemptions as set out under Section 57 (2) of the Heritage Act 1997 (NSW) for items including, but not limited to:

Powerhouse Program
- Installation of, and alterations to temporary or lightweight partitions to create spaces for exhibitions, programs, installations and events.
- Minor works such as the installation of hanging, staging, and lighting systems for the display of exhibitions, events, and other program activities.

Special Events
- Installation of temporary and reversible structures for the operation of special events, programs and activities.

Signage and Wayfinding
- Installation of new interpretation and/or wayfinding signage or relocation of interpretive and/or wayfinding signs.
- Replacement of non-illuminated external signs and decorations, such as flags, rigging, banners, merchandising, holiday livery and associated decorations where the size, scale and impact of the new items is the same or does not exceed that being replaced and providing that the signs and decoration are not elements remaining from the significant periods of the site's history.
- Removal of non-illuminated external signs and decorations, such as flags, rigging, banners, merchandising, and associated decorations where the size, scale and impact of the new items is the same or does not exceed that being replaced and providing that the signs and decoration are not elements remaining from the significant periods of the site's history.

Conservation and Maintenance
- Installation of temporary hoardings (up to 12 months) and scaffolding associated with maintenance or conservation of facades, roof, windows, plumbing, drainage where no physical impact to heritage occurs.

6.3 APPROACH TO IMPLEMENTATION

Specific action-based policies for the Powerhouse site have been extracted and identified directly below the relevant policies in Section 6.2 above. It is recommended that each of these action-based policies be assigned a priority level timeframe as well as a responsible party for implementation. The assignment of priority and timeframe for implementation should be assessed based on the level of risk each relevant policy presents to the heritage values of the site, as well as in consultation with the Powerhouse to ensure implementation of policies is reasonable and attainable.

Adoption of an implementation approach such as this will ensure that this CMP will be able to function as a practical and applicable document for the Powerhouse in their ongoing conservation management of the site and provide a link between documented policy and workplace actions.

Priorities should be defined as being one of the following three categories:

High Key implementation actions of this CMP. Required to be undertaken immediately, due to risk of impact to heritage significance, or for the functionality of the site.

Moderate Actions that are important to be undertaken in the near future in order to avoid heritage impact but will not cause heritage impact if not undertaken immediately.

Low Actions that should be undertaken to contribute to the overall conservation of heritage significance and safeguard against potential future impacts, but delay in undertaking these actions will not pose an adverse impact to heritage fabric or values.

Based on the assessment of priority for each strategy, recommended timeframe parameters should then be assigned to encourage and ensure completion of each policy action. Timing has been divided into six categories:

Immediate Urgent works to be undertaken as soon as possible.

Short Term Upon endorsement of CMP. 0-6 months.

Medium Term In a reasonable time. 12-24 months.

Long Term within 5-10 years.

Ongoing Policies that should be maintained/actioned on an ongoing basis.

As Required Action policies that do not have a specific timeframe associated with them due to variance in application.

POWERHOUSE ULTIMO

CONSERVATION MANAGEMENT PLAN 2022

PART C

7 HARWOOD BUILDING

7.1 HISTORY OF THE HARWOOD BUILDING

The Harwood building is situated on part of John Harris' 1806 Ultimo land grant, and on Block 20 of the 1859 subdivision of the Ultimo Estate. The first association of the site with transport commenced in 1871, when the newly formed Sydney [United] Omnibus Company (later known as the Sydney Tramway & Omnibus Company (STOC)[1] constructed stables and a hay shed on Block 20, facing Macarthur Street. The stables were described as:

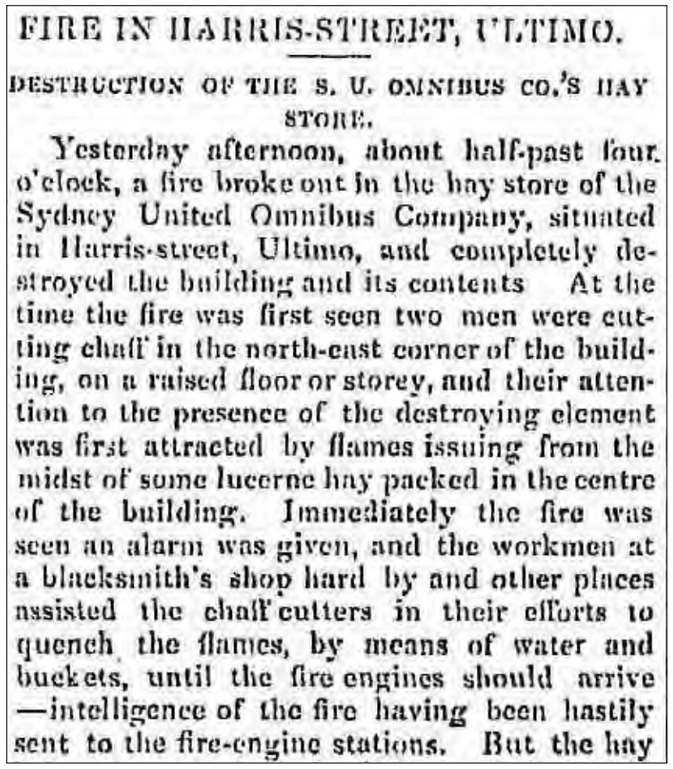
> The building has a substantial framework of wood, with pierced windows for ventilation, and a galvanised corrugated iron roof in three spans, openings being left along each side of the centre bay for the entire length of the building, admitting light, and also assisting ventilation. The floor is simply earth mixed with sawdust, and keeps the feet of the animals cool when they are returned to the stable...there us a loft over the stable which will contain a vast quantity of forage, and the chaff is at present cut by one of Bunele's of Melbourne, patent horse-power cutters. On the frontage of Harris-street, facing Macarthur-street, a hay-shed, capable of holding 500 tons, is in course of erection. It will be constructed of stout wood-work, covered with corrugated iron, and there will be an engine-house at the rear, to cut the provender by steam, while the natural fall of the ground will permit drays to draw and load under the building, and the chaff required for the stables will be run in by lorries. To the right it is proposed to erect a gigantic shed for the omnibuses, which will be ranged as they come in at night, and as they are taken out in the morning.'[2]

The STOC horse-drawn omnibus company provided transport services for most of Sydney's Eastern suburbs, as well as through the city centre and out to Glebe, Forest Lodge, Newtown, Stanmore, Marrickville, St Peters, and the Cook's River. Each bus was usually pulled by two horses, and could seat up to 24 passengers (Figure 7.7). In October 1873 a massive fire broke out at the STOC hay store completely destroying the building. A news report of the event also described a cottage located west of the hay store, and a stable housing 220 horses to the rear, both of which it is assumed survived the fire in the neighbouring building (Figure 7.3 and Figure 7.4).[3] The 1875 Sands Directory records John Free at 374 Harris Street (presumably the same cottage mentioned in the 1873 article), the Sydney United Omnibus Company at 376 Harris Street (visible in an 1878 photo, Figure 7.5), and the farrier, Edward Hanna, at 378 Harris St. By 1883, stables for the City Carrying Company had been constructed at the southern end of the block, while the STOC Stables remained at the northern end, with feed cutting works located between the two stables (Figure 7.6).

Previous Names	Ultimo Tram Depot, Car Sheds, Ultimo Car House
Address	500 Harris Street, Ultimo / Northern corner of Mary Ann St. and Omnibus Lane, Ultimo
Lot & DP	Lot 1 DP216854
Built	1899
Heritage Listings	None
Non-Statutory Listings	Register of the National Estate (Powerhouse Museum (Stage One), Place ID 100691, registered 27/10/1998)
	National Trust of Australia (NSW) Register

Figure 7.1 Harwood Building Location Map (Base Map Source: John Wardle Architects with Curio Projects additions).

Figure 7.2 Harwood Building (Ultimo Tram Depot) (Source: Powerhouse)



FIRE IN HARRIS-STREET, ULTIMO.

DESTRUCTION OF THE S. U. OMNIBUS CO.'S HAY STORE.

Yesterday afternoon, about half-past four o'clock, a fire broke out in the hay store of the Sydney United Omnibus Company, situated in Harris-street, Ultimo, and completely destroyed the building and its contents At the time the fire was first seen two men were cutting chaff in the north-east corner of the building, on a raised floor or storey, and their attention to the presence of the destroying element was first attracted by flames issuing from the midst of some lucerne hay packed in the centre of the building. Immediately the fire was seen an alarm was given, and the workmen at a blacksmith's shop hard by and other places assisted the chaff cutters in their efforts to quench the flames, by means of water and buckets, until the fire engines should arrive —intelligence of the fire having been hastily sent to the fire-engine stations. But the hay

Figure 7.3 'Fire in Harris-Street, Ultimo' (Source: Newcastle Chronicle, 9 October 1873. p. 4)

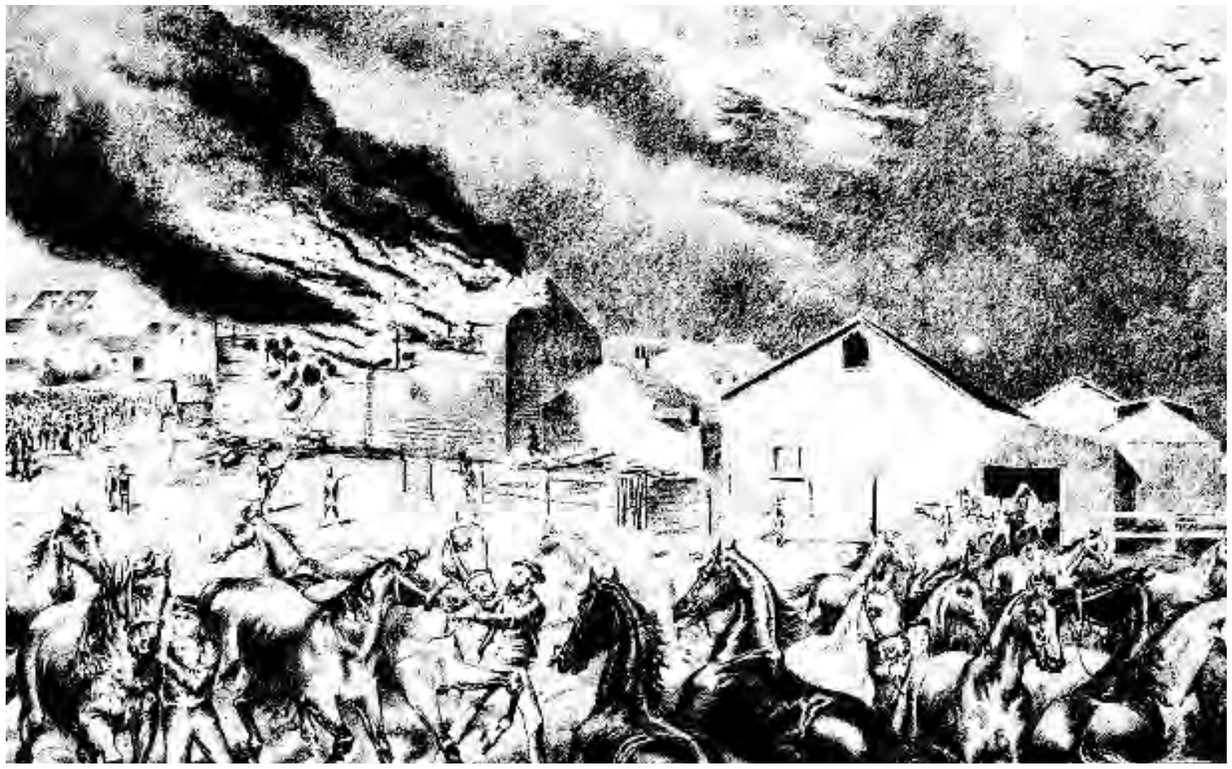


Figure 7.4 'Destruction by Fire of the Sydney United Omnibus Company's Hay Stores and Stables Ultimo' (Source: Illustrated Sydney News and New South Wales Agriculturalist and Grazier, 25 October 1873, p. 5)

Figure 7.5 1878 Photo from Town Hall showing Omnibus Stables (Source: State Library with Curio Outline)

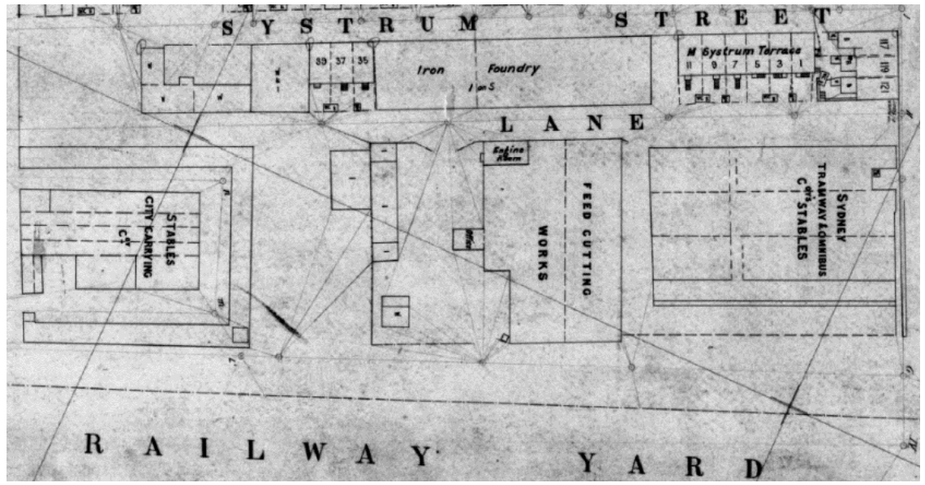


Figure 7.6 Sydney Water plan 1883 showing Sydney Tramway and Omnibus Co. stables in the north of the block, and the City Carrying Co. stables in the south (Source: Sydney Water Plan PWDS 1544-S209)

Figure 7.7 Horse-drawn omnibus, Sydney Tramway and Omnibus Company, Sydney, 1897 (Source: National Library of Australia PIC/15711/5 LOC Box PIC/15711)

GEORGE-STREET AND HARRIS-STREET ELECTRIC TRAMWAY, SYDNEY.
View in Harris-street, showing Permanent-way Construction.

Figure 7.8 1898 Harris St Tramway construction (Legislative Assembly New South Wales, Report of the Department of Public Works Annual Statement 1898, 1899, after p.127.)

Car-house.

The tracks to the car-house entrance, which were supplied by H. W. Peabody & Co., contractors, were manufactured by Wharton & Co., of Philadelphia; these have been placed into position and the work completed, this portion of the work being carried out by day labour.

The contract for the car-house has been let to J. Stewart & Co., contractors, and the work has been completed.

This car-shed, which measures 275 feet by 130 feet, and is all under one roof of the saw-tooth design lighted from the south, has twelve tracks with pits between the rails to enable cleaners and repairers to get at the rolling gear. This building also contains quarters for motor men and conductors. There is accommodation, under cover, for 108 full-sized cars, and the building can be further extended to contain an additional seventy-two cars.

Rolled joists are fixed the full length of the three bays to carry travelling cranes, and both the entrances and back opening are fitted with steel spring-roller shutters.

The contract for the Store and Repairing Shop has been let to Messrs. T. E. Spencer & Co., contractors.

This building, which measures 171½ feet by 43 feet and adjoins the car-house at the rear, has under its roof, also of the saw-tooth design, a store 36 ft. x 40 ft., workshop 90 ft. x 40 ft., armature winding room 30 ft. x 40 ft., drying-room 10 ft. x 40 ft., and a smithy 14 ft. x 40 ft. This work is being carried on with all possible speed by the contractor.

Figure 7.10 Legislative Assembly of NSW, *Report of the Department of Public Works for the year ended 20 June 1899*, 1900, p. 23

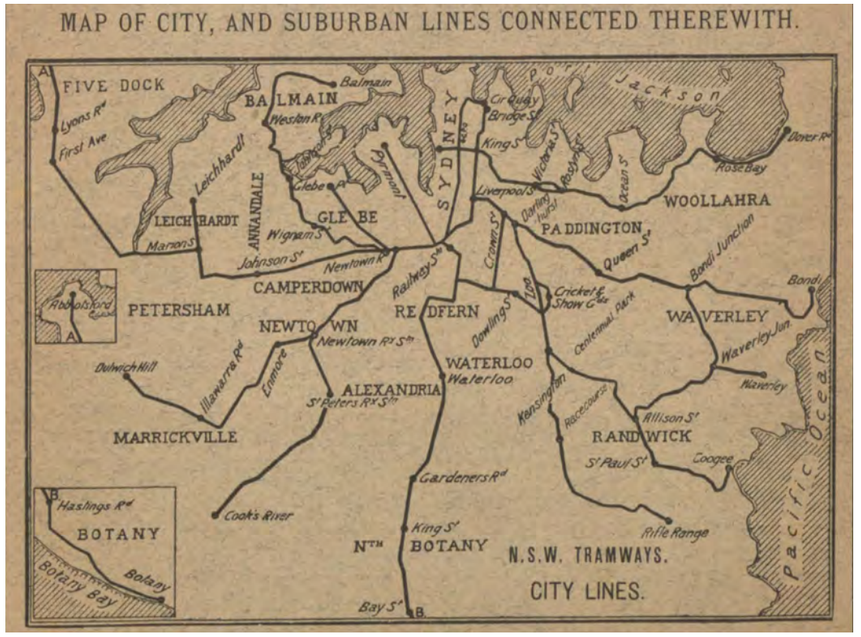


Figure 7.9 Map of Sydney City and Suburban Tramlines 1900 in Tramway guide to Sydney and suburbs (Source: National Library of Australia F13227)

Figure 7.11 Ultimo Tram Sheds 1911, with original nine bays and northern extension (right) (Source: City of Sydney Archives NSCA CRS 51/2568)

In 1895, the Minister for Public Works commenced investigations into construction of an electric tramway between Circular Quay and Pyrmont (George Street to Harris Street), a proposal that was accepted by majority in 1896, and soon followed by general policy to electrify all Sydney's existing tram lines. In 1897, the two blocks of land between Mary Ann and William Henry Streets in Ultimo were resumed for the construction of the Ultimo "Car House", and construction of a new power station large enough to power Sydney's expanding electric tram line. Sketches for the Ultimo Car House, designed to stable the tram fleet to be used on the new Harris to George Street tramline, were approved in 1897[4] and the site prepared for construction, including demolition of the STOC and City Carrying Company stables. The contract for the Ultimo Car House (Tram Depot) was awarded to Stewart & Co of Sydney,[5] and the building constructed between 1898-1899. The Ultimo Power House, on the adjacent block of land to the north between Macarthur and William Henry Streets, was constructed concurrently with the Tram Depot. The Harris and George Street tramline was officially opened on 8 December 1899[6] (Figure 7.8 and Figure 7.9). The Ultimo Tram Depot was not connected to the adjacent Goods Line, but rather was connected to the tram system via tracks along Mary Ann and Harris Street.

Officially opening as an operational depot on 8 December 1899, the Ultimo Tram Depot occupied the whole block bounded by Mary Ann Street in the south, Omnibus Lane to the west, and the Darling Harbour Goods Line to the east, and was the first of the electric tram depots opened for the early 20th century Sydney Tram network. At completion in 1899, the saw-tooth roofed Ultimo Tram Depot measured 275 feet x 130 feet, consisted of nine bays, capable of housing up to 108 trams (Figure 7.10), and was constructed 'of heavy load bearing brick walls with a south lit saw tooth roof of corrugated steel sheeting on lightweight steel trusses, it was typical of those used for similar industrial purposes at the time.'[7] 'Unlike some of the later tram sheds where the brickwork of the walls was continued into a sawtooth shape to support the roof, the Ultimo Tram Depot was constructed with a corrugated iron roof over the brickwork walls. A series of skillion roofed brick offices lined the eastern side of the Tram Depot adjacent to the Goods Line. The southern end of the building was originally constructed with an open design to facilitate tram movement in and out of the building. In 1908 the building was extended to the north by 150 feet[8] (Figure 7.11).

While the overall functionality of the Ultimo Tram Depot was inextricably linked to the neighbouring Power House, both facilities operated completely independently of one another in both staffing and function. While one tram track initially extended north from the Depot and to the Turbine Hall of the adjacent Power House, this connection was removed c.1930, from which time the physical space between the Depot and the Power House was occupied by a massive, 9m high reinforced concrete coal bunker, preventing direct access between the two sites.[9]

By the 1950s, Sydney's electric trams were progressively being phased out in favour of buses, and in 1953 the Sydney Electric Tram network ceased operations (Figure 7.14), with the Ultimo Tram Depot was the first of Sydney's twelve tram depots to be decommissioned. Security barriers were installed along the southern elevation in 1953 as part of the decommissioning and revision of use of the Tram Depot building.[10] Between 1953 and 1956 the Ultimo Depot was used as a non-operational storage shed for around 70 trams prior to their scrapping at the Randwick Tramway Workshops.

Much of the evidence of the building as a tram depot was eradicated between the 1950s and the 1980s:

> Immediately the Transport Department had removed the last trams from the depot, the rails, walkways between the tracks and supporting beams and piers were removed from the building to enable the depot to be used for storage. In addition, access ramps were put in from the depot yard down to the floor of the building to allow road vehicle access.[11]

In the mid-1950s, the rails, walkways, piers and supporting beams were removed and access ramps were added to enhance the storage capacity of the space. The Depot was used for storage in the 1960s by both Brambles Industries Ltd and the Museum of Applied Arts and Sciences.

While the land of the Ultimo Tram Depot was resumed in 1963, with plans were drawn up in 1964 to convert the Ultimo Tram Depot to a Transport Museum, this proposal was first abandoned in 1965 as the Depot was identified as being potentially located within the proposed route of the new Western Distributor.[12] However, when the Freeway plans were finally curtailed in 1977 and avoided the Depot site, the use of the site as a museum was again available for consideration. In 1979 the NSW Government revealed that the Ultimo Power House and Tram Shed would be adapted into to house the Museum of Applied Arts and Sciences, to be known as the Powerhouse Museum.[13] At the time of this announcement, the Tram Shed building was relatively intact as a whole, although partially vandalised.[14]

Stage One of the project included the refurbishment and adaptive reuse of the Ultimo Tram Shed as a temporary public gallery, with conservation and fabrication area and storage space—officially opened by NSW Premier Neville Wran on 4 September 1981 (Figure 7.20 and Figure 7.21). In 1984 the Ultimo Tram Depot was formally renamed the Harwood Building, in honour of Norm Harwood, the former curator of the Museum of Applied Arts and Sciences. A contemporary description of the Harwood building at its time of refurbishment described it as:

> Little changed during its time as the tram depot, this building was almost completely re-constructed for the Museum. A basement was excavated under a new floor at ground level and a new steel structure supports a new roof at a higher level than the old. The saw tooth roof form was retained. A mezzanine level approximately 10 metres wide was constructed along almost the entire length of the east side. On the ground floor are restoration workshops, conservation department, a large photographic studio and facilities for receipt and fumigation of objects. Total floor area available to the Museum is some 12,000m2.[15]

The building was used as a display space until the second stage of the Museum was opened in March 1988 in the former Power House buildings. The exhibits were moved across to the Power House buildings and the Harwood building was converted into conservation labs, office space and collection storage space. In 1995 a mezzanine level was added to the Harwood building for staff from 659 Harris Street.[16] The 1980-81 refurbishment works of the Ultimo Tram Depot included:

- removal of internal columns, saw-tooth roof trusses, purlins and cladding;
- demolition of the internal trackwork, steps and pits;
- demolition of the northern one-third of the length of the entire eastern wall of the building, eastern two-thirds of the north wall, south wall columns and entry doors, and all associated lean-to buildings;
- removal of the tram tracks in the south courtyard;
- raising the southern courtyard by c. 1.2m;
- inserting a modern glass façade to the southern end of the building;
- reconstruction of the northern end of the east wall so that it aligned with the southern end of the wall;
- inserting a large entryway on the northern wall to allow truck access to the Harwood Building and allow the transfer of exhibits through to the former Power House buildings;
- constructing a modern sawtooth roof, referencing the former roof, but with curved ridge and vertical lights
- excavation of a new basement level for services; and
- addition of a new mezzanine floor over a section of the building for storage and offices.[17]

In 2022, the Harwood Building housed the Powerhouse staff offices, library, conservation areas, collection storage, workshops, digital studio, security office and a loading dock (Figure 7.22). In April 2023 the collection relocation and consolidation to Castle Hill will be completed.

Figure 7.12 1903 map showing Ultimo 'Car Shed' (Source: City of Sydney Archives)

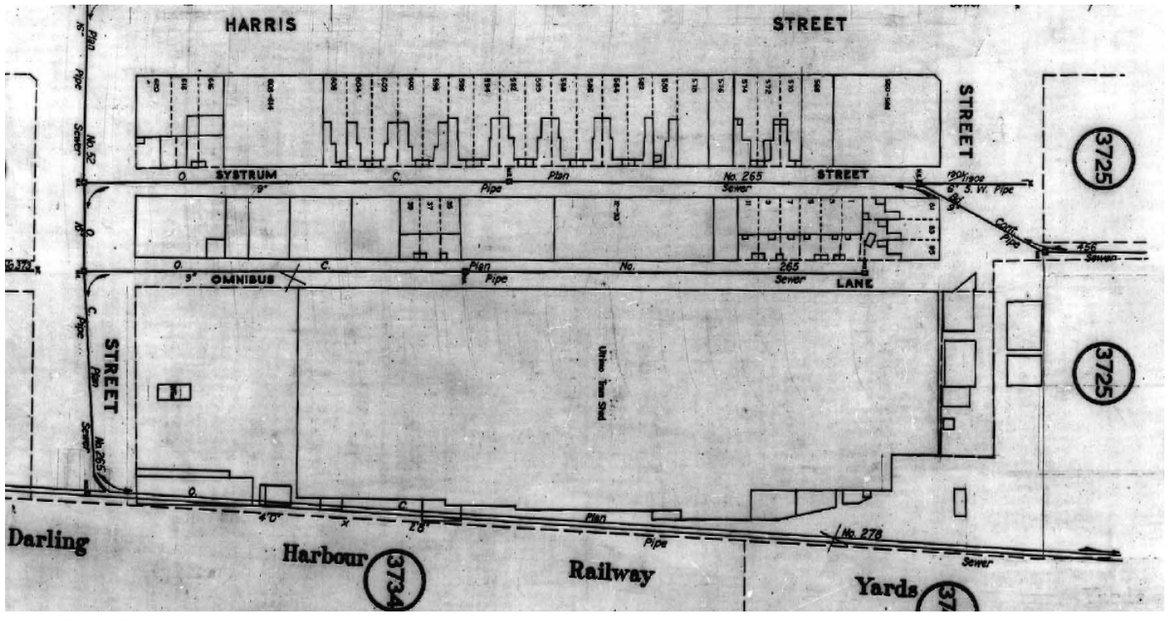


Figure 7.13 c.1963 Sydney Water map showing Ultimo Tram shed, note the zig-zag shape in east, capturing original overall building form including eastern ancillary office buildings DS3723 (Source: Sydney Water)

4 The Sydney Morning Herald, Mon., June 29, 1953

TRAM GOES INTO "MOURNING"

A tram, draped in black crape, made a three-hour trip yesterday afternoon to "mourn" the closing of the Ultimo tram depot on Saturday.

The tram, one of the latest types, was specially hired by the Sydney branch of the Australian Electric Traction Association.

In addition to the black crape, the tram bore at each end "wreaths" made out of purple and green material.

It visited Ultimo, Drummoyne, Rozelle, Balmain, Annandale, Dulwich Hill and Canterbury.

The 80 passengers paid 4/ each for the trip.

The oldest passenger was Mr. J. W. Blumer, 85, of King George's Road, Penshurst, who joined the tramways service in 1900 and started as a fitter at Ultimo depot at £2/17/ a week. Mr. Blumer retired from the department 23 years ago.

The Ultimo tram depot, which had been in use since 1900, closed when the last tram returned to the depot on Saturday. This coincided with the decision to replace trams by buses on the Drummoyne-city service.

Figure 7.14 *The Sydney Morning Herald*, 29 June 1953 p. 4

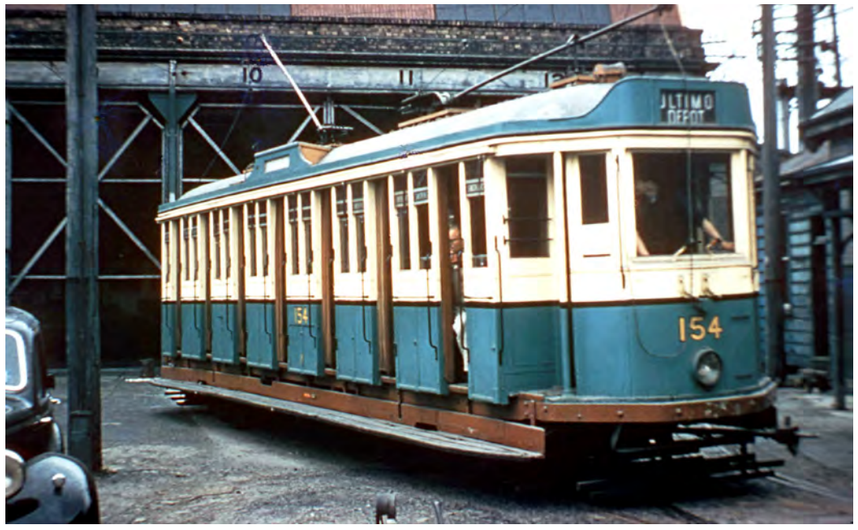


Figure 7.15 Tram 154 in yard outside former Ultimo Tram Depot, 1956 (Source: City of Sydney Archives TRAM00022, CC BY 4.0)

Figure 7.16 Bus 404 in yard outside former Ultimo Tram Depot, 1968 (Source: City of Sydney Archives 00349. CC BY4.0)

Figure 7.17 Aerial view of Ultimo including the Powerhouse Museum development site, c. 1980 (Source: Powerhouse Museum Photo Library ST1-MMN-51-1.jpg)

Figure 7.18 Elevated view of Stage 1 development site, 21 November 1980 (Source: Powerhouse Museum Photo Library ST1D-SMN-16-12A.jpg)

Figure 7.19 Greg Piper, Stage 1 development site with Ultimo Power House in the background, 5 May 1980 (Source: Powerhouse Museum Photo Library ST1D-SMN-46-10A.jpg)

7.2 PHYSICAL ANALYSIS OF HARWOOD

An overall photo register and images of the Harwood Building as at 2020 are presented in Section 7.4.

7.2.1 Site and Setting

The Harwood Building forms part of the Powerhouse site at 500 Harris Street, Ultimo. Within the site, the Harwood Building is located south of the main Power House Buildings, bounded in the south by Mary Ann Street, in the east by the Goods Line, and north by Macarthur Street.

7.2.2 Built Elements

The Harwood Building today is a modern adaption of the former Ultimo Tram Depot. The remnant fabric of the building has been heavily modified, reconstructed and adaptively reused to such an extent that very little original fabric remains intact internally. While the overall external form of the building survived the 1980-81 museum conversion, the original saw tooth roof was replaced with a new steel structure to raise the roof level and new masonry work was added in the same style as original.[18] New masonry is particularly evident along the north and east faces of the building. Refurbishment works in the 1980s also included excavation of a basement, and construction of a new ground floor level.[19] As stated in the 2003 CMP and Godden 2003:

> The Harwood building became a purpose built museum structure, taking the external form of its prior usage, but the architectural acknowledgment is to form only, not the former use of the site, so its heritage value is slight.[20]

Godden (2003) notes that the former Ultimo Tram Depot (Harwood Building) has lost so much of its original fabric that it is no longer immediately recognisable as a tram depot.

> Of the building fabric, only one wall and two half-walls remain unaltered. Of the entrances, tracks, pits and ancillary structures, only sections of the pit side walls and end walls; and short sections of steel tram tracks with sections of sleeper remain in a difficult to access section of the basement beneath the new slab of Stage 1.[21]

> The Harwood Building has undergone far more intervention in its fabric than any other building in the complex. The Harwood Building as a tram depot, is relatively rare, but there are several better-preserved examples in Sydney. The Harwood Building does not have the scale, or architectural complexity of the Powerhouse Buildings. Its assessed significance is slight/moderate and is less than any of the Powerhouse buildings.[22]

At the time of inspection in 2021, the overall condition of the Harwood Building is good, although water damage and plant growth in the sandstone requiring maintenance was noted, as well as several areas with general leaks in the drainage pipes and gutters noted.

Figure 7.20 Harwood Building southern exterior and forecourt, 1987 (Source: Powerhouse Photo Library ST1-SMN-65-37A.jpg)

Figure 7.21 Exhibition Stage 1 (Harwood Building), c. 1985 (Source: Powerhouse Photo Library 00221487.jpg)

Figure 7.22 Harwood Building southern elevation 2020 (Source: Curio Projects)

Figure 7.23 Ultimo Tram Depot and the Darling Harbour Goods Line with Ultimo Power House in background, 1911 (Source: State Archives and Records Authority of NSW NRS-4481-3-[7/15883]-M2446)

Figure 7.24 Ultimo Tram Depot with additions on the East façade, the Goods Line, Pedestrian walkway (Source: JBA 2014 SEE letter to City of Sydney Council)

Figure 7.25 Harwood Building 2020 (Source: Powerhouse)

Figure 7.26 The eastern wall of the Harwood building, original brickwork in blue (Source: Curio Projects)

Figure 7.27 The north east corner of the Harwood building (Source: Powerhouse)

Figure 7.28 The northern wall of the Harwood building, original brickwork around windows in white (Source: Curio Projects)

7.3 HERITAGE SIGNIFICANCE

The Harwood Building is not currently included on any statutory heritage register. A nomination to list the Harwood Building on the NSW SHR was considered by the NSW Heritage Council in September 2020, to which the Heritage Council determined that the Harwood Building does not meet the heritage criteria for State significance and determined to close the SHR nomination, and rather to extend an invitation to City of Sydney Council to consider local listing of the Harwood Building. As part of this SHR nomination process, an assessment of heritage significance of the Harwood Building was prepared by Industrial Heritage Specialist, Tony Brassil,[23] from which the following assessment of significance is predominantly drawn (as indicated in italics).

The Harwood Building is included on two non-statutory registers; the (now defunct) Register of the National Estate (Listing 100691); and the National Trust (NSW) Register (S10611).

7.3.1 Criterion (a)—Historical Significance

Built to service the new electric tram fleet operating in central Sydney, the former Tram Depot at Ultimo is of state historical significance for its association with the replacement of steam trams with electric traction in Sydney in 1899. Ultimo Tram Depot represents the introduction of the new, quiet and safe electric trams that were to become a major public transport facility in Sydney and a part of one of the largest electric tramway networks in the world.

The creation and operation of the Sydney electric tramway system had a significant and lasting impact on the landscape of Sydney, physically and geographically, as well as socially. The location of town centres and of shopping strips along main roads, the shape and route of roads and the location and distribution of types of housing can all be traced to their development as a result of the operation of trams in the vicinity.

Ultimo Tram Depot was the first of the new electric tramsheds erected in NSW and it established the design and layout parameters that were the template for all subsequent tramsheds. It operated as a tram depot for fifty years and was an important public transport facility throughout this time.

Ultimo Tram Depot was erected adjacent to the Ultimo Power House, the proximity illustrating the close association between the electricity generated at the Powerhouse and the trams that were the primary purpose of the powerhouse. Ultimo Tram Depot, with the adjacent powerhouse, demonstrate the scale of government commitment to the then new technology of electricity, at a time prior to its being generally available for public consumption.

The former Tram Depot at Ultimo was the first exhibition space created for the Powerhouse Museum and was the first step in the transition of the old Museum of Applied Arts and Sciences from its Harris St premises into the buildings of the former Ultimo Powerhouse. It has had a long association with the Powerhouse Museum, first as a Stage 1 exhibition hall and then as the primary administration space for the Museum for over twenty years.

7.3.2 Criterion (b)—Associative Significance

The former Tram Depot at Ultimo is significant for its association with railway engineer Henry Deane, a significant contributor to the development of the NSW Railways and the engineer responsible for the development and design of electric tramways in Sydney. Henry Deane was the Chief Engineer for the NSW Railways and Tramways from 1890 – 1905, after which he designed the Wolgan Valley Railway line for the Commonwealth Oil Corporation and was largely responsible for the construction of the Transcontinental railway from Port Augusta to Perth.

7.3.3 Criterion (c)—Aesthetic Significance

The former Tram Depot at Ultimo has aesthetic significance as the original tramshed for the NSW electric tramway system and, as with each of the depot buildings, is a unique design which still contains the essential functional and operation requirements that are common to all of these buildings. Whilst the alterations made to adapt the building to its use as part of the Powerhouse Museum, particularly those to the arrangement of the roof cladding, are notable, they have not changed to essential individuality of the building, nor spoiled its original architectural lines.

7.3.4 Criterion (d)—Social Significance

As a back-of-house facility for the Powerhouse Museum, the former Tram Depot building would have some social value for the many staff members that have been associated with the place since the creation of the Powerhouse Museum in from 1981 at Ultimo. It is unlikely that any of the former tramway system staff are still alive to express their connection to the place, however, the heritage of Sydney Trams is still maintained through organisations such as the Sydney Tramway Museum at Loftus, the Parramatta Park Tramway (now relocated to Valley Heights Loco Depot in the Blue Mountains west of Sydney) and the numerous and continuing publication of books and historic photographs of the former Sydney Tramway system. The continuing social significance of the Sydney Trams is expressed through the recent redevelopment of the Rozelle Tram Depot and its commercial reuse under the banner of “The Tramshed”.

7.3.5 Criterion (e)—Scientific Significance [Research Potential]

Some historical archaeological potential of the former Sydney Omnibus Company and City Carrying Company Stables may be remnant beneath the building and the Mary Ann Street forecourt.

The building itself does not meet the criteria for this criterion.

7.3.6 Criterion (f)—Rarity

The former Tram Depot at Ultimo is significant as the first and the oldest surviving tram depot shed in NSW.

The former Tram Depot at Ultimo is significant as one of only four of the original twelve (thirteen, counting Hamilton in Newcastle) tram depot buildings that survive relatively intact as a whole building.

The former Tram Depot at Ultimo is significant for its close association with the nearby Ultimo Powerhouse, a potent and visible expression of the close relationship between the Powerhouse and the trams for which it was built to supply.

The former Tram Depot at Ultimo is significant for its adaptation and reuse as part of the Powerhouse Museum investment in heritage and the historic culture of the State by a Government in NSW.

7.3.7 Criterion (g)—Representativeness

The former Tram Depot at Ultimo is representative of the layout and arrangement pattern used to design electric tram depots of the NSW tramway system.

The architectural features of the former Tram Depot at Ultimo are representative of the specific architectural features and general treatment used for all subsequent tram depot buildings, with brickwork walls divided into panels by pilasters, segmental arches over openings, projecting cornices at ceiling level and a strong external expression of the saw-tooth roof arrangement.

7.3.8 Statement of Significance

The Ultimo Tram Depot (Harwood Building) is historically significant as the first depot of the electric tramway system in Sydney for which it remained in operation throughout the entirety of the system. The building was associated with the adjacent Ultimo Power House which supplied the electricity for the network. The remaining original fabric provides an example of the Tramway Department’s modular building style, providing the layout for future depots, and is representative of the layout and arrangement of the NSW tramway system’s electric tram depots. The building also has historic significance as one of the first industrial buildings in NSW to be converted for a new use as Stage 1 of the Powerhouse Museum.

Overall, the significance of the Harwood Building is largely associated with its historic use and how it contributed to the Sydney tramway system. Despite its substantial modifications, the long, low building form with the sawtooth roof remains evocative of its original use as a tram depot, and the building retains a visual connection with the Ultimo Power House, that helps to interpret the interconnected operations of the two complexes.

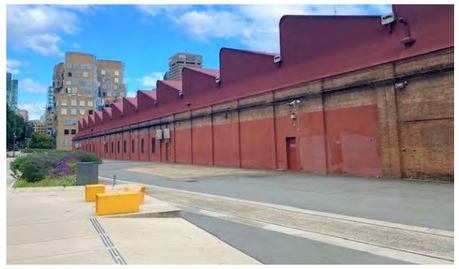
7.3.9 Views

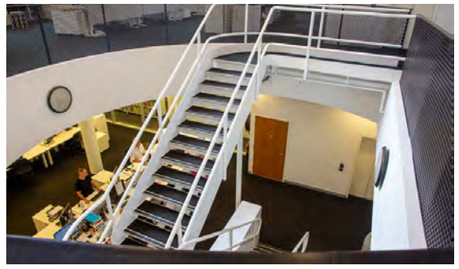
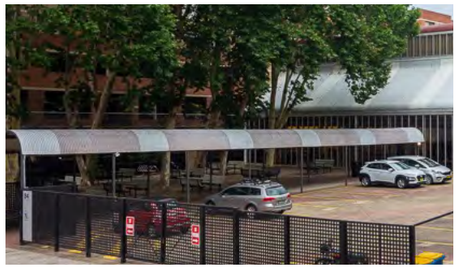
The primary viewlines to the Harwood Building are mostly from the southern and eastern end of the building, such as from Darling Drive, the Goods Line, Mary Ann Street and Macarthur Street. The visual connection between the Harwood Building and the former Ultimo Power House buildings is also of significance in relation to the historical connection between the two buildings, and their irrevocably connected locations. The views of the western façade of the Harwood building have been obscured by the 1990s construction of an apartment block in Omnibus Lane. A narrow walkway exists between the apartments and the western façade of the Harwood Building.

7.3.10 Grading of Significant Components

To assess the significance of the Harwood Building in its entirety, the individual items and elements that compose the fabric and form of the building have been ranked accordance to the Heritage NSW criteria for assessing significance, as summarised in Table 7.1 and depicted in Figure 7.26 to Figure 7.29.

Table 7.1 Grading of Significance for the Harwood Building

ELEMENT	IMAGE	GRADING	NOTES
Roof Finish		● LITTLE	The roof finish is not original, reconstructed during the 1980s refurbishment works.
Roof Structure		● MODERATE	The structure of the roof has a visual significance for its former use as a tram depot, although the fabric is not original.
External Walls (Original)		● HIGH	The external walls on the north, east and west faces of the building retain original brickwork from the 1888 construction to the 1908 extension and have exceptional significance. A section of the north face shows the contrast between the original brickwork and later brickwork.
Windows (Original)		● MODERATE	There are three “original” windows to the north-west of the building, two have been infilled with modern glass, while the third has been bricked over.
External Walls (Modern)		● LITTLE	External walls to the Harwood Building constructed in the 1980s as part of the adaptive reuse of the site for the Powerhouse Museum (i.e. brick infill along the southern elevation) have little significance.
Windows (Modern)		● LITTLE	Modern windows installed in the 1980s as part of the adaptive reuse of the site for the Powerhouse Museum have little significance.

ELEMENT	IMAGE	GRADING	NOTES
Mezzanine		LITTLE	The mezzanine level of the Harwood Building was constructed in 1995 and has little significance.
Stairs		LITTLE	The stairs are a later addition and have little significance.
Retaining Wall		HIGH	The retaining wall from the original 1899 tram shed building is located underground and form a zig-zag pattern.
Internal Walls		HIGH (TBC)	There are painted brick walls evident in the basement of the Harwood building which will require further analysis to clarify if they have any association with the 1899 building or are a more recent addition.
Covered Walkway (Northern)		INTRUSIVE	The modern covered walkway extending from the north of the building impacts the view of the Switch House and Boiler House, and is considered intrusive.
Covered Walkway (Southern)		LITTLE	The covered walkway to the south of the building is of no heritage significance, yet its position does not impact the view lines to the significant elements of the building.
Floor		LITTLE	No evidence of the original floor was found during site visits, further visits may be necessary to clarify

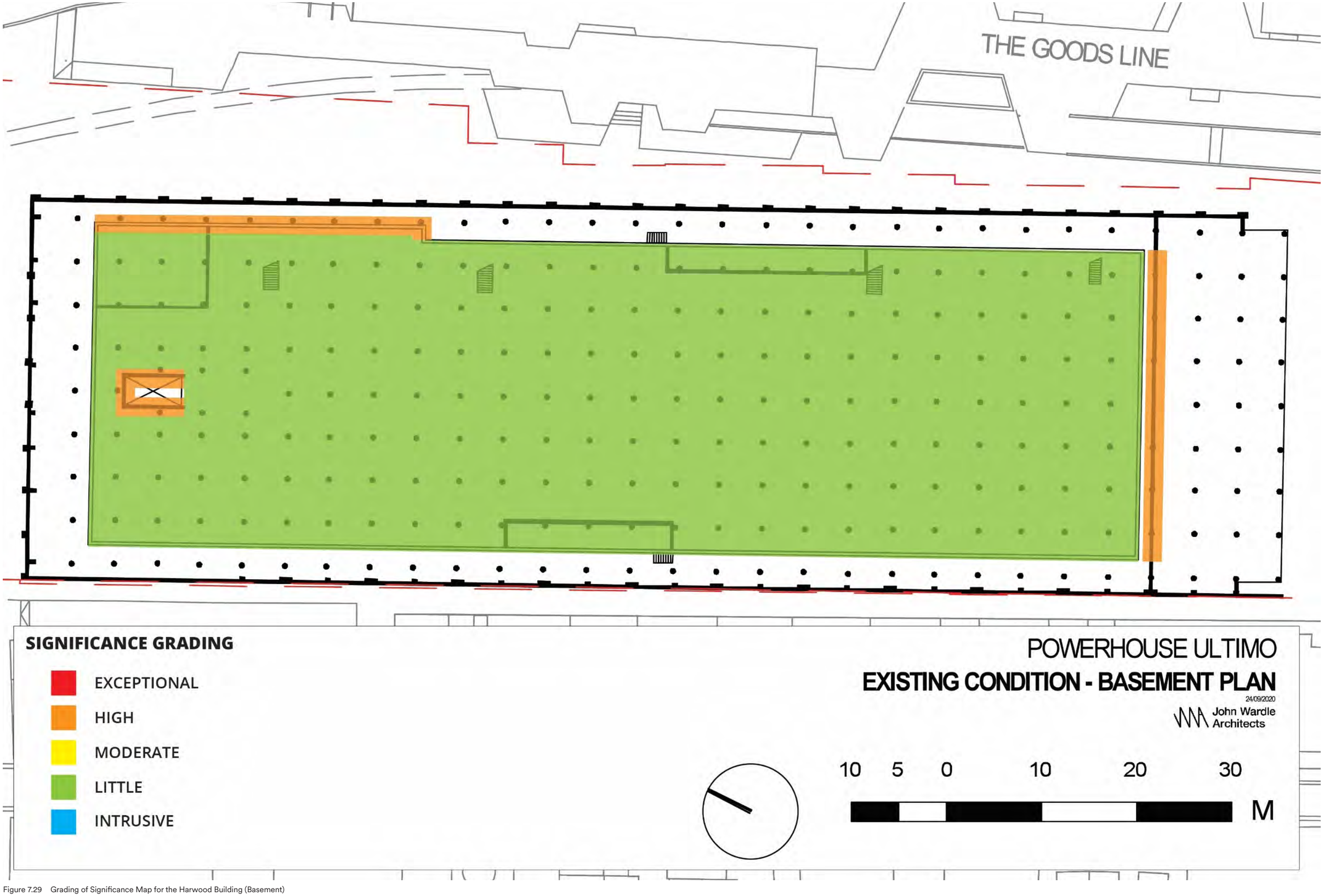


Figure 7.29 Grading of Significance Map for the Harwood Building (Basement)

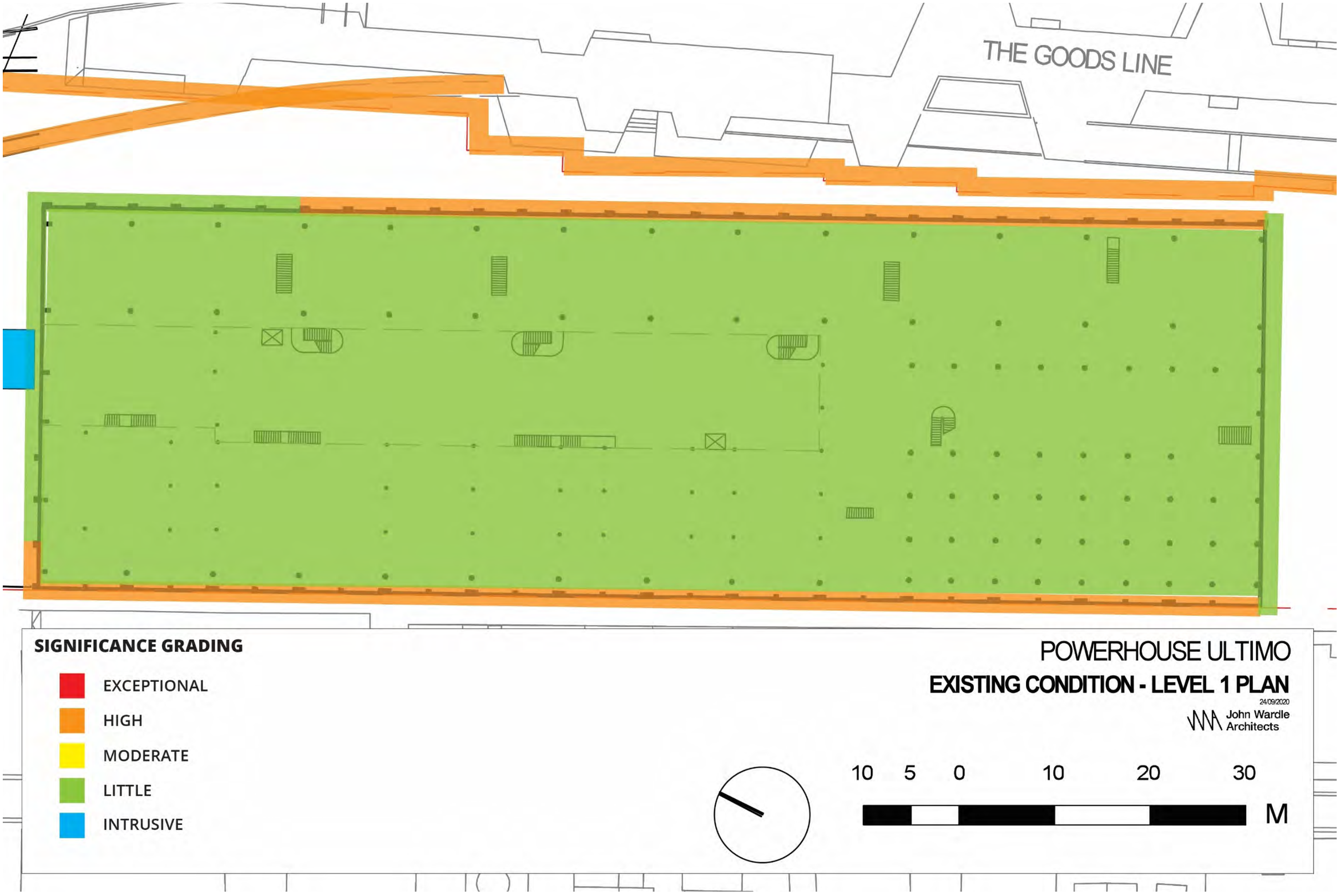


Figure 7.30 Grading of Significance Map for the Harwood Building (Level 1)

Figure 7.31 Grading of Significance Map for the Harwood Building (Level 2)

Figure 7.32 Grading of Significance Map for the Harwood Building (Level 3 - Roof)

7.4 OPPORTUNITIES AND CONSTRAINTS

Opportunities and constraints specific to the Harwood Building include:

Opportunities

- Enhancement of the Harwood building via programmatic interpretation of its history and former use as a tram shed.
- Interpretation of the former site use as both the Sydney United Omnibus Company Stables and the City Carrying Co Stables
- Reconnection of the Harwood Building with the former Power House buildings.
- Space for ongoing museum utilisation and to support the development of a creative industries precinct.

Constraints

- The original fabric of the building should be retained and preserved in any future use of the site.
- The western façade of the Harwood Building requires conservation as there is water damage and plant growth in the sandstone.

As at April 2022, the Harwood Building remains unlisted on any statutory heritage register (and is therefore not technically subject to the protections and requirements under the relevant NSW heritage legislation), and therefore from a statutory perspective, the options for the Harwood Building still remain flexible. However, from a best practice heritage perspective, in accordance with the principles of the Burra Charter and the significance of the Harwood Building as presented within this CMP, the retention of the Harwood Building with the site is preferable, ideally incorporated into the wider Museum use of the site and/or adaptive re-use for another compatible use.

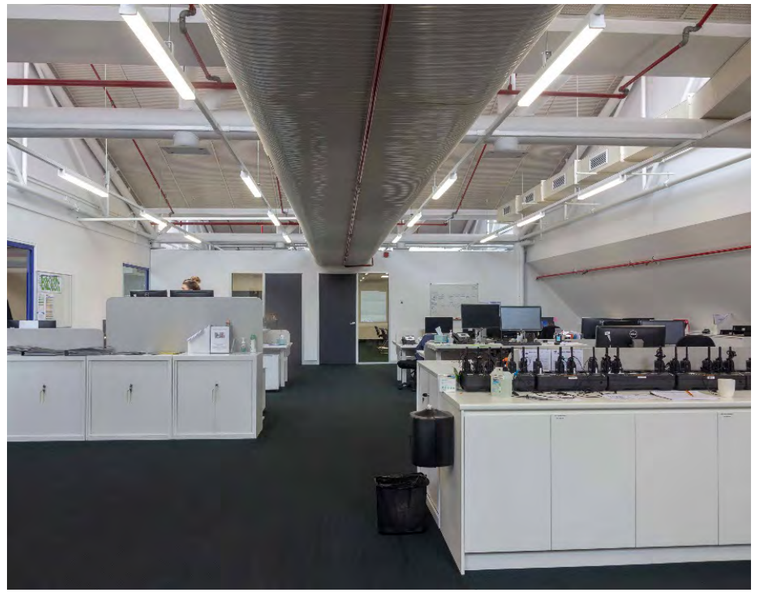
7.5 ITEM-SPECIFIC CONSERVATION POLICIES

Policy 15—Compatible Use: Future management of the Ultimo site should include consideration of opportunities to re-incorporate the Harwood Building into the wider use of the Powerhouse Ultimo site, and/or for another compatible use.

7.6 PHOTO REGISTER FOR THE HARWOOD BUILDING

Figure 7.33 Harwood Building Photo Register (Level 2)

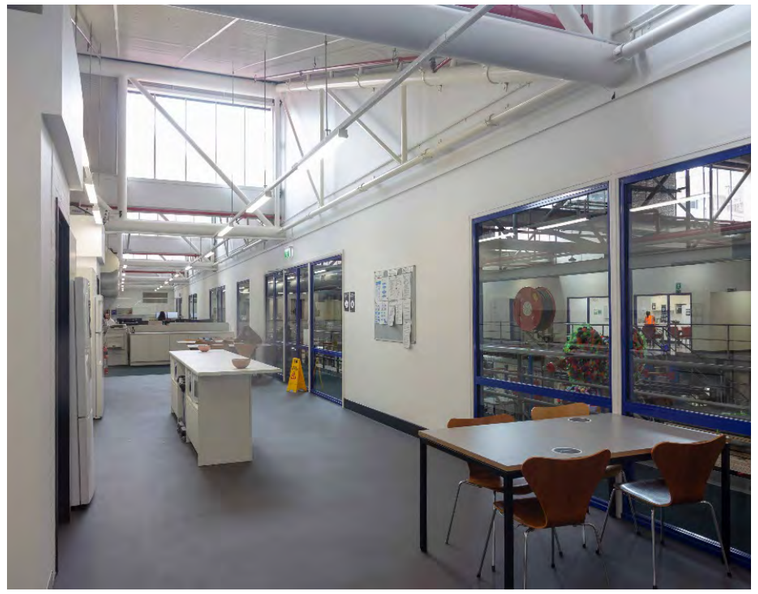
Harwood Viewpoint 1: Interior, Level 2



Harwood Viewpoint 2: Interior, Level 2

Harwood Viewpoint 3: Interior, Level 2

Harwood Viewpoint 4: Interior, Level 2

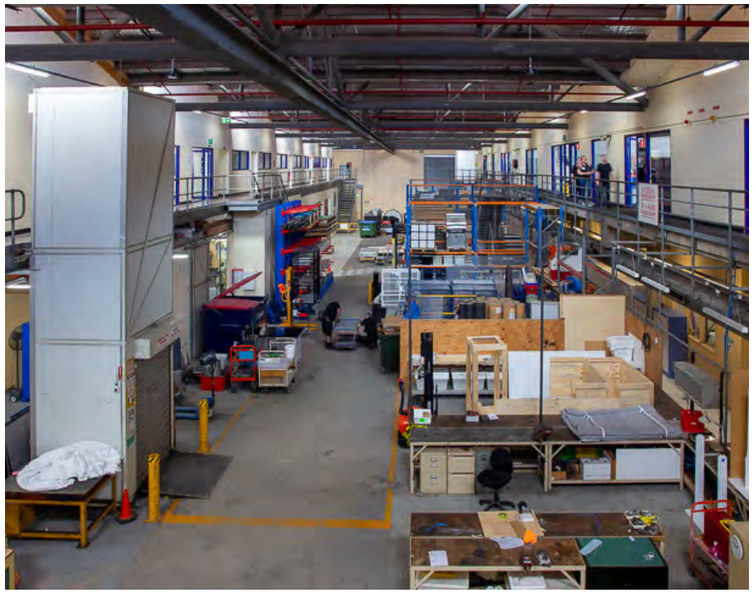


Harwood Viewpoint 5: Interior, Level 2

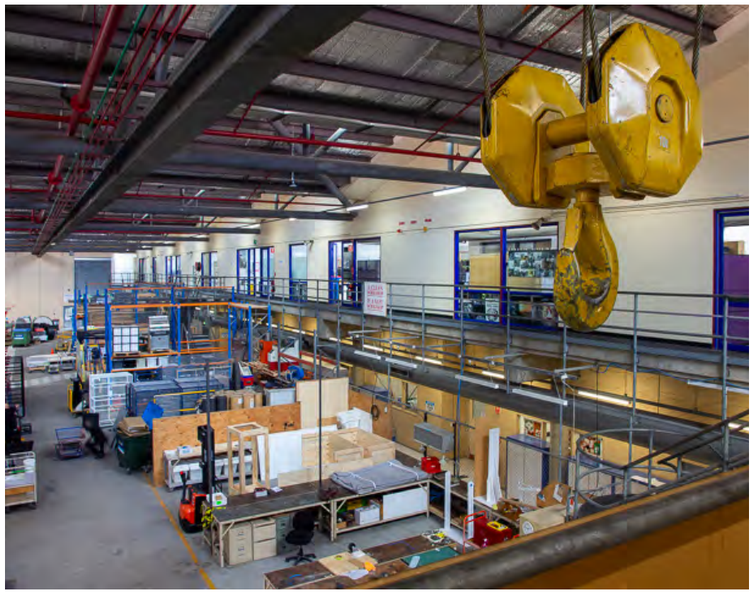
Harwood Viewpoint 6: Interior, Level 2

Harwood Viewpoint 7: Interior, Level 2

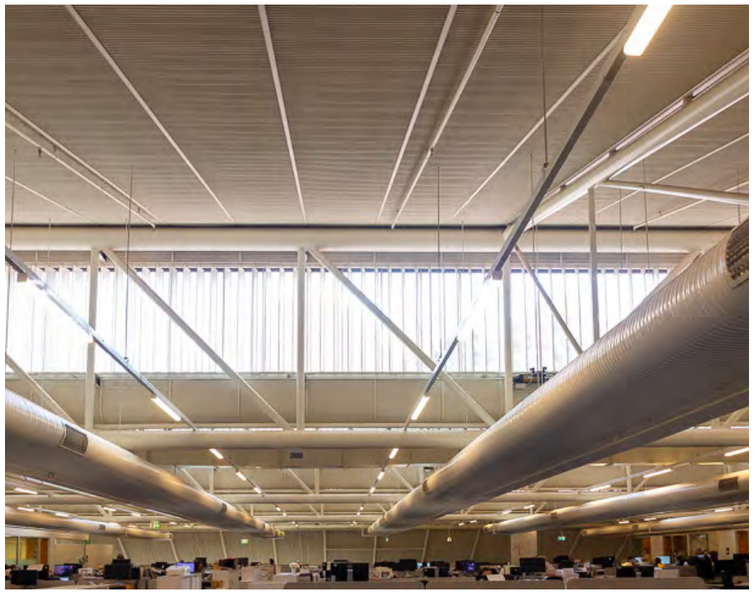
Harwood Viewpoint 8: Interior, Level 2



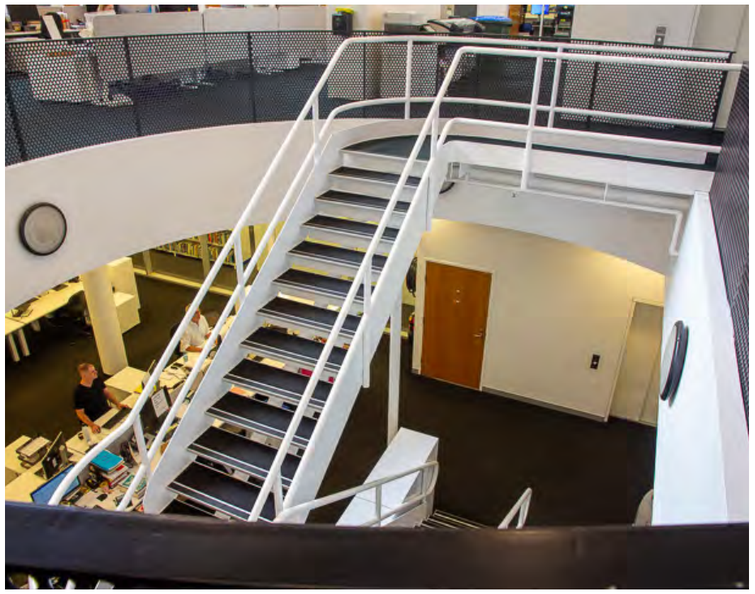
Harwood Viewpoint 9: Interior, Level 2



Harwood Viewpoint 10: Interior, Level 2

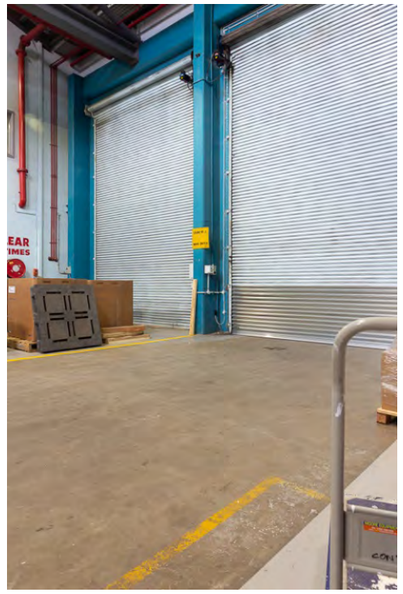


Harwood Viewpoint 11: Interior, Level 2



Harwood Viewpoint 12: Interior, Level 2

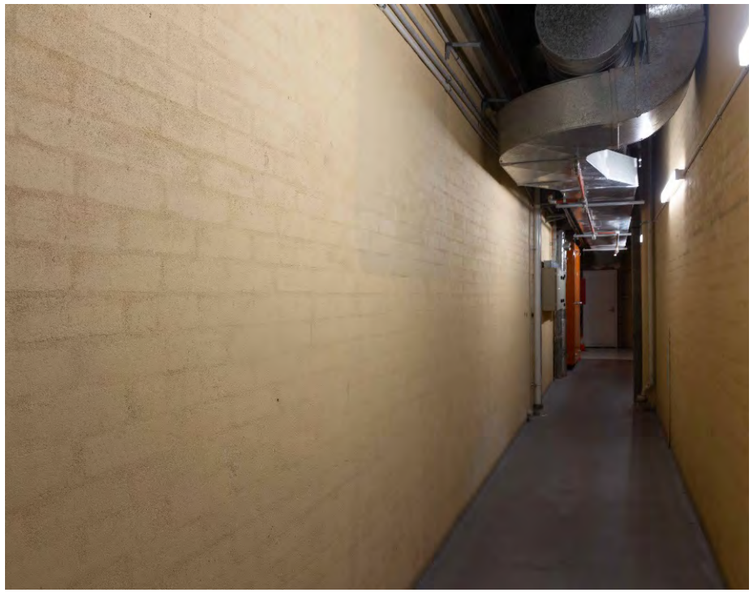
Figure 7.34 Harwood Building Photo Register (Level 1)



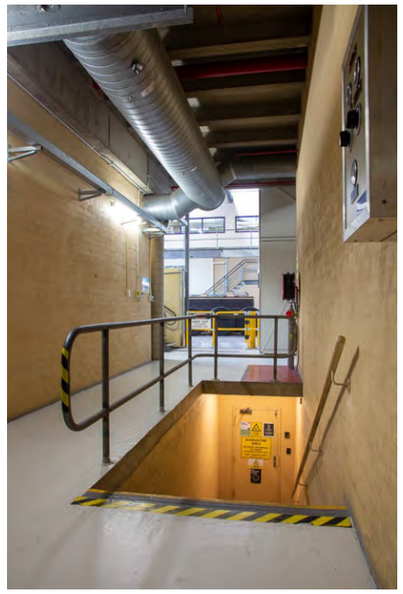
Harwood Viewpoint 13: Level 1

Harwood Viewpoint 14: Level 1

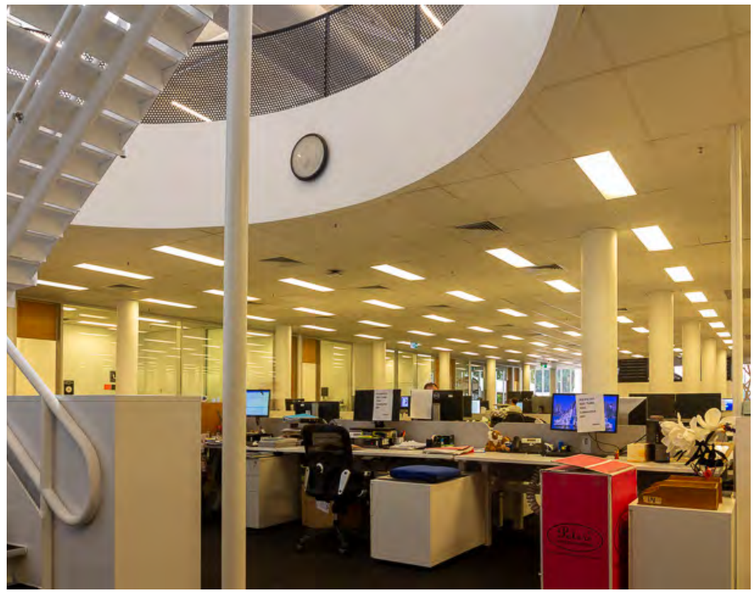
Harwood Viewpoint 15: Level 1



Harwood Viewpoint 16: Level 1



Harwood Viewpoint 17: Level 1



Harwood Viewpoint 18: Level 1

Harwood Viewpoint 19: Level 1

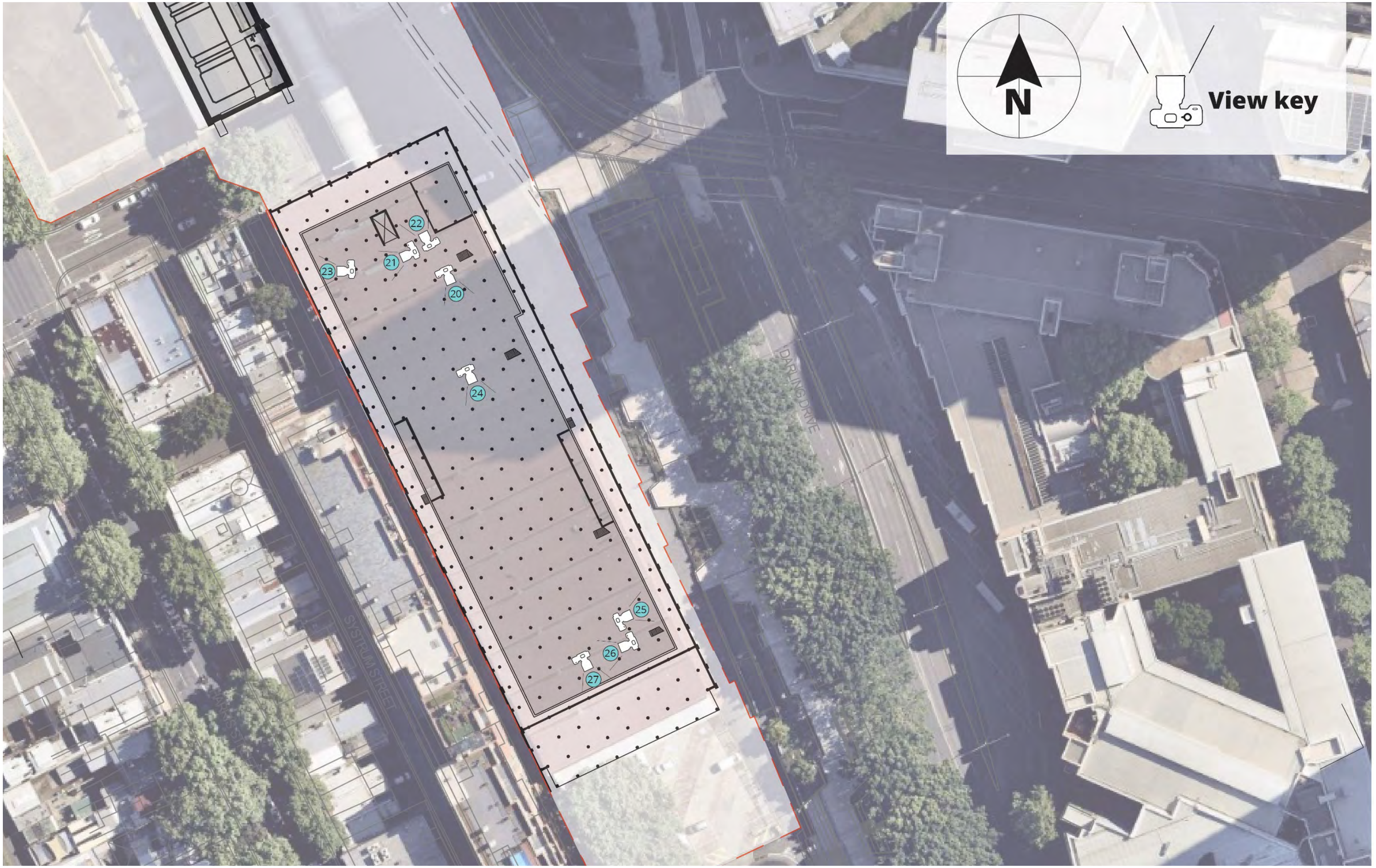
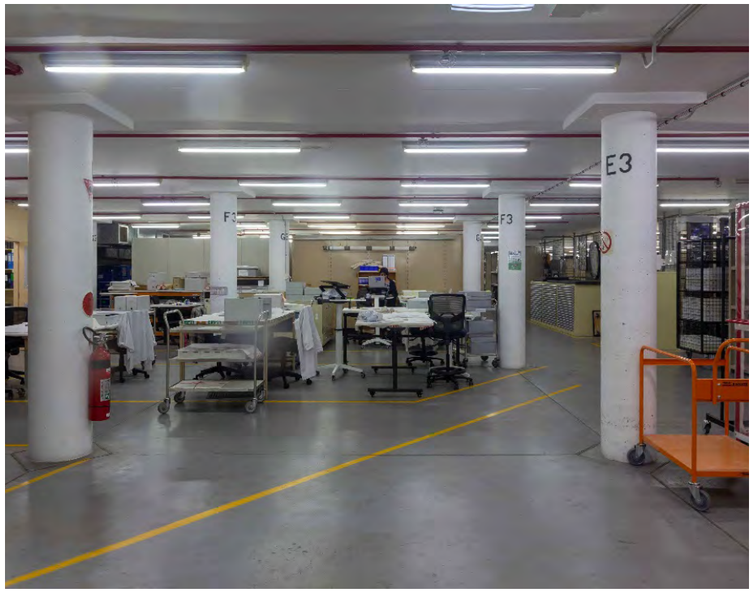
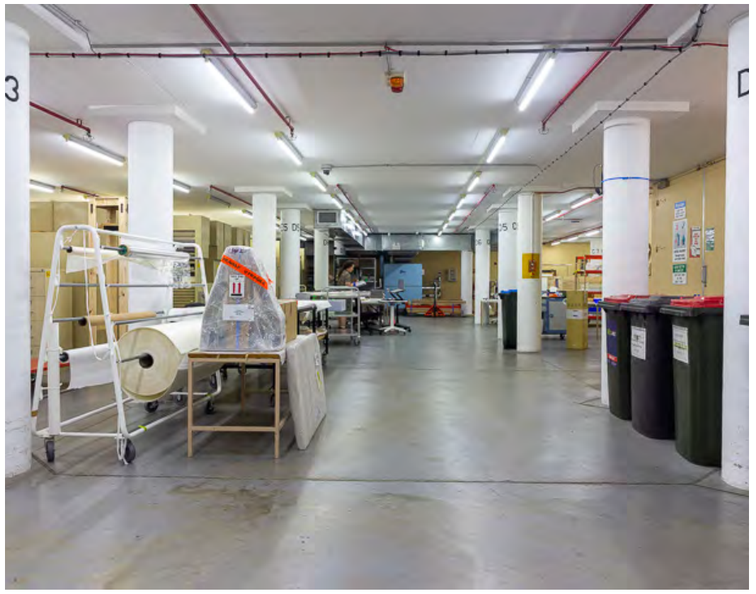


Figure 7.35 Harwood Building Photo Register (Basement)



Harwood Viewpoint 20: Basement



Harwood Viewpoint 21: Basement

Harwood Viewpoint 22: Basement

Harwood Viewpoint 23: Basement

Harwood Viewpoint 24: Basement


Harwood Viewpoint 25: Basement

Harwood Viewpoint 26: Basement

Harwood Viewpoint 27: Basement

7.7 ENDNOTES

1 One of the main private companies in Sydney that operated horse-drawn omnibus services from the 1870s until the 1910s when availability of cable and electric trams made this transportation method obsolete.
2 'The Sydney Omnibus Company' in *Empire*, 9 Dec 1871 p. 3
3 *Australian Town & Country* 11 Oct 1873 p. 9; 'Fire in Harris Street, Ultimo' in *Newcastle Chronicle*, 9 Oct 1873 p. 4
4 Brassil, T., *Ultimo Tram Depot (The Harwood Building), History and Significanc*e, National Trust of Australia (NSW), 2019, p. 3.
5 Rowe, D. M., 'Modern Engineering Preserving our Engineering Heritage: Air Conditioning in the Powerhouse Museum, Sydney' in *Fourth National Conference on Engineering Heritage 1988 (Papers)*, Sydney, 1988, p. 12.
6 Godden et al 1984 p. 33
7 Rowe 1988, p. 12.
8 Brassil 2019, p. 4; Godden et al 1984, p. 34.
9 Godden 2003, p. 3.
10 ibid
11 Brassil 2019, p. 5.
12 Fitzgerald & Golder, 1994 p. 113.
13 Brassil 2019, p. 6.
14 Godden 2003, p. 5.
15 Rowe 1988, p. 12.
16 Architectural Projects 2003 p. 83
17 Godden 2003, p. 3
18 Architectural Projects, 2003, p. 30
19 ibid
20 ibid
21 Godden 2003. p. 4.
22 ibid, p. 6.
23 Brassil 2019, p.18.

8 NORTH ANNEX

8.1 HISTORY OF NORTH ANNEX

With a frontage to William Henry Street, the North Annex (formerly known as the Office building) was originally built in 1899 as part of the initial construction of the Ultimo Power House. The North Annex was constructed in a simplified Italian Renaissance Classical Style as a three storey symmetrical building with seven bays. When the Power House opened in 1899, the North Annex housed offices, staff accommodation and the accumulator (battery) room, and was generally referred to throughout its used as the "Office" Building.

> The front portion of the engine-house facing William Henry street, for a distance of 98 feet (30m) has accommodation in the basement for foremen, line-repairers, greasers, together with bathrooms, lavatories, etc. On the first floor are the testing-room, chemical laboratory, officers' quarters, storerooms, lavatories, bathrooms, etc. The second floor, to which a goods elevator has been provided, is set apart exclusively for the accumulators. The roof of the accumulator room, which covers the same area is flat, so as to allow for future extension. The whole of the floors and dividing walls in the office portion of this building are rendered fire-proof, by being constructed of terra-cotta lumber, the flat roof being covered with patent asphaltum, with lead flashing round the parapet wall.[1]

The North Annex was designed with a flat roof to allow for extensions. In c.1931, three cast iron water tanks were installed on the roof of the North Annex (with a fourth identical tank, possibly installed at the same time), constructed by the NSW Government Railway Permanent Way workshops in a similar pattern to railway water tanks, and remained on the roof until at least 1984. Two of these water tanks were used to supply the Ultimo Tram Shed—one for fire fighting equipment, and one for other general purposes—while the other two were used as emergency water supply tanks for the boilers.[2]

The second (top) floor of the Annex was originally the one large single room that housed the accumulators (or batteries) for the Power House, likely lined with lead to resist possible battery acid spillage. From around 1936-1936, the accumulator room was converted for use as a shower and recreation room for the Power House boiler workers.[3]

When the Ultimo Power House closed on 11 October 1963, the North Annex, along with the other Power House buildings, fell into disrepair and was damaged by squatters and/or vandals. When the William Henry Street bridge was raised and extended in the 1960s, the entry at the front of the building became largely obscured.

Previous Names	The Office Building, The Administrative Building, The Amenities Block, The North Annexe
Address	500 Harris Street, Ultimo
Lot & DP	Lot 1 631345
Built	1899
Heritage Listings	SHR 02045 "Ultimo Power House"
	LEP I2031, "Powerhouse Museum Former Warehouse Buildings, including interiors"
Non-Statutory Listings	Register of the National Estate (Powerhouse Museum (Stage Two), Place ID 100690
	National Trust of Australia (NSW) Register (S11648, 24/10/2015)

Figure 8.1 North Annex Location Map (Source: John Wardle Architects with Curio Projects overlay).

Figure 8.2 North Annex 2020 (Source: Curio Projects)

By 1982 the North Annex Roof had deteriorated and was damaged by rainwater in several places, and walls, floors and fittings throughout the building were significantly damaged. Most of the windows had been smashed, the hardwood flooring had substantial water damage, and evidence of fires was present in the western end of the ground floor. All levels were covered with a combination of building debris, old newspapers and furniture, broken toilets, terracotta bricks and timber.[4]

> Most of the cedar doors, the spiral staircase, the front doors and the lead from the stained glass window has been removed. Many of the windows on the ground floor have been broken. Internal partitions on the ground floor and first floor have been broken by vandals or demolishers. Almost every porcelain toilet fitting has been smashed.[5]

In 2003 the North Annex contained 'administration offices and various support functions including training rooms, volunteers area and the PABX.'[6] As of 2003 the wall tiles in the North Annex had been retained but the stair to the upper level had been modified.[7] A new door was later added from the Turbine Hall to allow direct access to Level 3 of the North Annex. In 2022, the North Annex houses Powerhouse Creative Resident Studios.

Figure 8.3 Ultimo Post Office with Ultimo Power House Administrative Offices (later North Annex) highlighted with arrow, c. 1901 (Source: State Archives and Records Authority of NSW NRS-4481-3-[7/15883]-M2446)

Figure 8.4 Section of William Henry St in 1965 showing Ultimo Power House Pump House (L) and North Annex (R). (Source: City of Sydney Archives NSCA CRS 48/4599, CC BY 4.0)

Figure 8.5 The former entry to the North Annex from William Henry Street (Source: Curio Projects)

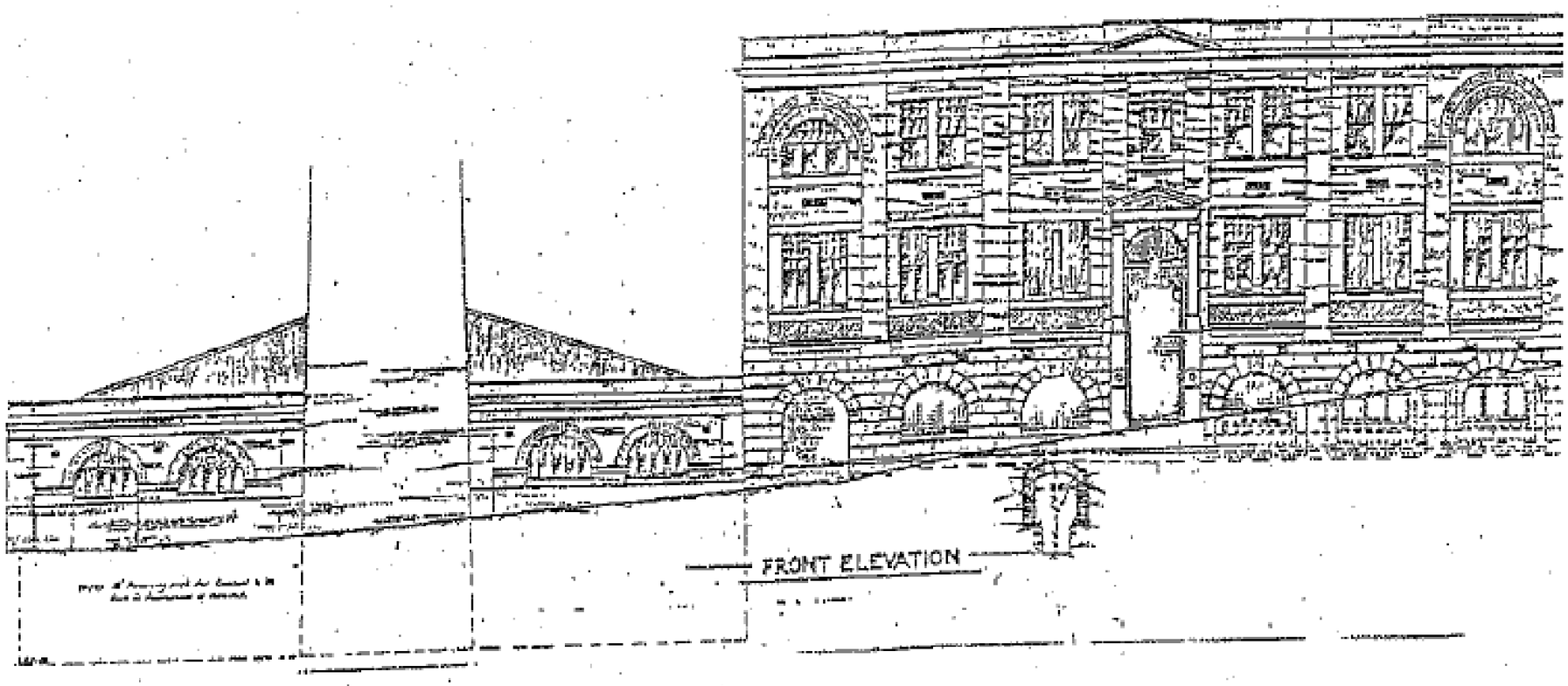


Figure 8.6 Image showing the north elevation of the office building and the old boiler house prior to the William Henry bridge extension (Source: NSWGT Contract No.12 Drawing No. 4 1898 in Architectural Projects 2003 p. 68)

Figure 8.7 North Annex, northern elevation. Set back boiler house visible in the left of the image. The lower half of the buildings has been obscured by the William Henry Street bridge (Source: Curio Projects, 2020)

8.2 PHYSICAL ANALYSIS OF THE NORTH ANNEX

An overall photo register and images of the North Annex as of 2020 is presented in Section 8.6.

8.2.1. Site and Setting

The North Annex forms part of the Powerhouse site at 500 Harris Street, Ultimo. Within the site, the North Annex has a frontage to William Henry Street, located between the remains of the former Pump House in the east and Boiler House to the southeast, immediately adjacent to the north of the Engine House, and the east of the Post Office. The northern elevation of the North Annex is largely obscured by the widening and raising of the William Henry Street Bridge along this elevation.

8.2.2. Built Elements

The North Annex was originally constructed on a sloping site and consists of three storeys, constructed symmetrically with seven bays. Of the original 1899 Power House buildings, the North Annex (Office Building) is the most elaborate, built in a simplified Italian Renaissance Classical style. The building is largely intact, both internally and externally. The building was traditionally referred to having as a basement level and two upper levels, however following the 1980s adaptive reuse works across the Power House site for the establishment of the Powerhouse Museum (and integration of the North Annex internally with the other Power House building), these levels came to be referred to as Levels 2-4 in the context of the entirety of the Powerhouse site. The SHR listing describes the North Annex building as:

> The rusticated stone base supports a stone plinth on which sits the brick superstructure. The articulation continues in the form of brick pilasters with a sandstone entablature, above which is a brick parapet.
>
> On the ground floor window mullions are in the form of classical pilasters, while on the top floor they are plain. Beneath each window is a spandrel infilled with bricks in herringbone pattern. The frontispiece is in the form of an aedicule two stories high, with large scale stone pilasters on stone pedestals, surmounted by a pediment. Within the frontispiece is an entrance having semicircular arch with a console keystone. The principal feature in the aedicule is the spandrel which identifies the building's former ownership as the New South Wales Government Transport Department (NSWGTD). Surrounding the name of the building is a band of lightning bolts, a stylised representation of electricity, which passes behind a decorated floriated crest incorporating the Southern Cross. The spandrel was once surmounted by a leadlight window which bore the State Coat of Arms
>
> On the top floor, each pair of pilasters, on the east and west ends, is gathered over a semi-circular opening which makes the semi-circular arched windows appear recessed.
>
> The building has a distinguished architectural composition shown in the brickwork, windows and facades The bricks are very fine plastic-moulded and have a warm red-brown colour. The brickwork on this building and the old boiler house façade is particularly fine, the bricks having been pointed with a light red-brown mortar. The work throughout is English bond except in the spandrels where it is herringboned. The robust cedar window joinery is very fine, and is consistent with the time of the building. The repetition of the pilasters, spandrels and windows on the north, east and west facades adds to the careful ornamentation of the building.[8]

As part of the 1980s adaptive reuse works undertaken to the building, the original spiral staircase was removed and the basement area was opened up to allow installation of a wider modern staircase to connect all levels of the building.[9] The top floor of the Annex (now referred to as Level 2) retains the original cast iron columns (Bonner & Son's Globe Foundry, Sydney) from the period used as an accumulator room. The North Annex roof constructed of a fire-resistant terracotta roof supporting cast iron water tanks, originally accessed via a spiral stair. The roof area was not able to be accessed during recent site visits in order to inspect its current condition. A tunnel is located underneath the office building from which terracotta conduits once ran from the Engine House.[10] This appears evident in Figure 8.6. The staircase from the former entry has been levelled and converted into kitchen areas on levels 2 and 3.

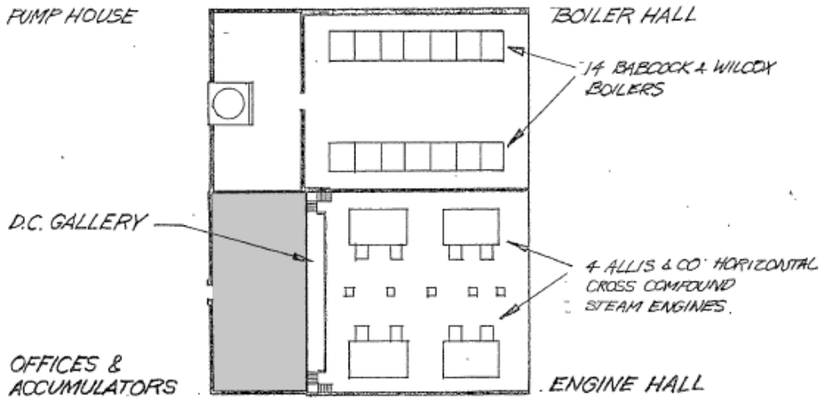


Figure 8.8 1899 Layout of the Power House (Source: Godden et al. 1984 p. 98)

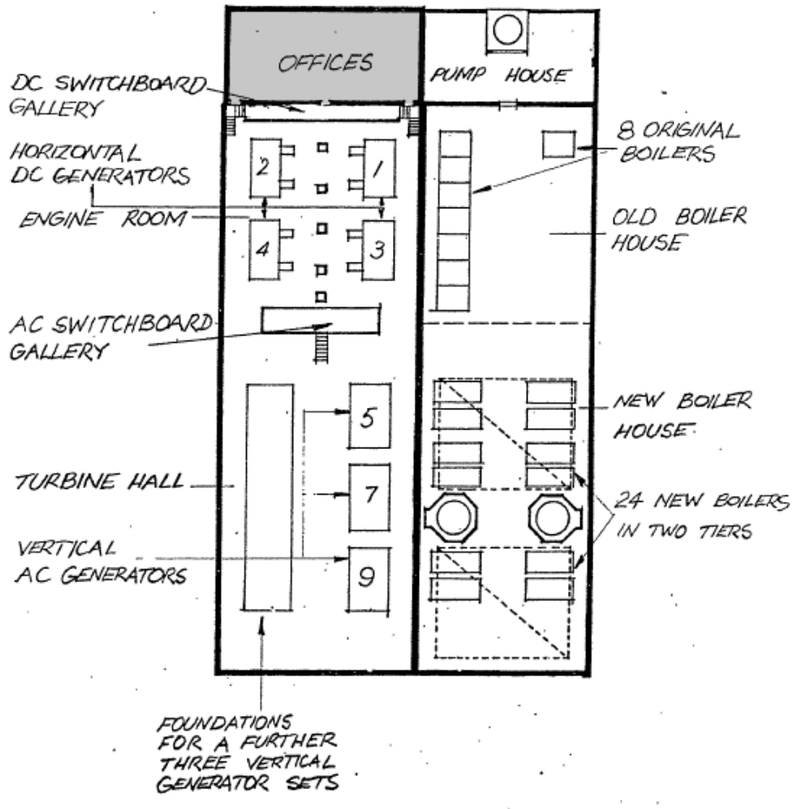


Figure 8.9 1902 Layout of the Power House with the extension (Source: Godden et al. 1984 p. 104)

8.3 HERITAGE SIGNIFICANCE

The North Annex, as part of the Ultimo Power House, is included within the following statutory heritage listings:

- State Heritage Register (NSW), *The Ultimo Powerhouse*, SHR 02045, gazetted 04 Sep 2020.
- Sydney LEP 2012, *The Powerhouse Museum Former Warehouse Buildings, including interiors*, I2031.

The North Annex is also included on two non-statutory registers: the Register of the National Estate *Powerhouse Museum (Stage Two)* (Listing 100690); and the National Trust (NSW) Register *Powerhouse Museum (Stage Two)* (S11648).

8.3.1 Summary of Significance—North Annex

The North Annex, dating from 1899, is historically significant as part of one of the most important and intact group of power station buildings in the State. The most elaborate of the former Power House buildings, the North Annex is aesthetically significant for its fine architectural features of a Federation era administration building and retains much of its historic fabric, particularly the external façade, and interiors at its lower levels.

8.3.2 Views

The primary viewline to the North Annex is the view from William Henry Street and the William Henry Street bridge along the building's northern elevation. While this elevation has been obstructed and impacted by the 1960s construction of the elevated road approach/William Henry Street bridge, the visible section of the building's primary elevation is important to retain.

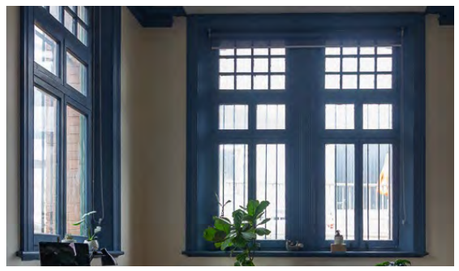
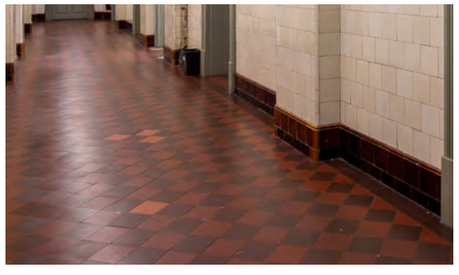
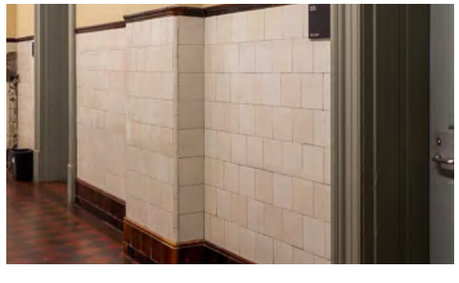
8.3.3 Grading of Significant Components for the North Annex

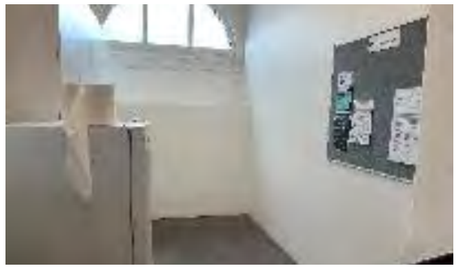
The key components and elements of the fabric and form of the North Annex have been ranked accordance to the Heritage NSW criteria for assessing significance, as summarised Table 8.1 and depicted in Figure 8.12 to Figure 8.16.

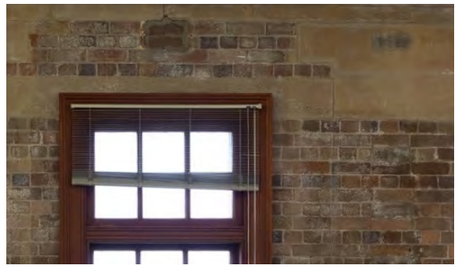
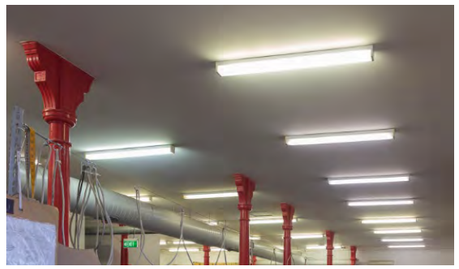
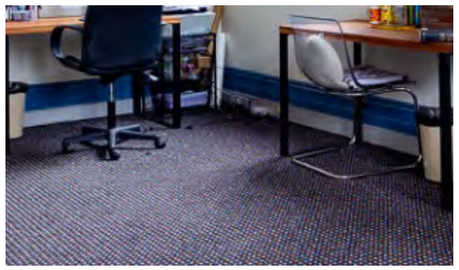
Figure 8.10 View of North Annex (right) and Boiler House (left) from William Henry St bridge (Source: Powerhouse)

Figure 8.11 View of northern elevation of Powerhouse Ultimo site, Boiler House and North Annex visible behind William Henry St bridge (Source: Powerhouse)

Table 8.1 Grading of Significant Components for the North Annex

ELEMENT	IMAGE	GRADING	NOTES
Roof Structure		● HIGH	The flat roof structure is original to the building's construction in 1899 and predominantly intact.
External Walls (Original)		● EXCEPTIONAL	The external walls are original and predominantly intact. All originally features of the building façade including the stepped sandstone entablature, brick parapet, spandrels, frontispiece, aedicule, pointed brickwork are of exceptional significance.
Windows (Original)		● EXCEPTIONAL	The robust cedar window joinery in the window frames and sills are original and predominantly intact. However, the glass panes in most windows would have been replaced c. 1988-89.
Level 2 and 3 (original first and second floors) tiled floor		● HIGH	The Level 2 and 3 floor tiles appear to be original, or at least an early iteration of the building flooring, as Godden (1984: 13) refers to the similarly tiled floor and walls of the North Annex and the Engine House's switch gallery.
Wall tiles		● HIGH	The corridor wall tile finish appear to be early elements of the building, possibly original.

ELEMENT	IMAGE	GRADING	NOTES
Stairs		● LITTLE	Access to different levels of the Office building was originally afforded by a spiral staircase which was removed and replaced by this wider modern staircase in the 1980s.
Original Finishes		● EXCEPTIONAL	The original finishes within the North Annex are of exceptional significance.
Original Doors	 	● HIGH	Certain doors have been reported as original (Architectural Projects 2003: 85), this will require further research and review into the building history to confirm. The doors shown in the photos to the left appear to be remnant from air raid precaution (ARP) storage areas.
Later additions		● LITTLE	The later additions such as the former stairwells converted to kitchen areas are of little significance.
Level 4 (top floor) columns		● EXCEPTIONAL	The top floor cast iron columns were manufactured by Bonner and Son's Globe Foundry, Sydney and are original elements of the building, dating to the use of the floor as an accumulator room.

ELEMENT	IMAGE	GRADING	NOTES
Internal walls (original)		● EXCEPTIONAL	The original internal walls are of exceptional significance
Air conditioning ducting		● INTRUSIVE	The air conditioning ducting is intrusive and detracts from the original finishes. It can be removed if a less intrusive option is available.
Lighting (Modern)		● INTRUSIVE	The halogen tube lighting is of no significance and can be replaced if a more sympathetic option is available.
Carpet finishes		● LITTLE	The modern carpet finishes throughout the building are of little significance.

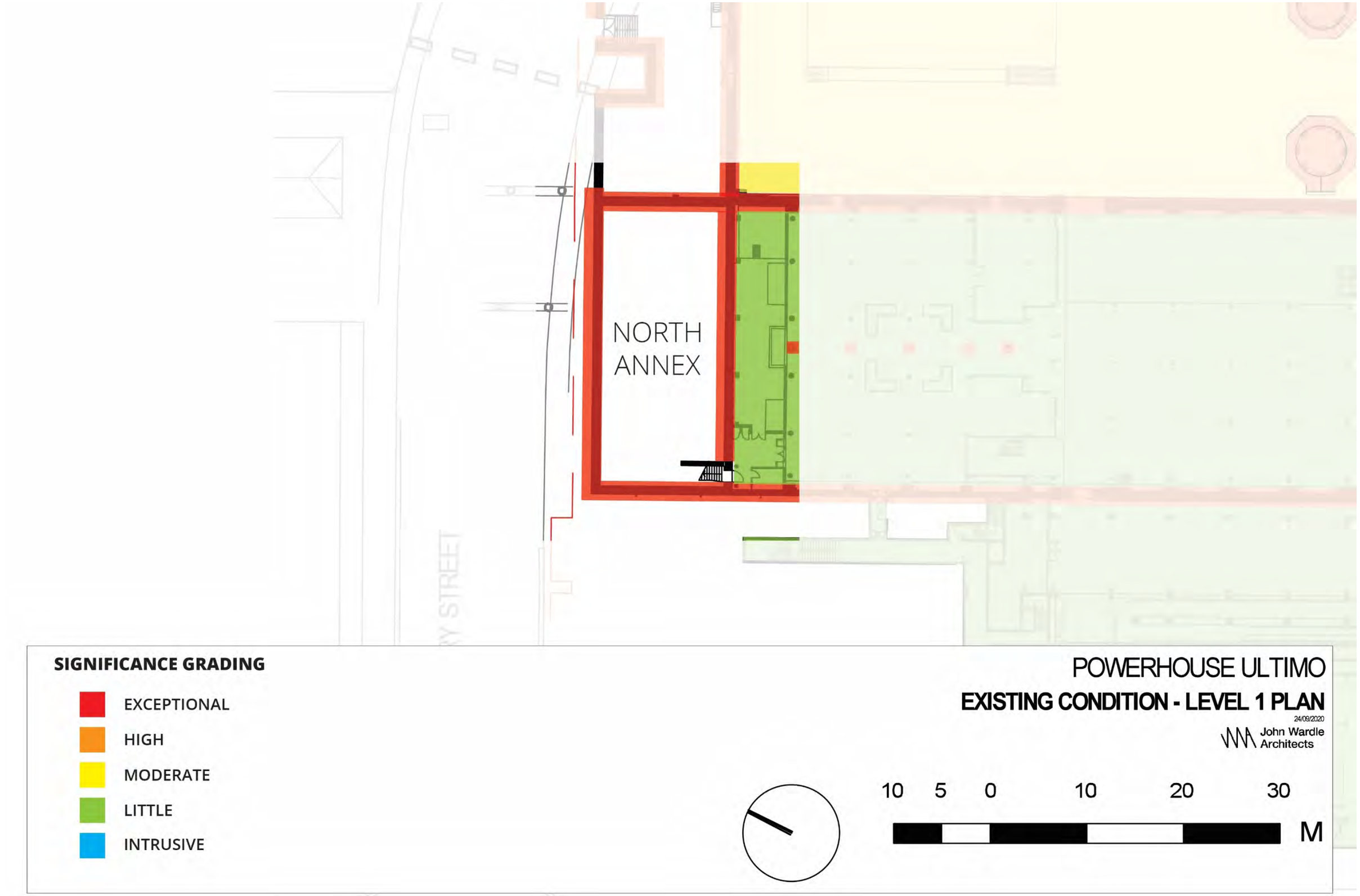


Figure 8.12 Grading of Significance for the North Annex (Level 1)

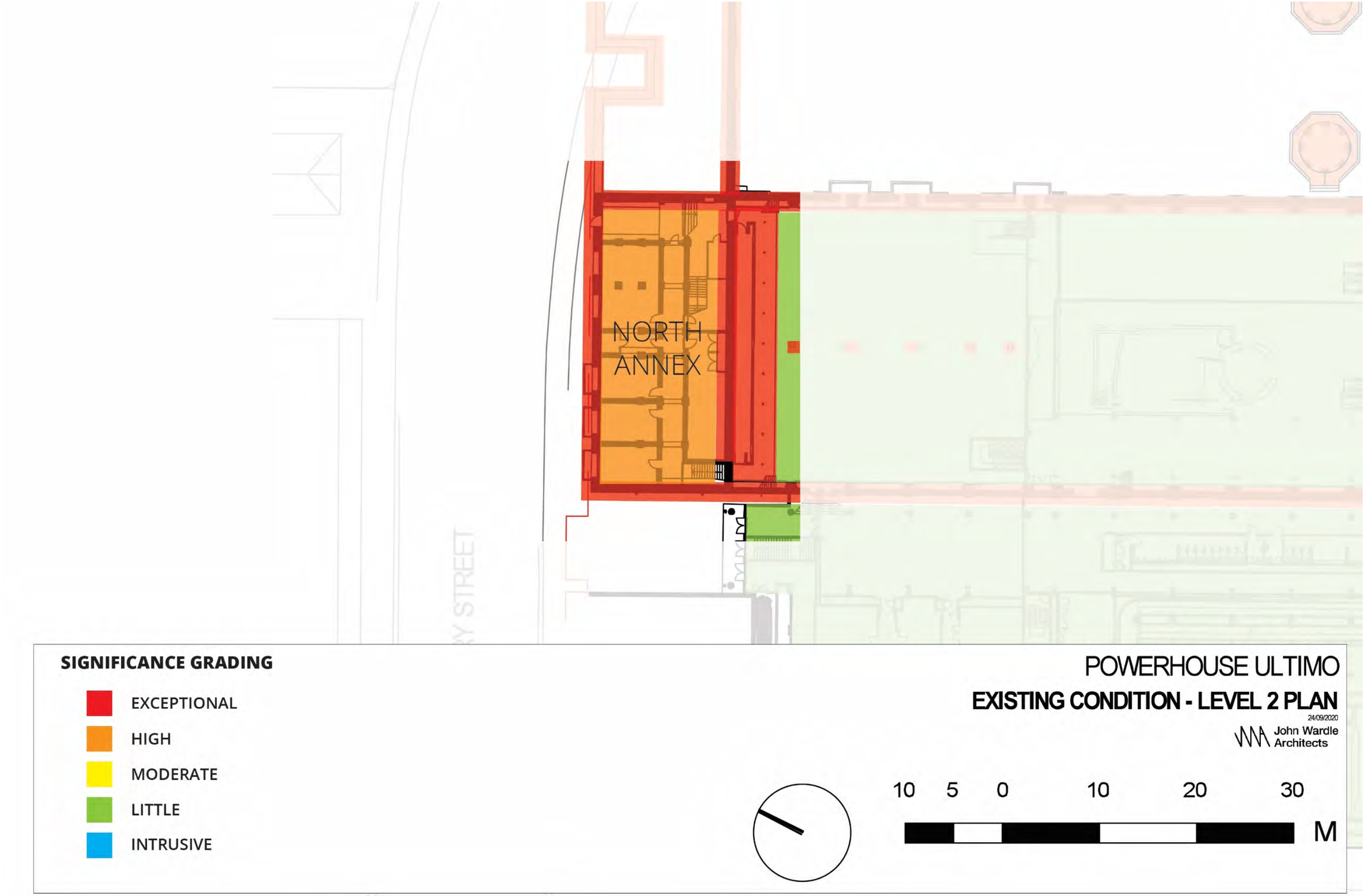


Figure 8.13 Grading of Significance for the North Annex (Level 2)

Figure 8.14 Grading of Significance for the North Annex (Level 3)

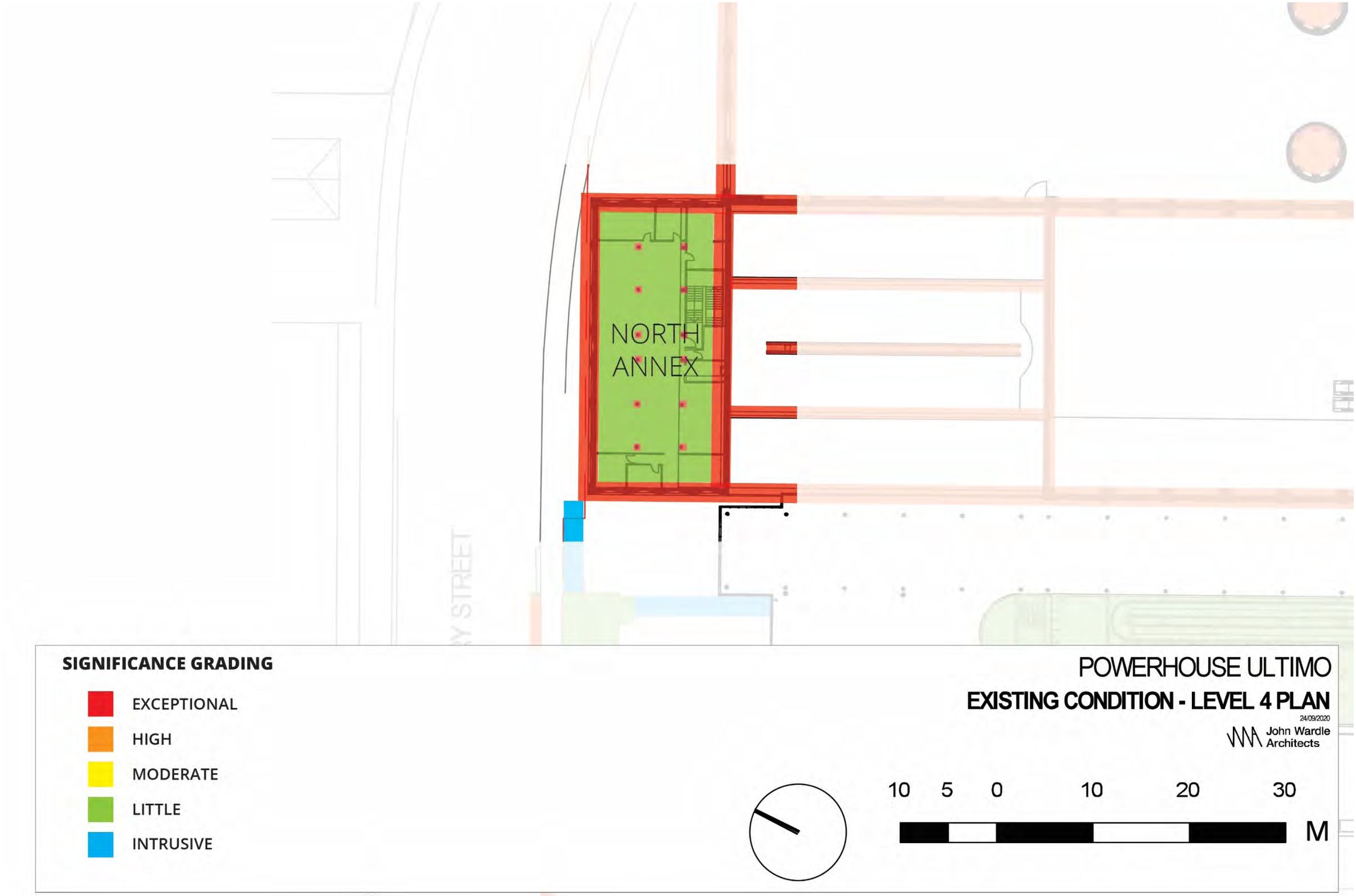


Figure 8.15 Grading of Significance for the North Annex (Level 4)

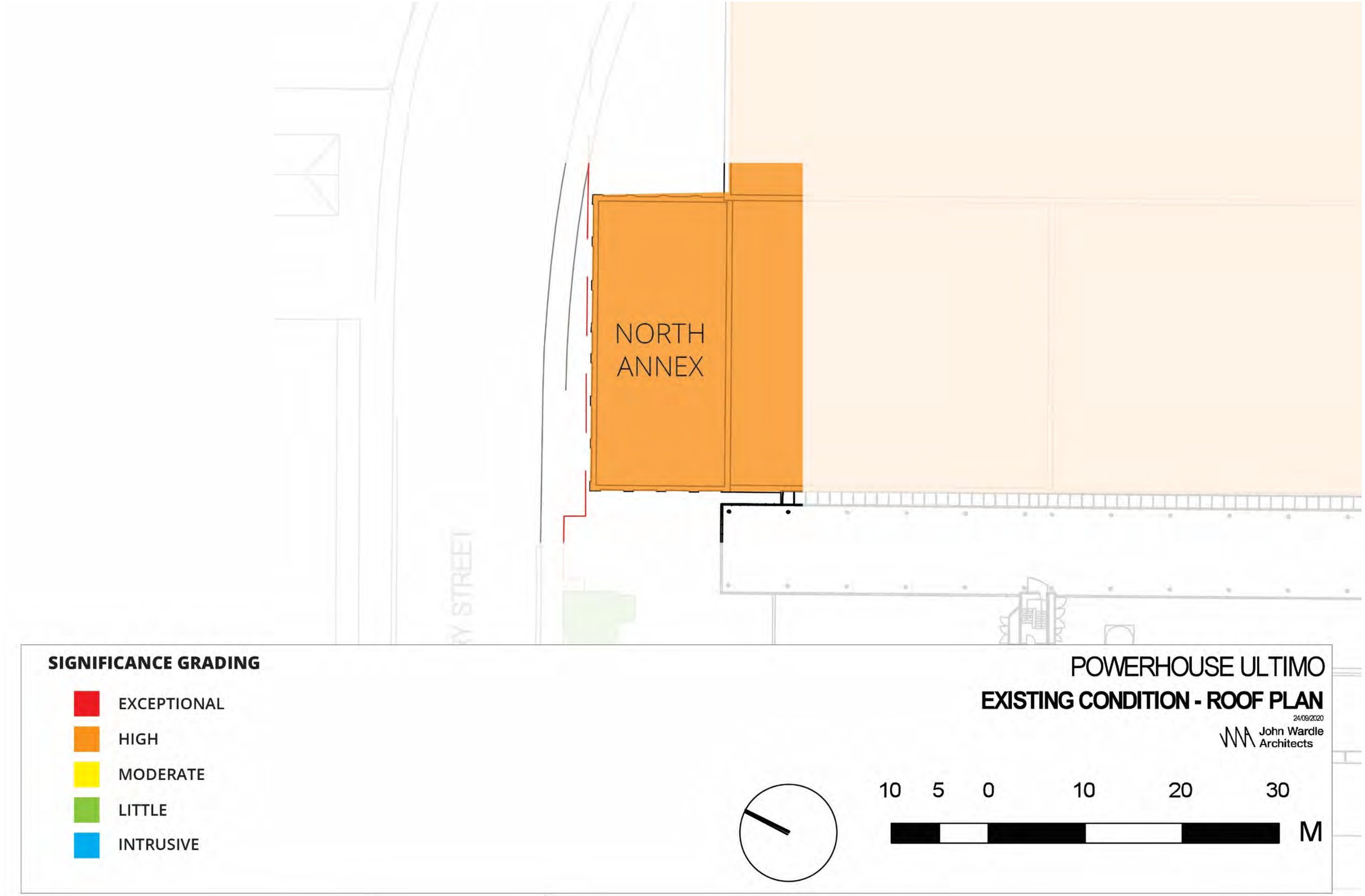


Figure 8.16 Grading of Significance for the North Annex (Level 5)

8.4 OPPORTUNITIES AND CONSTRAINTS

Opportunities and constraints specific to the North Annex include:

Opportunities
- Adaptive reuse to support Powerhouse operations and functions.
- Incorporate and improve public access.
- Programmatic interpretation that improve communication of the building's history and significance to visitors and staff.
- To include the North Annex in site tours

Constraints
- Any future use of the building should retain, conserve and enhance all original fabric of the North Annex (Office Building).
- Water damage to the sandstone on the internal north-west corner of level 2 needs to be addressed.

8.5 ITEM-SPECIFIC CONSERVATION POLICIES

Policy 14—Services, Facilities and Amenities: The North Annex has full smoke and thermal detection. Options to further enhance fire protection should be investigated.

8.6 PHOTO REGISTER FOR THE NORTH ANNEX

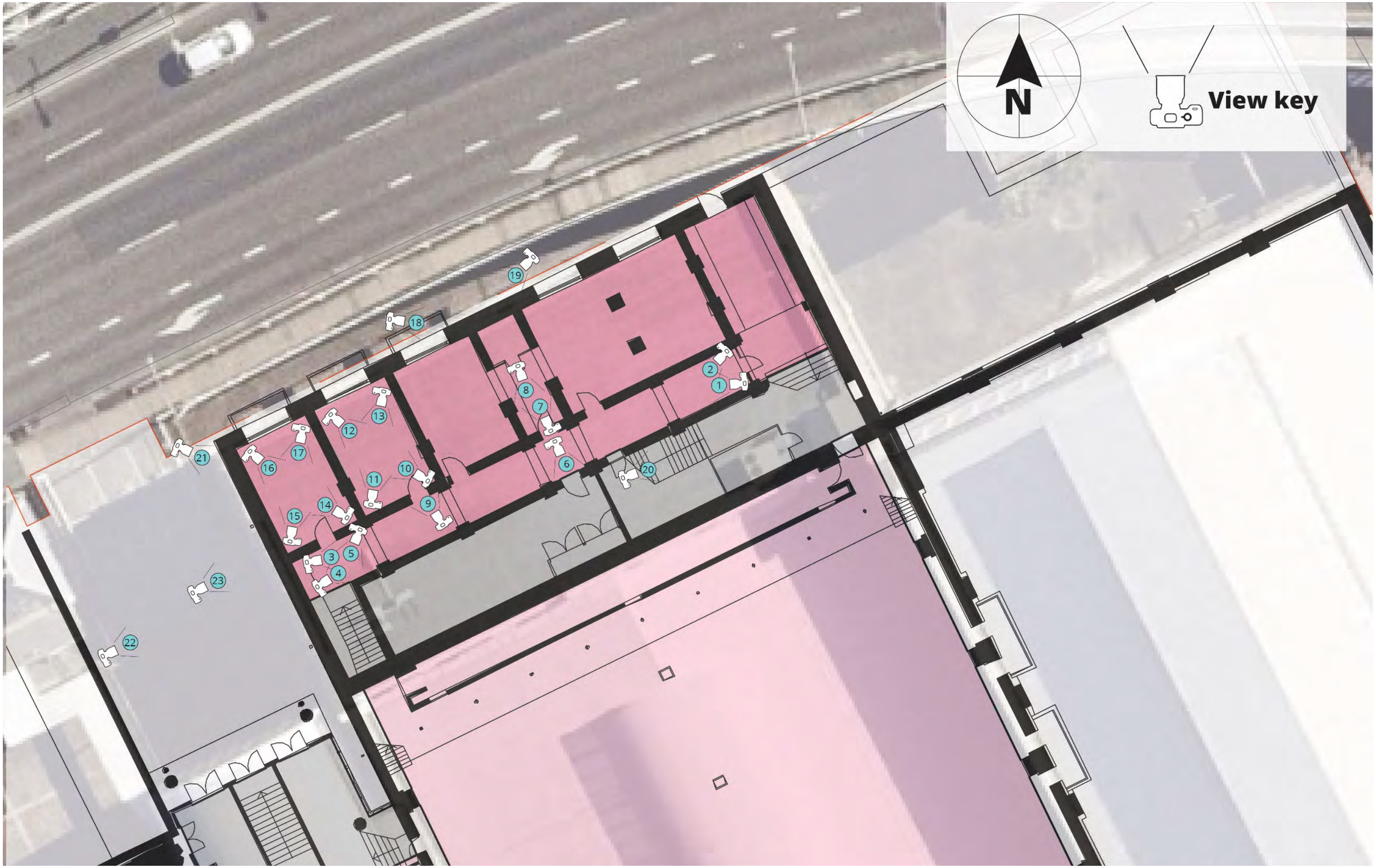
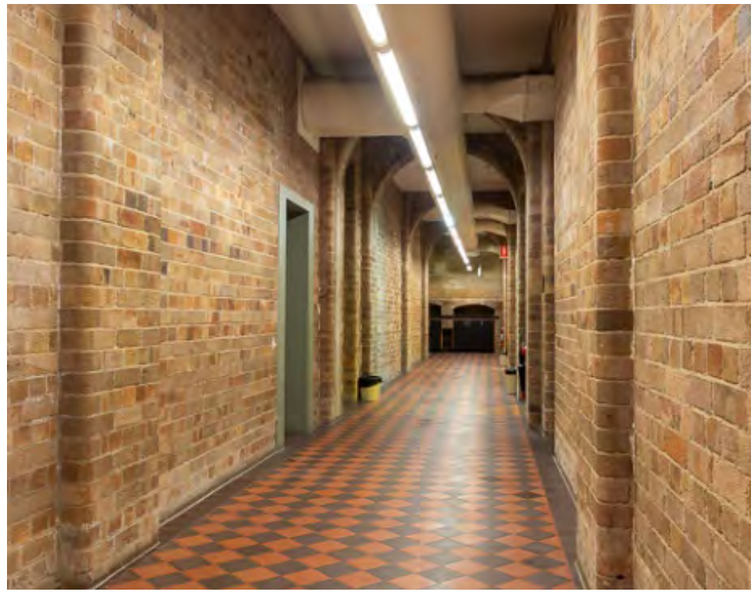
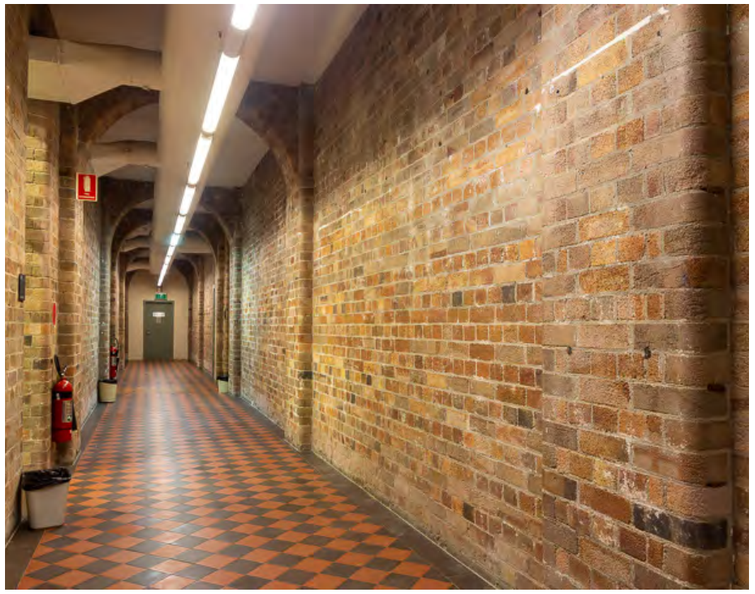


Figure 8.17 North Annex Photo Register (Level 2) (Original basement)

North Annex Viewpoint 1: Level 2



North Annex Viewpoint 2: Level 2



North Annex Viewpoint 3: Level 2

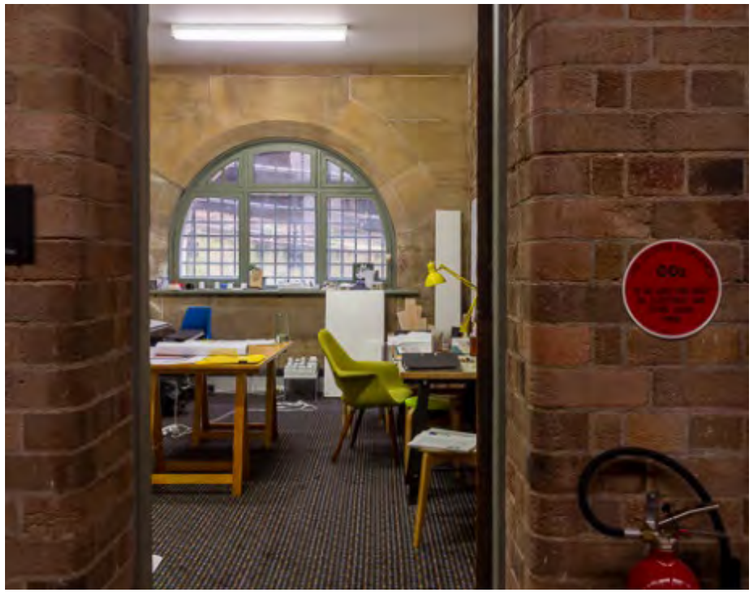
North Annex Viewpoint 4: Level 2

North Annex Viewpoint 5: Level 2

North Annex Viewpoint 6: Level 2

North Annex Viewpoint 7: Level 2

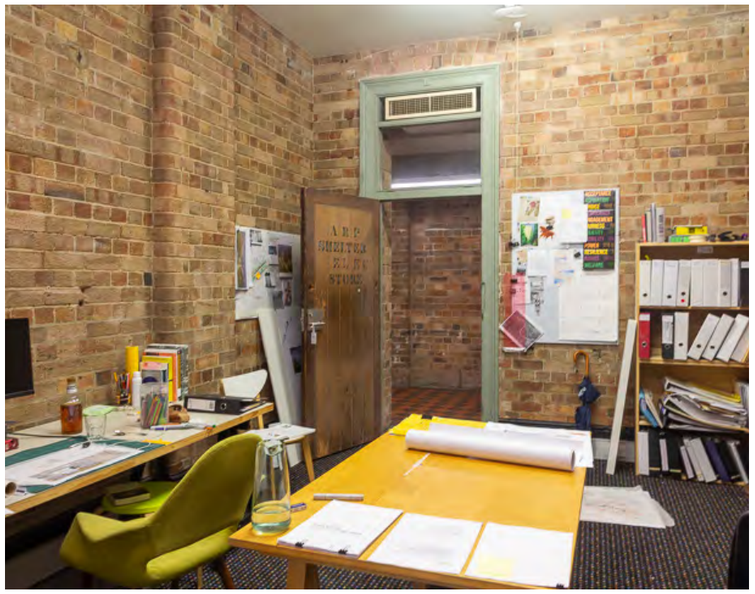
North Annex Viewpoint 8: Level 2



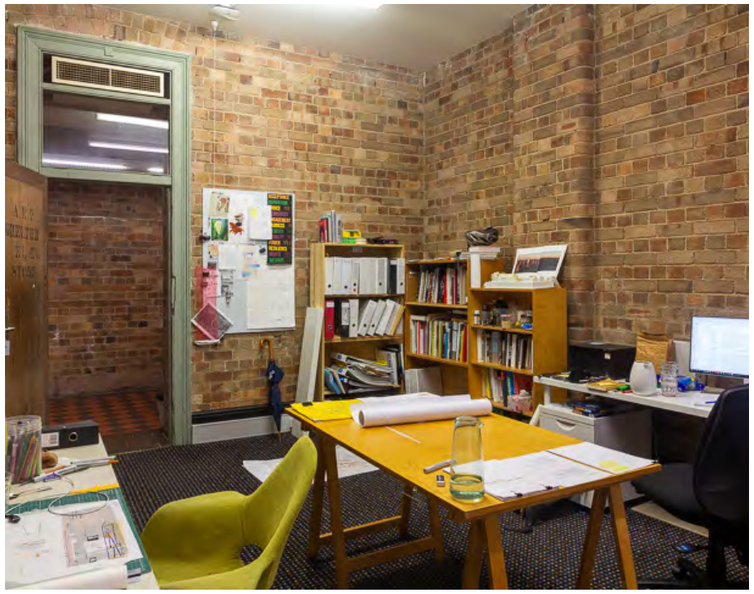
North Annex Viewpoint 9: Level 2

North Annex Viewpoint 10: Level 2

North Annex Viewpoint 11: Level 2



North Annex Viewpoint 12: Level 2



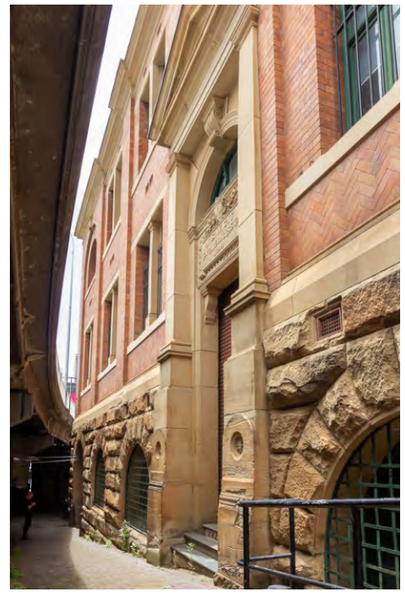
North Annex Viewpoint 13: Level 2

North Annex Viewpoint 14: Level 2

North Annex Viewpoint 15: Level 2

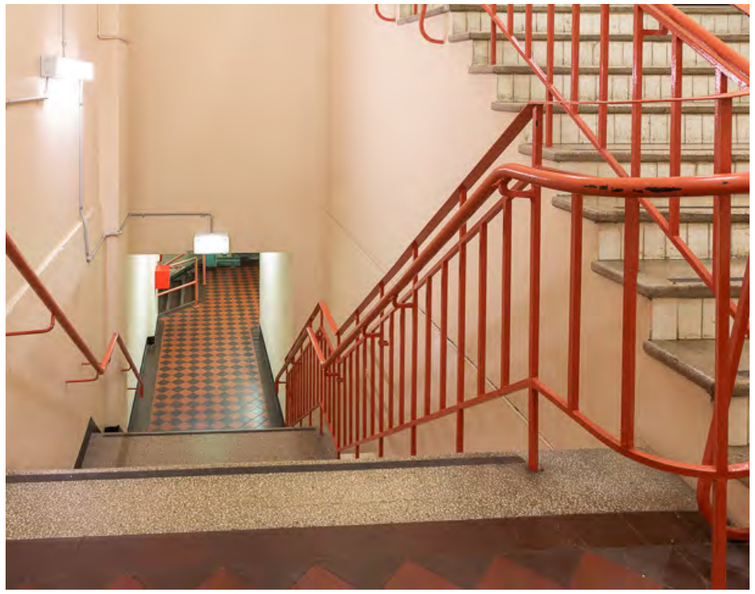
North Annex Viewpoint 16: Level 2

North Annex Viewpoint 17: Level 2



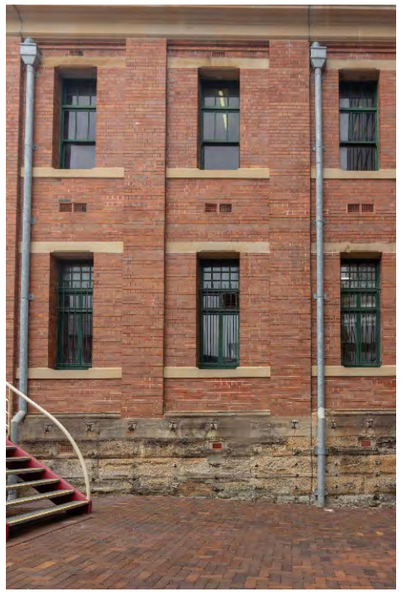
North Annex Viewpoint 18: Level 2

North Annex Viewpoint 19: Level 2



North Annex Viewpoint 20: Level 2

North Annex Viewpoint 21: Level 2



North Annex Viewpoint 22: Level 2

North Annex Viewpoint 23: Level 2

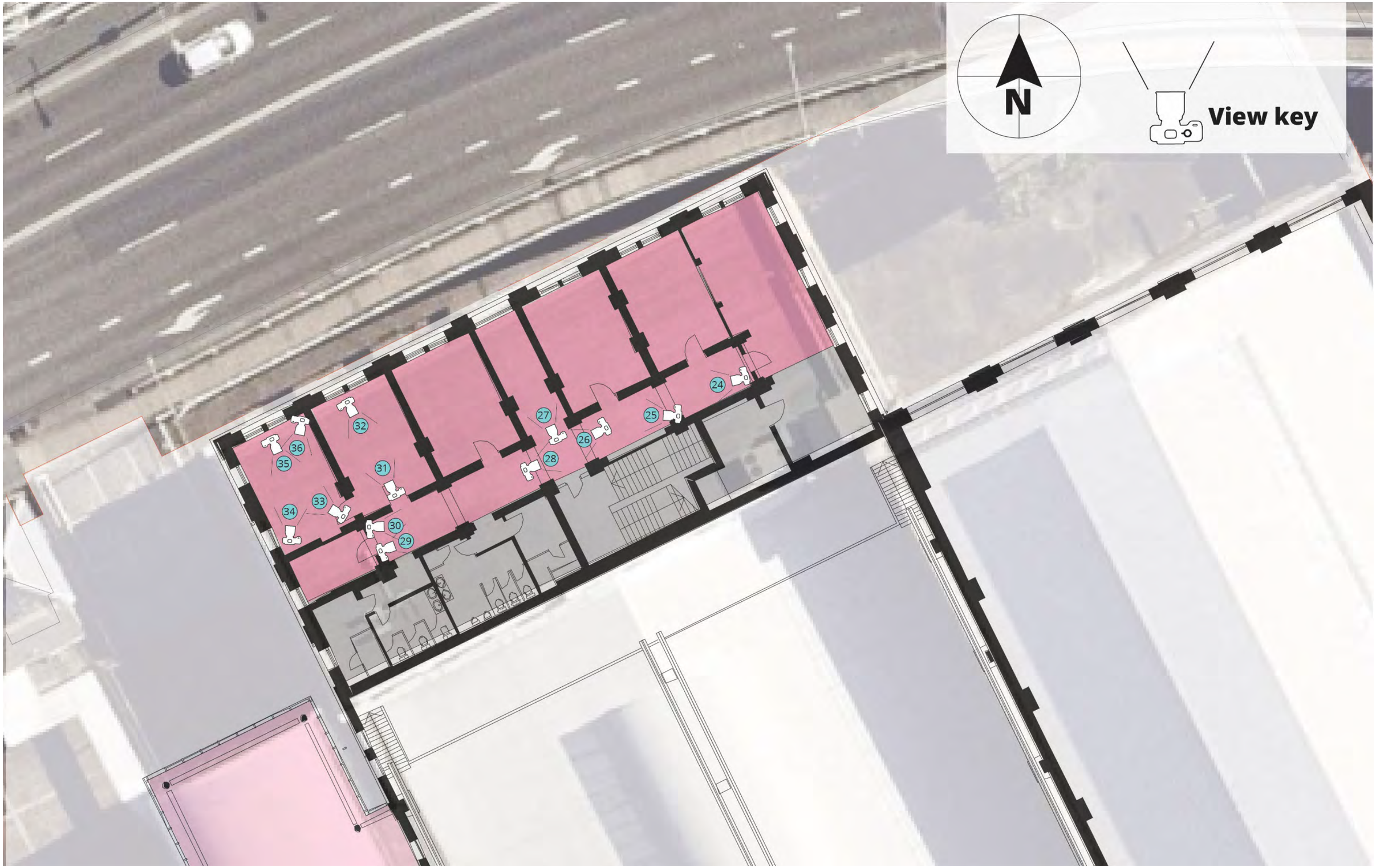
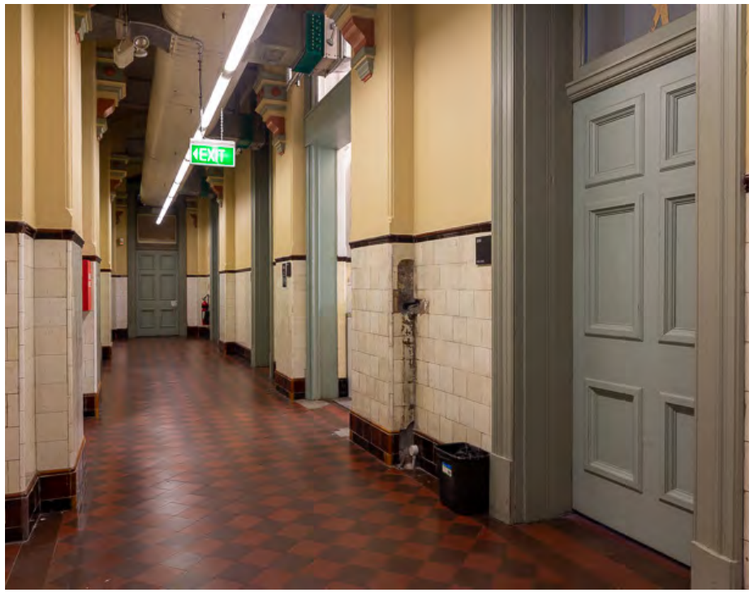
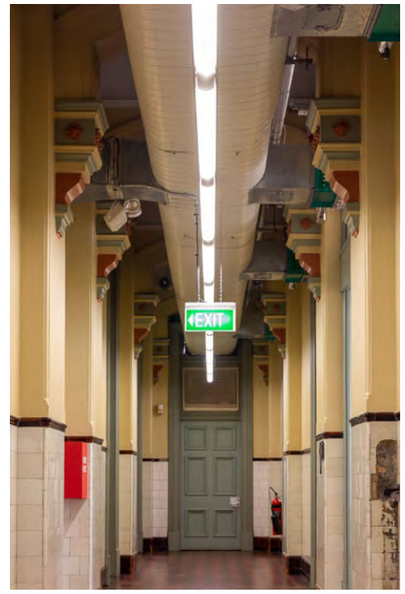


Figure 8.18 North Annex Photo Register (Level 3)

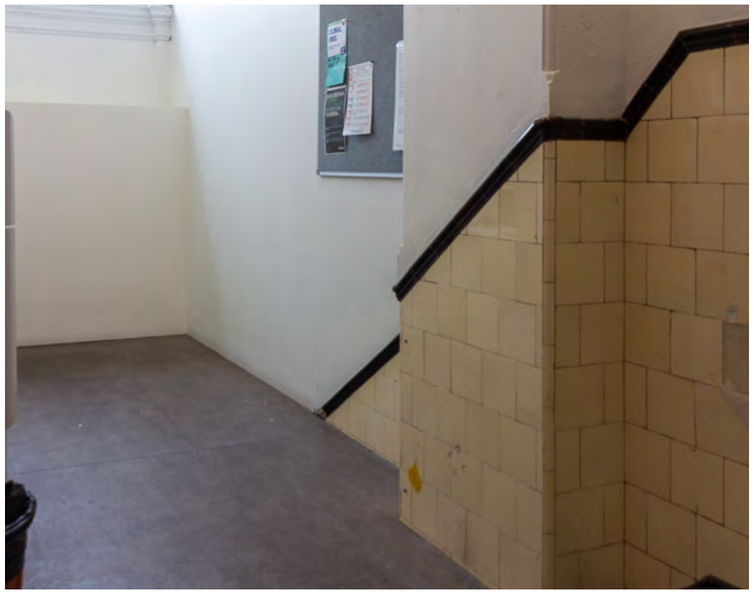
North Annex Viewpoint 24: Level 3



North Annex Viewpoint 25: Level 3



North Annex Viewpoint 26: Level 3



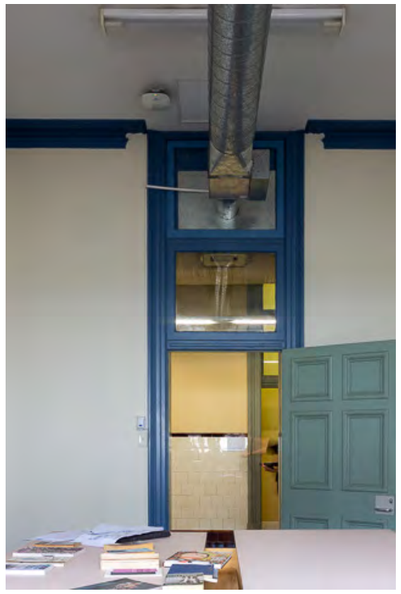
North Annex Viewpoint 27: Level 3

North Annex Viewpoint 28: Level 3

North Annex Viewpoint 29: Level 3

North Annex Viewpoint 30: Level 3

North Annex Viewpoint 31: Level 3

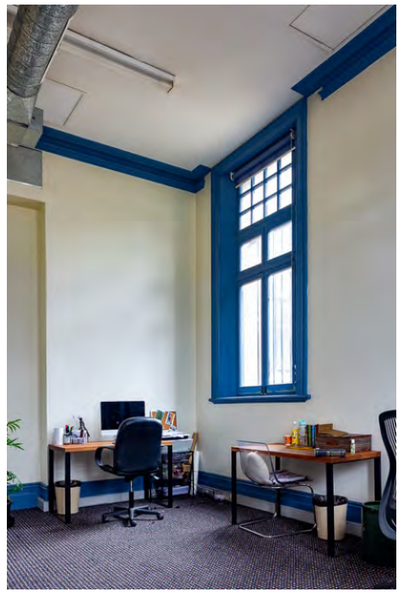


North Annex Viewpoint 32: Level 3

North Annex Viewpoint 33: Level 3

North Annex Viewpoint 34: Level 3

North Annex Viewpoint 35: Level 3



North Annex Viewpoint 36: Level 3

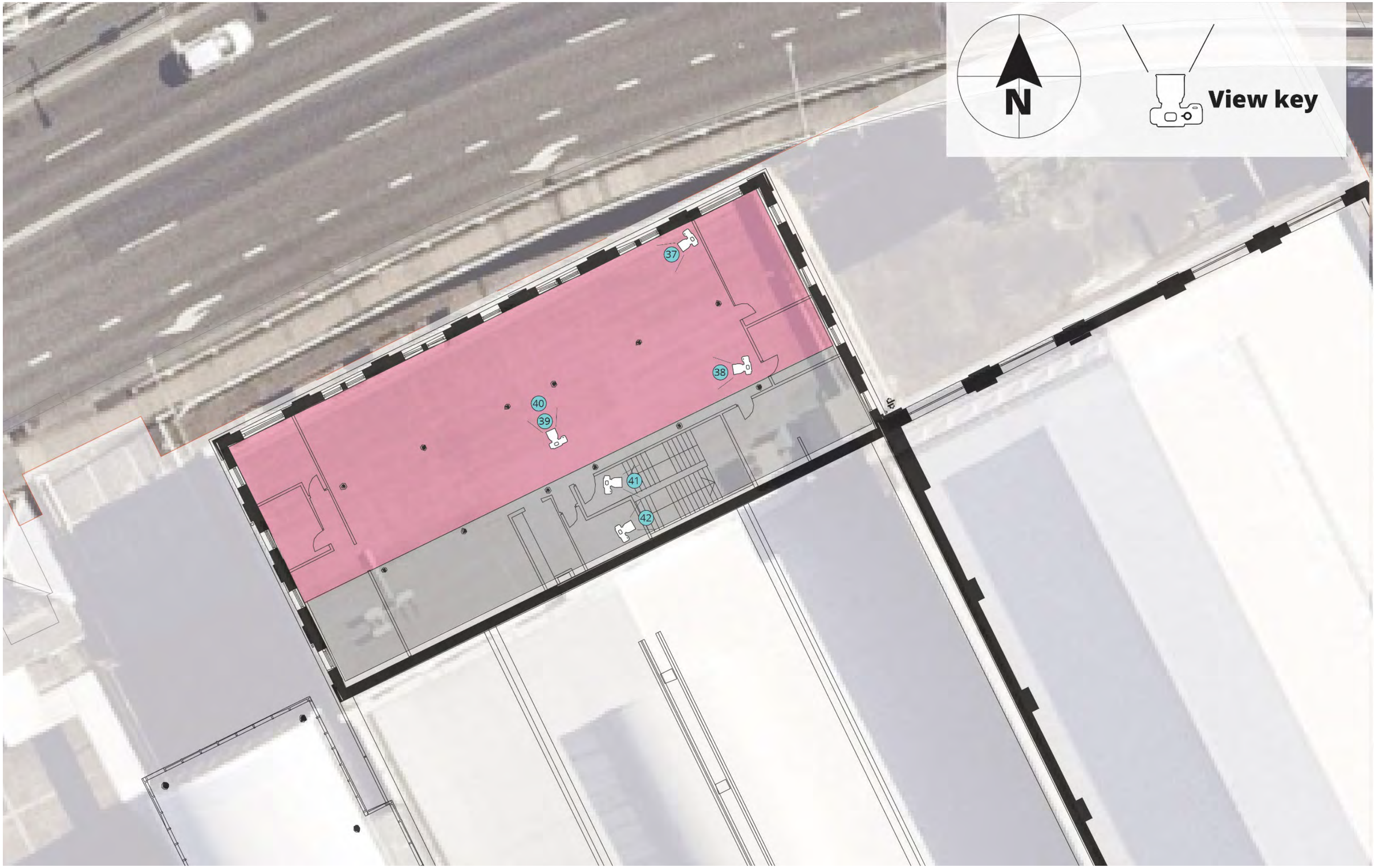


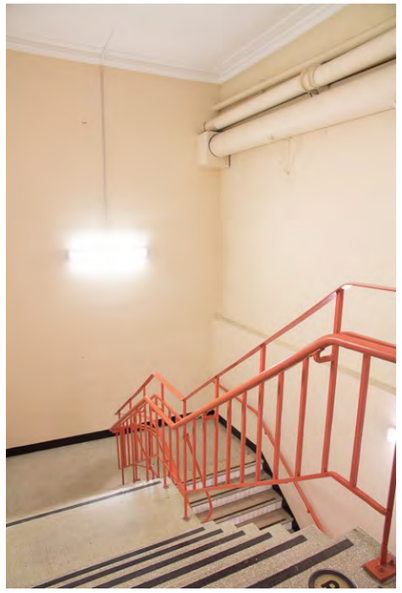
Figure 8.19 North Annex Photo Register (Level 4)

North Annex Viewpoint 37: Level 4

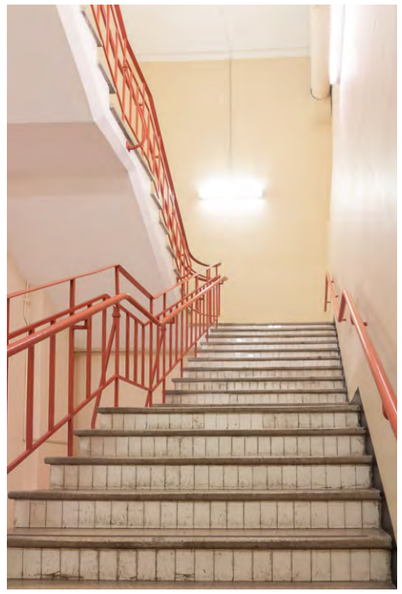
North Annex Viewpoint 38: Level 4

North Annex Viewpoint 39: Level 4

North Annex Viewpoint 40: Level 4



North Annex Viewpoint 41: Level 4



North Annex Viewpoint 42: Level 4

8.7 ENDNOTES

1 Department of Railways NSW, Annual Report 1900 p. 22 cited in Godden et al 1984 p. 74.
2 Godden et al 1984 p. 74.
3 Godden et al 1984, p. XXII.
4 Godden et al 1984, p. 12.
5 ibid
6 AMBS 2013 p. 83.
7 Architectural Projects 2003, p. 83.
8 Godden et al, 1984, pp. 2-3.
9 Godden et al, 1984, p. XXII.
10 Godden et al, 1984, p. XXIV.

9 THE PUMP HOUSE

9.1 HISTORY OF THE PUMP HOUSE

Previous Names	Old Boiler House, The Pump Room
Address	500 Harris Street, Ultimo
Lot & DP	Lot 1 DP631345
Built	1899
Heritage Listings	Sydney LEP 2012 (I2031)
Non-Statutory Listings	National Trust of Australia (NSW) Register, Powerhouse Museum (Stage Two), (S11648)

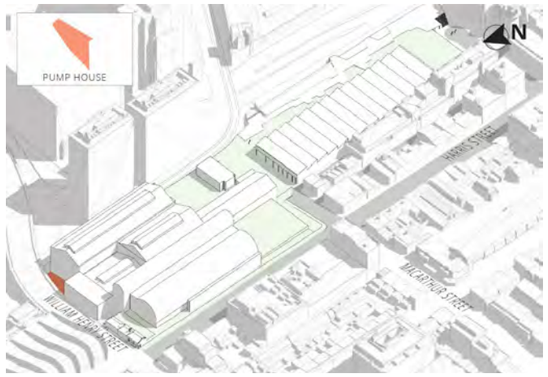


Figure 9.1 Location of the Pump House. (Source: John Wardle Architects with Curio Projects overlay).

Built between 1898-9, the Pump House was an important part of the original Boiler House, containing the pumps that pushed water into the steam boilers that drove the Power House. The original Boiler House consisted of the Pump Room (Pump House) and the Boiler Hall (see Figure 9.4). The tender for the construction of the Pump House chimney was contracted to Messrs. Phippard Bros. and the work was completed in 1899. The original boiler house was a one storey brick building measuring 25m wide and 14m deep, with a basement, constructed to be symmetrical about the chimney stack (Figure 9.3). The original brick façade of the Pump House was of similar brickwork to that of the adjacent Office Building/ North Annex, with elaborate plinths, arch springing course, cornices, string courses at the crown of arch, while voussoirs and entablature were executed in moulded brick rather than stone as on the North Annex. The chimney was constructed of 890,000 bricks, rising 200 feet above the flue (see Figure 9.5 and Figure 9.6) and could carry furnace gases up to 5,000 h.p.[1] (Figure 9.5 to Figure 9.8). The Pump House originally contained two triplex plunger pumps with a capacity of 560 litres/minute, each driven by a 18.6kW electric motor.[2]

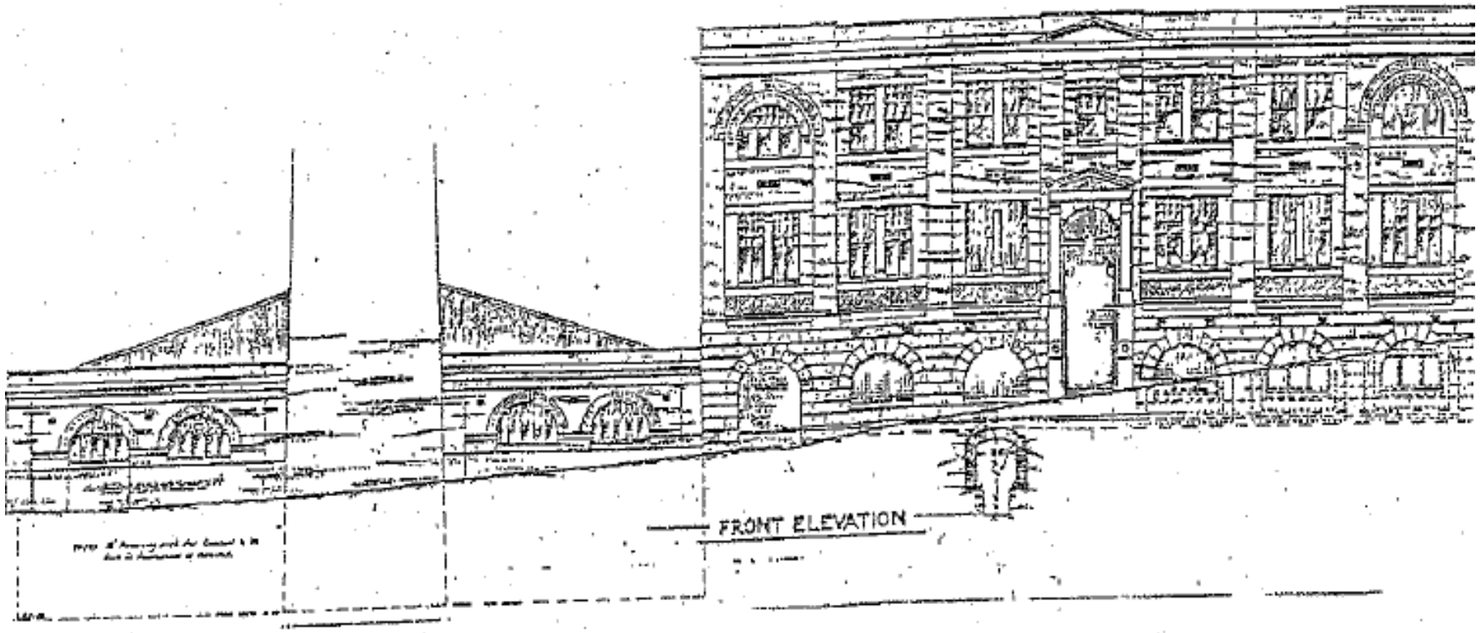
The New Boiler House (see Part C: Section 12) was constructed in 1902-1905, at which time the old Boiler House (including Pump House) was integrated into the design.[3] Following the 1927-32 reconstruction of the Power House, the former Pump Room (including the chimney) was decommissioned[4] (Figure 9.3).

In 1958 one of the retaining bands from the pump house chimney fell off, prompting a 1959 tender for the demolition of the former Pump House chimney stack. Brick by brick, the majority of the Pump House chimney was demolished in 1960, leaving only 25 feet of the chimney remaining along the northern elevation of the pump house[5] (Figure 9.9). Further demolition of the former Pump House (the north east corner and remains of the chimney) occurred in 1967-68 for the construction of the William Henry Street bridge (completed in 1969 and replaced the former two-lane 1886 iron bridge in this location).

By 1984 the site of the former Pump House had become little more than a ruin, with part of the western section of the building remaining, covered by sections of the corrugated iron roof. Use of the area as a dump by Sydney City Council in the 1970s and 1980s had resulted in the collapse of the building floor in the east.[6]

By 2003, further disintegration and unrecorded demolition of the Pump House had occurred, although some of the remnant roof structure remained.[7] In 2020, all that remains of the pump house are sections of the northern and eastern facades fronting William Henry Street, a small portion of the chimney and a few remnant pieces of the former roof truss. The Pump House space is not currently used for any purpose.

Figure 9.2 Location of the former Pump House (Source: Powerhouse 2022)



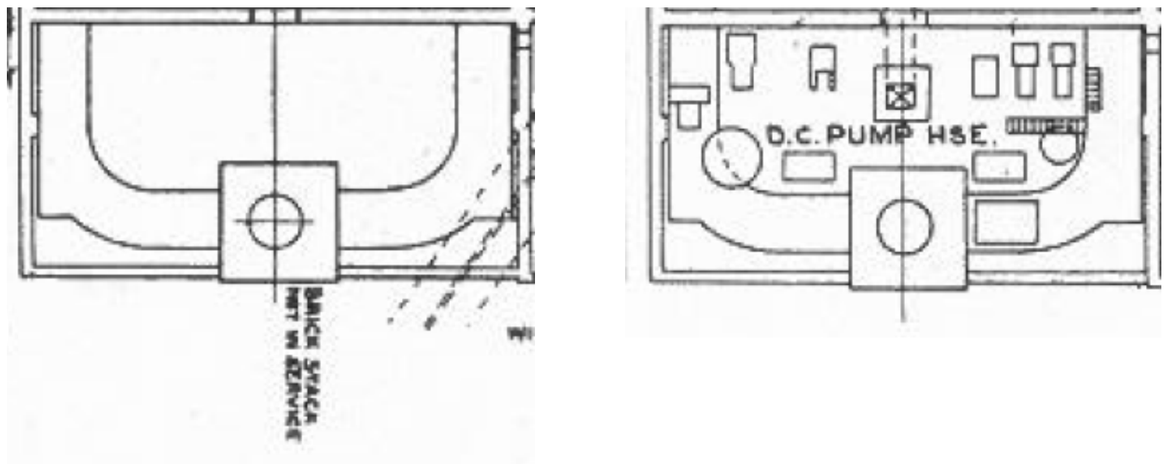
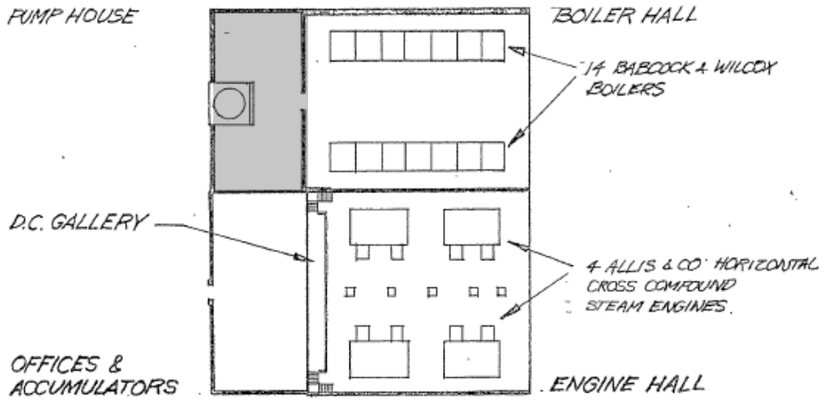


Figure 9.3 Top: Original north elevation of the old boiler house (Pump House) (left) and Office Building (right) (Source: NSWGT Contract No.12 Drawing No. 4 1898)
Bottom: Pump House prior to (left) and after (right) 1932 Power House reconstruction (Left) (Source: Myers, 1933, p. 254)



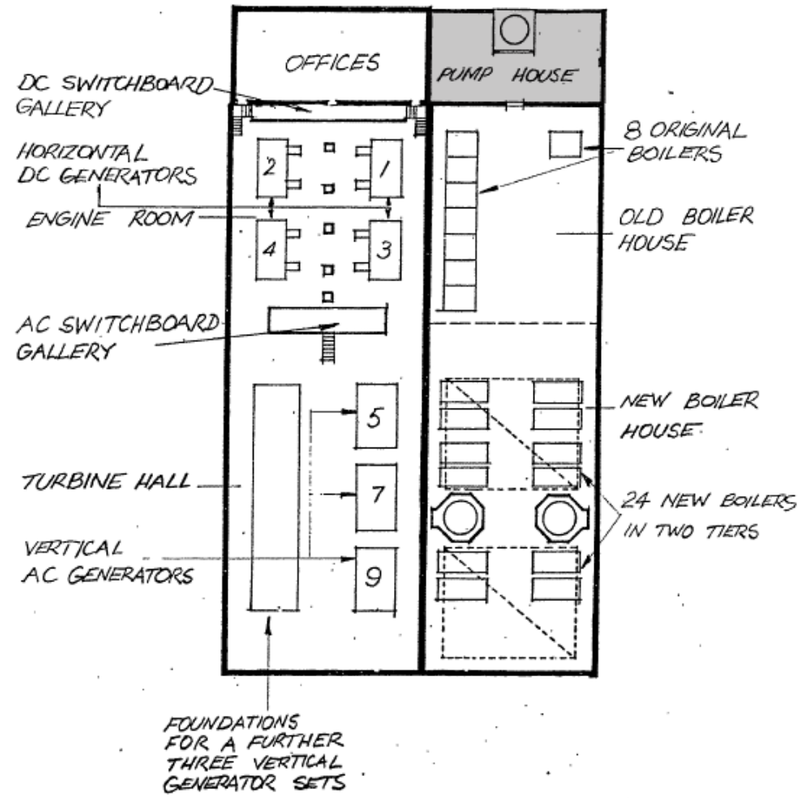


Figure 9.4 1899 Layout of the Power House layout (left) and 1902 (right). Former Pump House in grey (Source: Godden et al. 1984 p. 98 & 104)

Figure 9.5 Construction of Ultimo Power House Pump House and Administrative Offices (North Annex), 1898 (Source: State Archives and Records Authority of NSW NRS-4481-2-[4/8645]-1219)

Figure 9.6 Construction of Ultimo Power House Pump House, 1898 (Source: State Archives and Records Authority of NSW NRS-4481-2-[4/8645]-1218)

Figure 9.7 Ultimo Power House Administrative Offices (North Annex), and Pump House, c. 1899 (Source: State Archives and Records Authority of NSW NRS-4481-2-[4/8645]-1231)

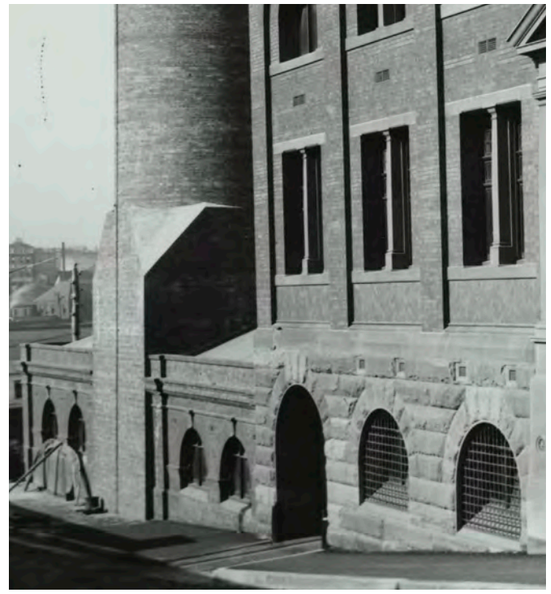


Figure 9.8 Close up of Pump House north elevation, c. 1899 (Source: State Archives and Records Authority of NSW NRS-4481-2-[4/8645]-1231)

Figure 9.9 William Henry Street frontage of Pump House and North Annex in 1965 prior to construction of William Henry Street bridge; Pump House chimney mostly demolished (Source: City of Sydney Archives SRC13937, CC BY 4.0)

Figure 9.10 Proposed site for bridge on William Henry Street, 1965 (Source: City of Sydney Archives NSCA CRS 48/4598, CC BY 4.0)

Figure 9.11 Proposed site for bridge on William Henry Street, 1965 showing Pump House (L) and North Annex (R). (Source: City of Sydney Archives NSCA CRS 48/4599, CC BY 4.0)

Figure 9.12 Demolition of the remains of Pump House chimney (Source: City of Sydney Archives SRC13952, CC BY 4.0)

9.2 PHYSICAL ANALYSIS OF THE PUMP HOUSE

An overall photo register and images of the Pump House as of 2020 is presented in Section 9.6.

9.2.1 Site and Setting

The Pump House forms part of the Powerhouse Ultimo Site at 500 Harris Street, Ultimo. The site of the former Pump House is located at the northern end of the site, bounded by William Henry Street (and bridge) to the North, the light rail line to the east, the Boiler House to the South and the North Annex to the west. Very little remains of the former Pump House structure. The Pump House remains visible from the upper levels of the North Annex or from the William Henry Street Bridge overpass. The site of the former Pump House is currently accessed from Level 1 of the Boiler House via a modern door insertion along the northern façade, as well as via a modern concrete stairwell and access door beneath the bridge overpass.

9.2.2 Built Elements

The Pump House site currently reads as an above-ground archaeological ruin. All that remains of the pump house are sections of the northern and eastern facades, a portion of the chimney and a few remnant pieces of the former roof truss (Figure 9.13 and Figure 9.14). The remaining brickwork shows evidence of red-brown, plastic moulded bricks, similar to the façade of the North Annex. The original size of the footprint of the Pump House remains clearly evident as delineated by the remaining northern and eastern wall fabric, the North Annex, and Boiler House walls. There are no internal spaces remaining.

While the remnant roof structure of the Pump House appeared evident in 2003 during the preparation of the original CMP, in 2021 all that remains of the roof is a couple of ferrous iron supports attached to the remnant section of the chimney and to the northern boiler house facade, and the outline of the former roof line of the Pump House visible in the brickwork along the northern wall of the Boiler House.

The Pump House was reportedly constructed with a basement, as well as with a tunnel that provided access to the original well.[8] Physical analysis of the site in 2021 confirmed a basement level beneath the modern ground level, however this was not easily accessible for further investigation. A modern asphalt floor surface consistent with Level 1 of the Boiler House has been constructed across the former Pump House footprint, with concrete access stairs in the south east providing access to the William Henry Street level of the site. The modern Level 1 ground surface has visually truncated the remnant archway brickwork and windows along the northern Pump House wall. The remnant northern wall archways, visible from beneath the bridge overpass, have been bricked over.

9.3 HERITAGE SIGNIFICANCE

The former Pump House (1st Boiler House) is included in the following statutory heritage registers as part of the Ultimo Power House:

- Sydney LEP 2012, *The Powerhouse Museum Former Warehouse Buildings, including interiors*, I2031, 14 Dec 12.

The Pump House is not specifically included in the 2020 State Heritage Register listing for the Ultimo Powerhouse, and the extent structural remains (i.e. northern wall and chimney, eastern wall), are not included within the SHR curtilage as gazetted.

The former Pump House is also included on one non-statutory register: National Trust (NSW) Register *Powerhouse Museum (Stage Two)* (S11648).

9.3.1 Summary of Significance

Built as part of the original Ultimo Power House in 1899, the Pump House is historically significant as one of the original buildings of the Power House complex. However, unlike the other Power House buildings (North Annex, New Boiler House, Turbine & Engine Halls), the former Pump House has been mostly demolished, with only the northern and eastern walls, and part of the chimney stack, remaining. While views of the remnant facades and chimney have been predominantly obscured by the 1968 extension and raising of the William Henry Street bridge, these elements retain aesthetic significance as the only remaining evidence of the original Boiler House of the 1899 Ultimo Power House, which could be further enhanced and communicated by introduction of interpretation initiatives in this location. Archaeological remains of the former Pump House basement and tunnel may remain in a subsurface capacity, however physical investigation of the extent of subsurface remains has not been undertaken at present.

9.3.2 Summary of Significance

The 1968 raising and widening of the William Henry Street Bridge both destroyed a large proportion of the original structure of the Pump House, whilst simultaneously impacting views to the remains of the building. The location and remains of the former Pump House is mostly visible only from the William Henry Street bridge, and from the upper levels of the North Annex. The outline of the former Pump House roof line remains visible in the brickwork of the northern facade of the Boiler House.

9.3.3 Grading of Significant Components for the Pump House

The key components and elements of the fabric and form of the former Pump House have been ranked accordance to the Heritage NSW criteria for assessing significance, as summarised in Table 9.1 and depicted in Figure 9.17.

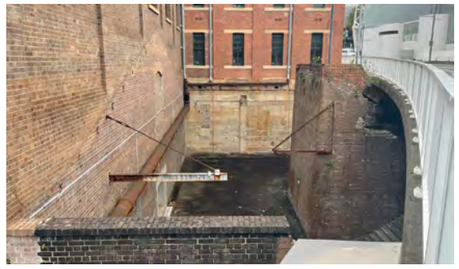
Figure 9.13 Remnant northern wall and chimney base (blue) of the 1899 Pump House (Source: Powerhouse 2022)

Figure 9.14 Remnant eastern wall (blue) of the 1899 Pump House (Source: Powerhouse 2022)

Figure 9.15 Remnant northern façade of the former Pump House is only visible from beneath the William Henry Street bridge (Source: Curio 2020)

Figure 9.16 View of Pump House remains from William Henry Street bridge (Source: Powerhouse 2022)

Table 9.1 Grading of Significant Components for the Pump House

ELEMENT	IMAGE	GRADING	NOTES
Roof Structure		● MODERATE	The majority of the form and structure of the roof of the pump house is no longer present, with only several iron beams remaining attached to the remnant fabric of the chimney stack and to the northern wall of the Boiler House. The outline of the former Pump House roof remains visible on the wall of the boiler house and this visual feature should be retained.
External Walls (Original)		● HIGH	As one of the only remaining elements from the original Power House, the original walls are of high significance. Opportunities to interpret the remnant fabric of the Pump House should be investigated.
Chimney		● HIGH	As the only extant chimney from the original 1899 Power House, what remains of the pump house chimney is of high significance. Opportunities to interpret the remnant fabric of the Pump House should be investigated.
Floor		● LITTLE	The modern asphalt surface that has been constructed across the footprint of the former Pump House consistent with Level 1 of the Boiler House, including concrete access stairs adjacent to the Boiler House northern façade, and access to William Henry Street, are of little significance.

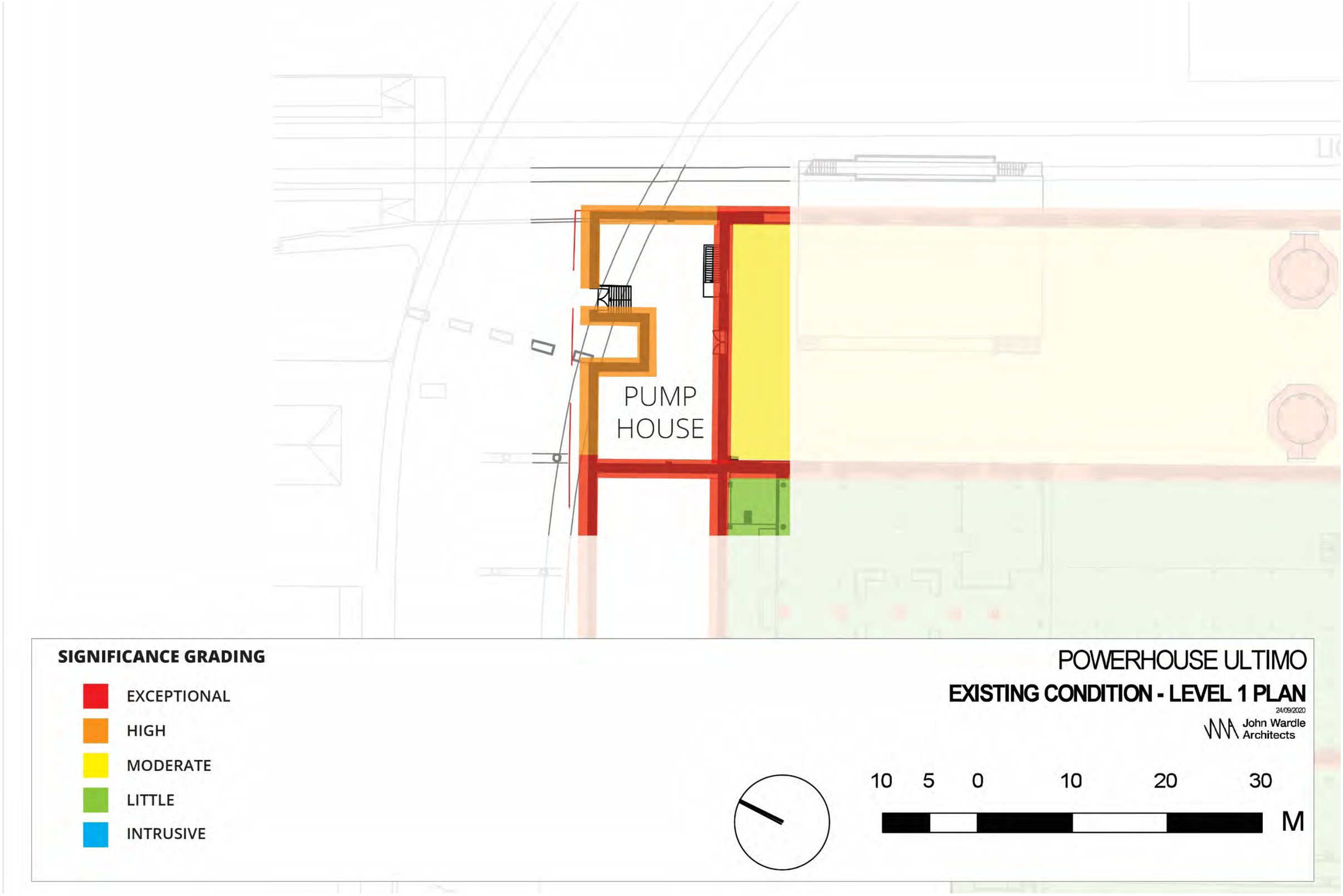


Figure 9.17 Former Pump House Grading of Significant Components (Curio 2021)

9.4 OPPORTUNITIES AND CONSTRAINTS

Opportunities and constraints specific to the former Pump House include:

Opportunities

- The Pump House site including remnant chimney and original Boiler House Footprint should be retained, conserved and interpreted, where possible. The space and remnant historic fabric has outstanding potential for creative reinterpretation that combines the existing remnant fabric, new built elements, landscaping, possible elevated pathways and cleverly designed interpretation.
- Creation of a new accessible outdoor space within the footprint of the former Pump House for Powerhouse utilisation
- Potential for a careful and sensitive adaptive reuse of this area of the site that allows for the construction of a new building within the remnant footprint of the original Boiler House. However the ongoing retention and protection of the remaining fabric would be preferred above alternative interpretative options, in order to facilitate future interpretation of the site and maintenance.
- Creation of a careful through-site pedestrian access directly from William Henry Bridge/Light Rail Station via the former Pump House site through to the Former Ultimo Power House could be explored to improve site access to the Powerhouse. Site-through access directly to the William Henry Bridge approaches that would allow for this unique historical 'ruin' to be accessed more easily and provide an opportunity to interpret this 'forgotten' area of the site.

Constraints

- The location of the former Pump House obstructed by the William Henry Street bridge presents a significant physical constraint for visibility and access to this area of the Powerhouse site.
- The exterior location of the Pump House means the remains of the building are significantly affected by weather, including frequent flooding of the modern stairwell, penetrating the basement level.
- The area is prone to vegetation growth, vandalism and garbage thrown or blown in via the overhead William Henry Street bridge.
- The proximity to the William Henry Street Bridge impacts the ability to interpret the former roof of the building. In 1984 when the majority of the roof truss remained, Godden et al[9] discussed the potential to reconstruct the roof, this was again discussed in Architectural Project's 2003 CMP.[10] As of 2021, the extent of the former roof truss referred to in 1984 and 2003 no longer remains at the site. Any attempt to recreate the roof in another fabric (eg glass) to allow a visual connection to the ruins whilst providing cover, would be structurally and logistically difficult due to the position of the William Henry Street Bridge, would be hard to protect, and likely subject to vandalism. Therefore reconstruction of the former Pump House is no longer considered an appropriate or viable option for the site.

9.5 ITEM-SPECIFIC CONSERVATION POLICIES

Policy 26—Interpretation and Education: The remnant fabric of the former Pump House should be retained where possible, integrated into programmatic interpretation. The outline of the supporting arches and flues in the brickwork between the Pump House and the Boiler House should ideally remain visible.

9.6 PHOTO REGISTER FOR THE PUMP HOUSE

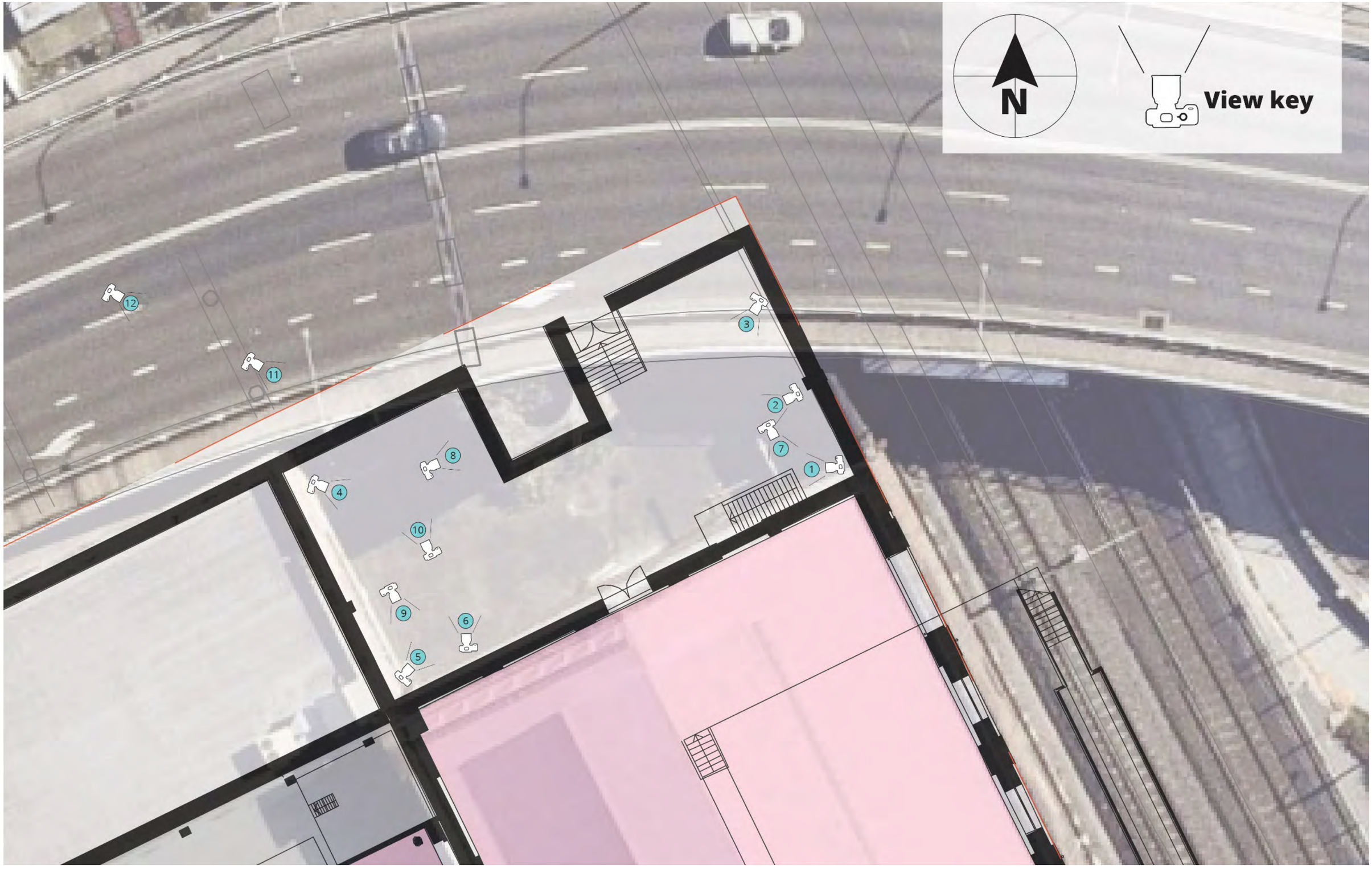
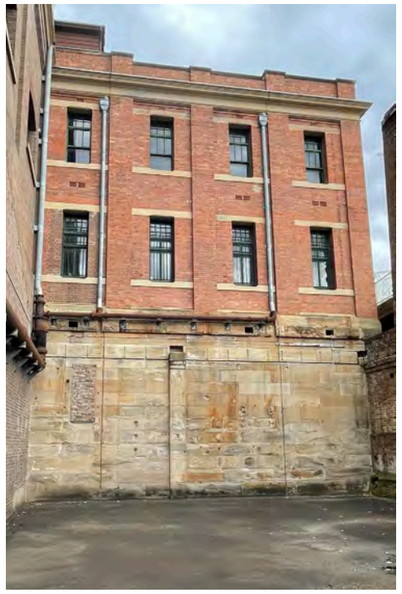


Figure 9.18 Pump House Photo Register

Pump House Viewpoint 1: North Annex in Background. Remnant chimney fabric and roof truss visible. Access to William Henry Street in right. Modern asphalt surface consistent with Boiler House Level 1.



Pump House Viewpoint 2: Eastern wall of North Annex

Pump House Viewpoint 3: Boiler House northern façade, outline of former Pump House roof visible in brickwork.

Pump House Viewpoint 4: Boiler House northern façade, outline of former Pump House roof visible in brickwork.

Pump House Viewpoint 5: Level 1, William Henry Street bridge resting on remnant north and eastern pump house walls, remnant chimney section.

Pump House Viewpoint 6: Level 1, interior of remnant northern wall and chimney, William Henry Street bridge above.

Pump House Viewpoint 7: Modern access stairs in southeast, adjacent to northern Boiler House facade

Pump House Viewpoint 8: Original brick archway obscured by construction of modern Level 1 surface

Pump House Viewpoint 9: Original brick archway obscured by construction of modern Level 1 surface

Pump House Viewpoint 10: Northern wall interior, bricked over archways

Pump House Viewpoint 11: Northern wall exterior from William Henry St, archways infilled with modern brick

Pump House Viewpoint 12: Northern wall exterior, adjacent to North Annex, view from underneath William Henry Street bridge.

9.7 ENDNOTES

1 Godden et al, 1984, p. 4.; NSW Department of Public Works 1900, p. 23.
2 Godden et al, 1984, p. 96
3 Architectural Projects, 2003, p. 15.
4 Myers, W. H., 'Reconstruction of Ultimo Power Station, Sydney', *Transactions of the Institution*, 1933, p. 254.
5 Godden et al, 1984, p. 37.
6 Godden et al, 1984, p. 14.
7 Architectural Projects, 2003 p. 105
8 Godden et al, 1984, p. 26.
9 Godden et al, 1984, p. 25.
10 Architectural Projects, 2003, p. 109.

10 THE ENGINE HOUSE

10.1 HISTORY OF THE ENGINE HOUSE

Previous Names	Engine Room, Generating Room, Engine Hall, Old Engine Room, Substation
Address	500 Harris Street, Ultimo
Lot & DP	Lot 1 DP631345
Built	1899
Heritage Listings	SHR 02045 “Ultimo Power House”
	LEP I2031, “Powerhouse Museum Former Warehouse Buildings, including interiors”
Non-Statutory Listings	Register of the National Estate (Powerhouse Museum (Stage Two), Place ID 100690
	National Trust of Australia (NSW) Register (S11648, 24/10/2015)

Figure 10.1 Location of the Engine House (Source: John Wardle Architects with Curio Projects overlay).

The Engine House was part of the original 1899 construction of the Ultimo Power House, constructed as the main engine room measuring 30m wide x 32m long, consisting of a DC switchboard gallery in the north, and the main engine room that was separated into two equally sized bays (Figure 10.4).[1] While the Engine House was effectively a southern continuation of the main structure of the North Annex (Office Building), it was designed and constructed in a more utilitarian character than its northern counterpart. The interior of the Engine House was constructed with terracotta tile flooring, and with skirtings and tile walls to a height of 1.6m.

The bays contained four sets of Allis-Corliss Horizontal Cross Compound Steam Engines, and each bay was served by a 30 tonne electrically-driven travelling crane supported from the Engine House walls and centre of the bays on continuous plate girders, which were in turn supported by lattice columns braced by arch beams (Figure 10.5). The cranes, supplied by H. W. Peabody and Company, were built in the United States and were revolutionary at the time as only one man was needed to operate them.[2]

At the time of installation, the switchboard was described as:

> The switchboard, which is 40 feet long and 7 feet 6 inches high, has been delivered by the contractors, H. H. Kingsbury & Co., and the work or erection is about to commence. It will be placed on a gallery 90 feet long overlooking the engine-room 14 feet above the floor. Provision has been made so that the switchboard can be extended as may be required.[3]

On September 12th, 1901, a fire broke out in the Engine House when the woodwork surrounding the switchboard caught alight and burnt the cable insulation, shutting down the Power House and causing the sudden stoppage of trams on George and Elizabeth Streets (Figure 10.3). While the switchboard was completely burnt out by this fire, the Power House was shut down for less than 24 hours, and no lasting structural damage to the Engine House occurred.[4]

The Engine House was extended and altered in 1902 to construct and integrate the Turbine Hall (detailed in Part C: Section 11). Works in 1902 included cladding of the Engine House southern wall with metal sheeting,[5] as well as additional gallery floors on the north (D.C. power) and south (A.C. power) walls (Figure 10.4). The new gallery floors were formed on “specially rolled corrugated permanent formwork which is one of the few surviving examples in Sydney”.[6] Figure 10.6 and Figure 10.7 depict the Engine House after the 1902 extensions.

Further additions and alterations to the Engine House in 1913 included works to establish a substation in the Engine House to convert the alternating current (AC) generated by the new turbines in the Turbine Hall to direct current (DC). The Engine House substation consisted of a marble switchboard mounted near the centre of the room on the western side of the lattice columns, along with five rotary converters. The new switchboard, plus the need at this time to accommodate new switchboard apparatus required for tie-in cables for the new White Bay power house, resulted in the construction of a new mezzanine gallery along the western wall of the Engine House.

Figure 10.2 Interior of the Engine House in 2020 as part of the Powerhouse Museum (Source: Curio Projects 2020)

Following the construction of the separate switch house building in 1926, the south wall AC gallery of the Engine House was removed, while some further minor alterations and additions were undertaken in 1930. The original aesthetic of the Engine House interior (i.e. the terracotta floor tiling, skirting and wall tiles) was continued through both the 1902 and 1930 reconstruction works.[7] In 1932 a burst water main caused severe flooding of the Engine House, damaging machinery and severely delaying tram services for the day.[8]

When the Ultimo Power House closed on 11 October 1963, the Engine House, along with the other Power House buildings, fell into disrepair and was subsequently damaged by decay, squatters, and vandals (Figure 10.9). During this period of neglect in the 1960s and 1970s, the Engine House roof was damaged by rain water resulting in significant deterioration.[9]

In the 1980s the Engine House was subject to adaptive re-use works and redevelopment to serve as an exhibition space for the new Powerhouse Museum. While most of the main structure of the Engine House overall and exterior was retained as part of the 1980s redevelopment works, impacts included substantial salvage of the interior heritage, including breaking a number of heritage items:

> All electrical gear on the western gallery has been taken, even the brass covers and toggles from the electric light switches have been salvaged. But the salvage was not done with precision. Engines were smashed from their beds, slate panels broken to retrieve the last remaining pieces of copper, balustrades and railings torn out to allow easy access for demolition equipment'[10]

Other 1980s alterations and impacts to the Engine House interior included removal of the western wall switchboard gallery, removal of the concrete engine pads and surrounding tiled walkways, and removal of the cast iron floor grates that allowed crane access to the basement.[11] While the northern switchboard was removed, the north mezzanine gallery was retained. The partial floor of the Engine House was extended across the building, dividing it into two distinct levels to be used for exhibition space. Other works undertaken in the 1980s to incorporate the Engine House with the new Powerhouse Museum format and new structures included removal of windows and brickwork in the exterior (western) wall for new openings and connections to the Wran Building, construction of a southern mezzanine level and access stairs. In 2020 the Engine House is used as an exhibition space for the Powerhouse Museum.

FIRE AT THE ULTIMO POWER-HOUSE.

ELECTRIC TRAM SERVICE AT A STANDSTILL.

STEAM MOTORS TO BE UTILISED.

A sudden crashing noise, followed by a blinding flash of electric light, which was succeeded by darkness throughout the Ultimo power house, shortly before 9 o'clock on Thursday night, told the officers and workmen in that structure that something serious had happened. When a sizzling noise was heard and flames were seen to rise in the large room whence the electric power is distributed from a switchboard to the various tram lines, and also to North Sydney, it was at once seen that the electric current had started a fire in the woodwork surrounding the switchboard. As quickly as possible a local hose was got on to the fire, and a telephone message was sent to the fire brigade station for assistance. The men on duty worked hard to put

Figure 10.3 'Fire at the Ultimo Power-House', *Goulburn Evening Penny* Post, 14 Sep 1901, p. 4.

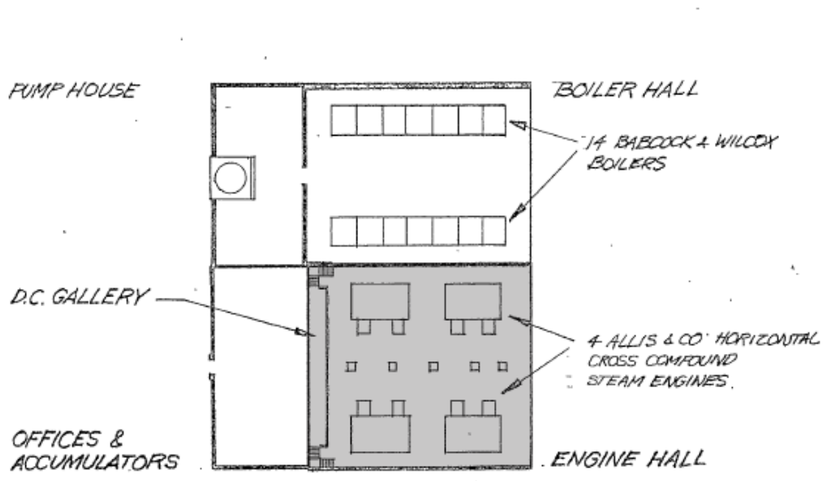


Figure 10.4 1899 (left) and 1902 (right) Layout of the Engine House in grey (Source: Godden et al. 1984, p. 98/104)

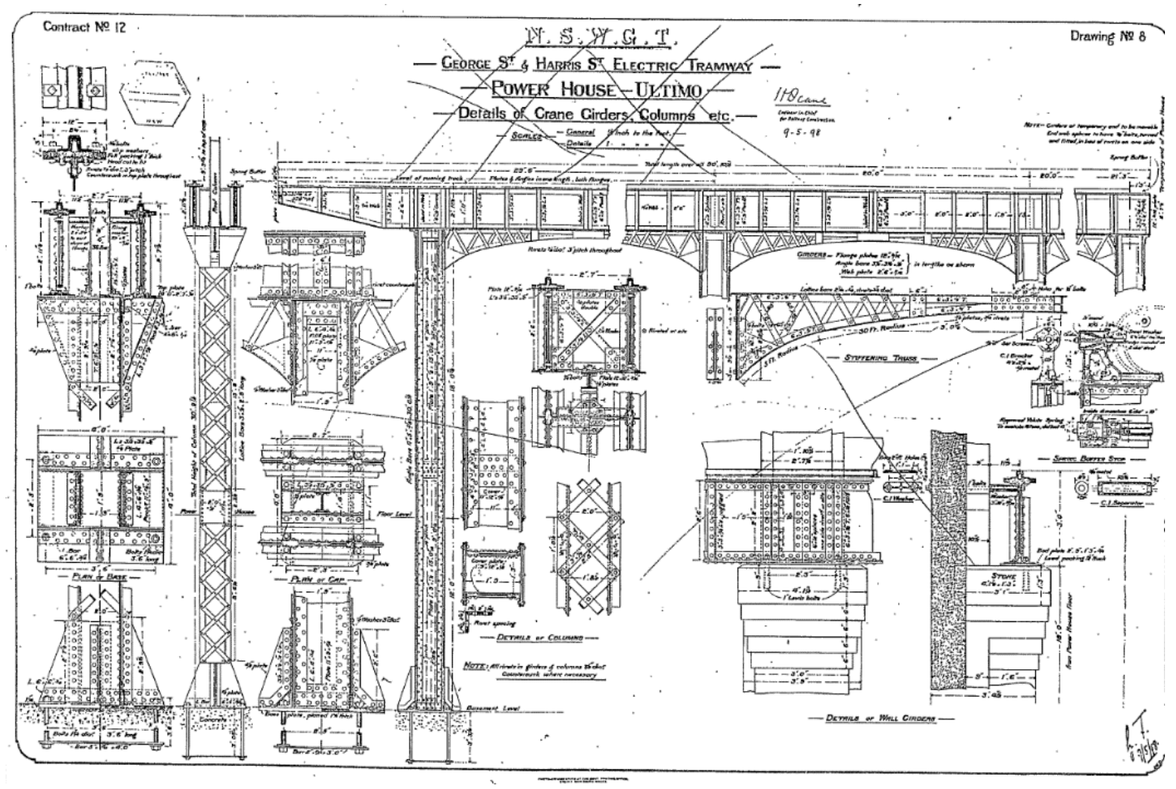
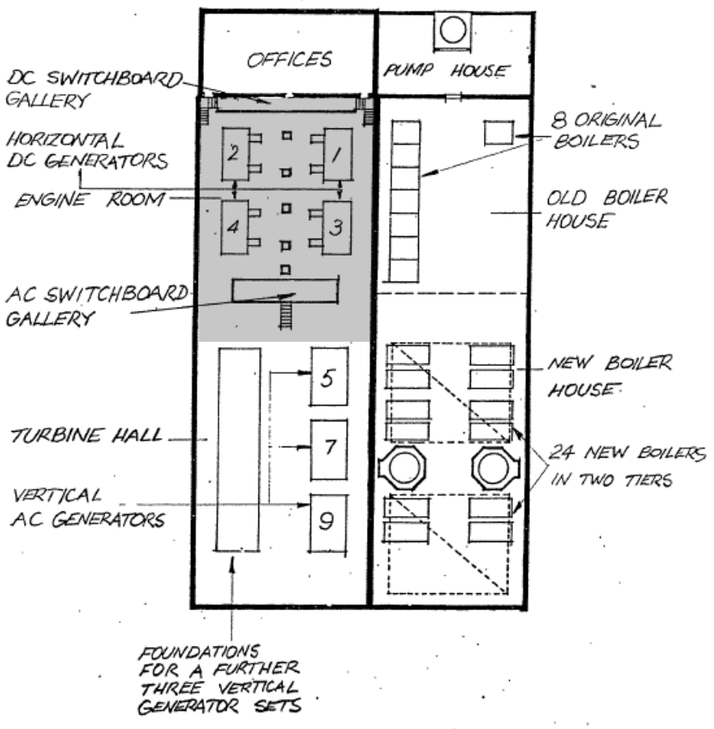


Figure 10.5 Contract 12 for the Crane Girders and Columns (Source: NSWGT cited in Godden et al , 1984, p. 86)



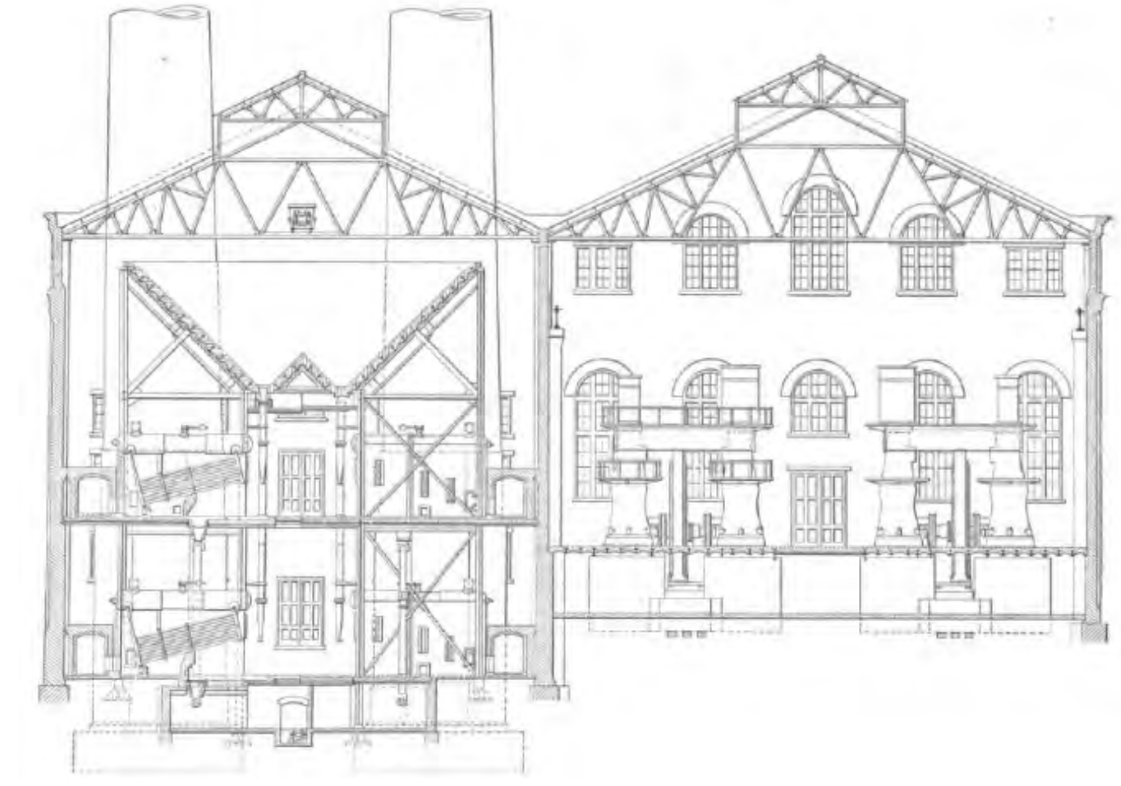


Figure 10.6 Sectional View of Boiler (left) and Engine Rooms (right) (Source: Electrical World and Engineer, 1902, p. 889)

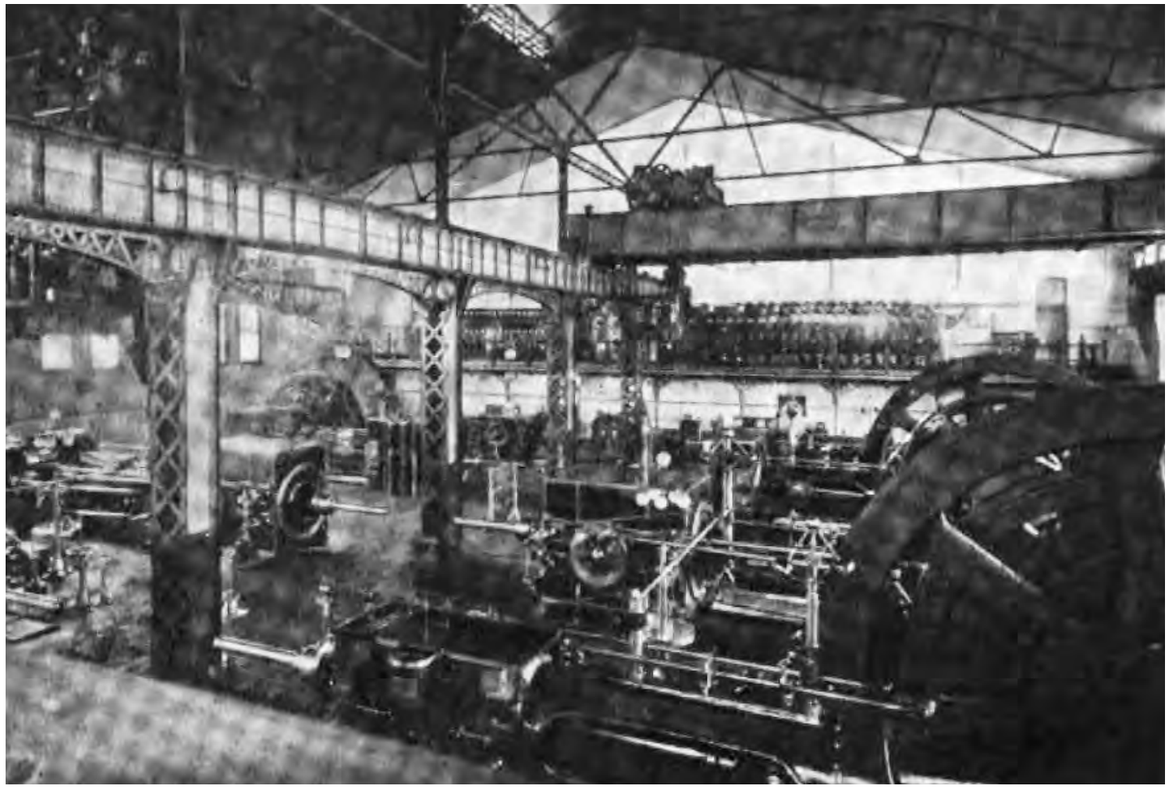


Figure 10.7 Engine Room c. 1902 (Source: Electrical World and Engineer 1902 p. 891)

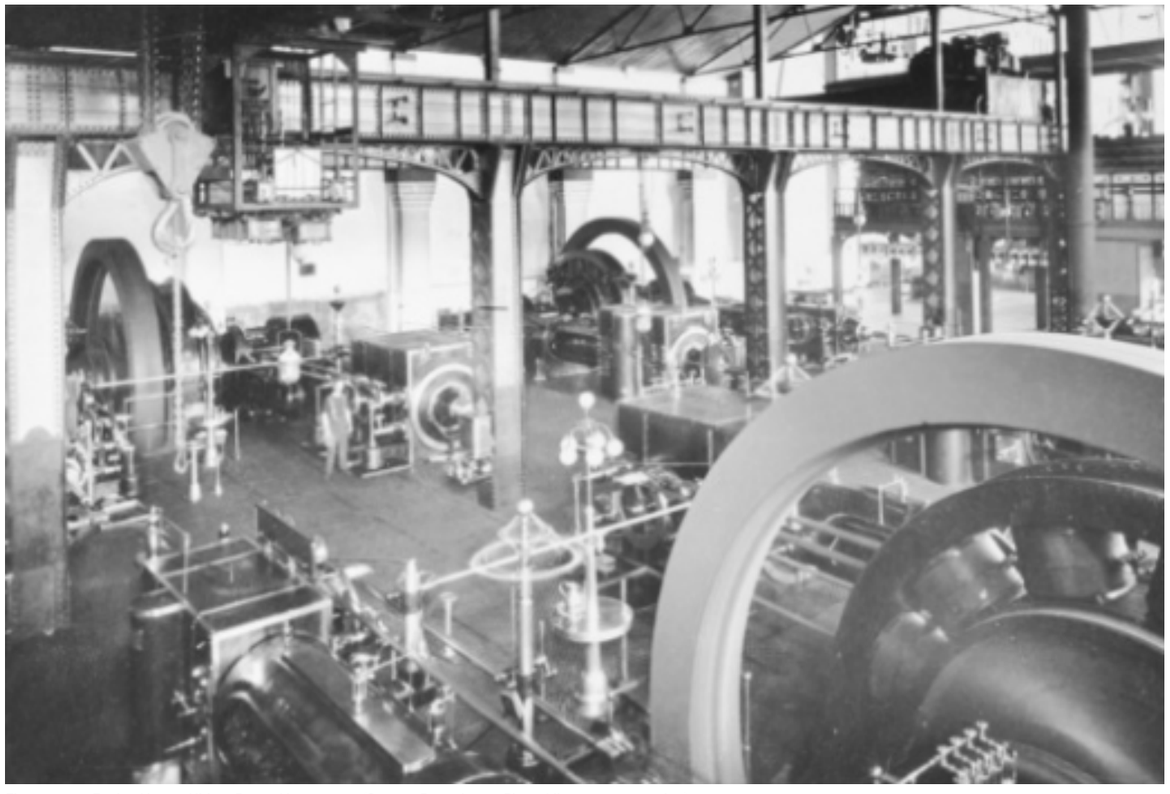


Figure 10.8 Engine House, Ultimo Power House, 1905 (Source: Powerhouse Photo Library 00q00196.jpg)

Figure 10.9 Ultimo Power House in the 1970s; location of former Engine House marked by red arrow. (Source: City of Sydney SRC23109)

10.2 PHYSICAL ANALYSIS OF THE ENGINE HOUSE

An overall photo register and images of the Engine House as of 2020 is presented in Section 10.6.

10.2.1 Site and Setting

The Engine House forms part of the Powerhouse Ultimo Site at 500 Harris Street, Ultimo. Within the Powerhouse Ultimo site, the Engine House abuts the North Annex to the north, the Boiler House to the East, the Turbine Hall to the South and the Wran Building to the west. Unlike many of the buildings on site, the Engine House never had a street frontage and was always located behind buildings on Harris Street.

10.2.2 Built Elements

The Engine House measures approximately 30m wide x 30m deep and is the most intact of the former Ultimo Power House buildings. The Engine House retains its original roof, trusses, and some of the remnant industrial infrastructure associated with the making of electricity for the Sydney tramway system, including wall cranes and five supporting latticed columns and arched beams. The western wall of the Engine Room is the building's only façade, and has been enclosed by the Wran Building making it an internal feature of the Powerhouse Museum. The exterior form of the Engine House has remained reasonably intact with faced brick laid in English bond- brown-grey on the exterior and with a white/grey finish on the interior.

> The pilasters are strengthening devices and divide the west front (the building's only external façade) into five bays with paired windows. The openings of the metal framed windows are segmental-arches and each brick sill runs the length of the window only and not the length of the bay, as in the office building. The façade is completed by a parapet which conceals the box guttering. Beneath the parapet is a double stringcourse of brickwork.
>
> The Engine Room retains many features; the overhead Case gantry cranes remain intact and in place; the white wall tiles were retained, and the floor was finished with tiles carefully matched to the originals; a hole in the eastern wall remains where a pipe carried steam from the Boiler House, and nearby there is a counter-weighted mechanism on the wall that once supported the pipe; the spherical glass light shades are reproductions of those seen in early photographs of the room; the switchboard gallery on the northern wall is mostly original, including one of two staircases and the cast-iron columns with decorative brackets that support the cast-iron floor plates; the other staircase and the wooden balustrades are reproductions. These remaining features inform how the space operated.[12]

The Engine Room features a vaulted corrugated iron roof with a louvred ventilating monitor which runs the length of the room, with the exclusions of the northern mezzanine which originally housed the switchboard.

> The roof of the engine room incorporates a louvred ventilating monitor with a vaulted corrugated iron roof. The monitor runs the length of the of the entire room only and was not built above the switchboard mezzanine. There were formerly ten prominent outlet vents fabricated from sheet steel (or iron) with deflecting conical caps and finials. Two of these vents remain.[13]

The partial floor of the Engine House was extended in the 1980s, dividing the Engine House into two distinct levels, both of which are used for exhibition purposes. Level 2 of the space features modern stairs and mezzanine level to the south separating the Engine House from the Turbine Hall.

10.3 HERITAGE SIGNIFICANCE

The Engine House, as part of the Ultimo Power House, is included within the following statutory heritage register listings:

- State Heritage Register (NSW), *The Ultimo Powerhouse*, SHR 02045, gazetted 04 Sep 2020.
- Sydney LEP 2012, *The Powerhouse Museum Former Warehouse Buildings, including interiors*, I2031.

The Engine House is also included on two non-statutory registers: the Register of the National Estate *Powerhouse Museum (Stage Two)* (Listing 100690); and the National Trust (NSW) Register *Powerhouse Museum (Stage Two)* (S11648).

10.3.1 Summary of Significance—Engine House

As one of the original 1899 Ultimo Power House buildings, the Engine House is historically significant as part of one of the most important and intact group of power station buildings in the State. The spatial volumes of the Engine House, combined with the remnant industrial elements, are significant. The remnant interior industrial elements of the gantry beams, columns, overhead tracks and gantry cranes provide rare tangible evidence that the building once housed a prolific, majestic collection of industrial machinery that produced the electricity for the Sydney trams. The Engine House is relatively intact despite a number of internal modifications, particularly to the floor of the building.

10.3.2 Views

Unlike many of the buildings on site, the Engine House never had a street frontage and was always located behind buildings on Harris Street. Construction of the Wran Building in the 1980s enclosed the Engine House's only external façade (western wall). Enclosed by buildings on all sides, the Engine House is not readily visible from any exterior locations across the site, with the western facade an internal feature of the Powerhouse Museum visible only from within the Wran Building.

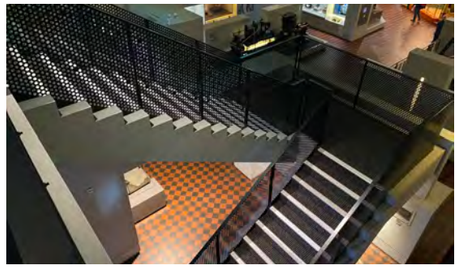
10.3.3 Grading of Significant Components

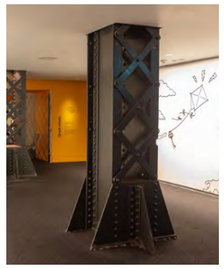
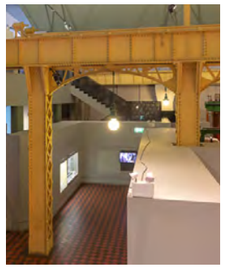
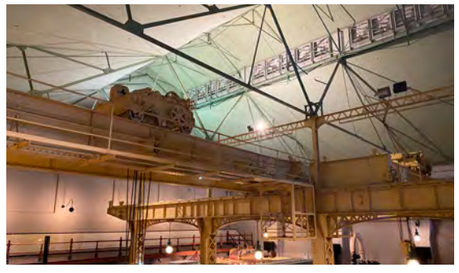
The key components and elements of the fabric and form of the Engine House have been ranked accordance to the Heritage NSW criteria for assessing significance, as summarised in Table 10.1 and depicted in Figure 10.12 to Figure 10.18.

Figure 10.10 Interior of Turbine Hall c. 1986 (Source: Powerhouse Photo Library ST2D-MCN-1-.jpg)

Figure 10.11 Engine Hall at Ultimo Power House being redeveloped as part of Powerhouse Museum Stage 2, c. 1986 (Source: Powerhouse Photo Library 00239730.jpg)

Table 10.1 Grading of Significant Components for the Engine House

ELEMENT	IMAGE	GRADING	NOTES
Roof Finish		● HIGH	The roof finish of the Engine House was relatively intact prior to its adaption into the Powerhouse Museum. The roof features a vent standard running north to south.
Roof Structure		● HIGH	The fabric of the Engine House roof structure has remained fairly intact, and is of high significance.
External Walls (Original)		● EXCEPTIONAL	The external (western) wall of the Engine House is part of the original 1899 fabric of the building. The western façade is in good condition and relatively intact, with the exception of some new openings in the brickwork and removal of windows to integrate the Engine House into the 1980s museum adaptive reuse. The wall has been enclosed by the construction of the Wran Building, now visible only from the interior of the Wran Building.
Windows (Original)		● HIGH	All original windows are of high significance.
Stairs (modern)		● INTRUSIVE	The existing modern stairs were added as part of the 1980s adaptation of the building for the Powerhouse Museum, removal of which (where practical) would allow the space of the Engine House to be reinstated more closely to its original spatial volume.

ELEMENT	IMAGE	GRADING	NOTES
Wall Tiles (white)		● EXCEPTIONAL	The white wall tiles along the northern mezzanine are original fabric, part of the wall finishes applied to the northern switchboard gallery of the Engine House.
Columns	 	● EXCEPTIONAL	The lattice columns constructed to support the wall cranes date to the 1899 construction of the Engine House and are of exceptional significance.
Floor finishes (Ground)		● MODERATE	The ground floor has been modified with open sections sealed and floor tiles added. The Engine House was originally finished with terracotta floor tiles that were damaged quite badly during 1980s works, and therefore replaced with tiles to match original. It is possible that some original tiles remain, integrated with modern replicas. The floor tiles are of moderate significance reflecting the original finishes and presentation of the Engine House floor as constructed.
Gantry Cranes and Beams		● EXCEPTIONAL	The overhead travelling cranes when installed in the Engine Room and in the Turbine Hall in the first expansion were the most modern of their type in the world and are now rare and of exceptional significance. The lattice beams and supporting arch work constructed to support the wall cranes date to the 1899 construction of the Engine House and are of exceptional significance.
Gallery floor (north), supporting columns and gallery stairs		● EXCEPTIONAL	The base of the gallery floor and supporting columns retain the original iron features, including cast iron columns produced by Bonner & Son's Globe Foundry in Sydney (as per remnant columns in the North Annex). The gallery floors on the north and west walls of the Engine Room were formed on specially rolled corrugated permanent formwork which is one of the few surviving examples in Sydney. The gallery floor has been tiled, yet the tiles were damaged during the 1980s salvage operation.

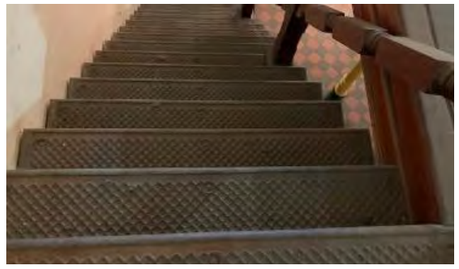
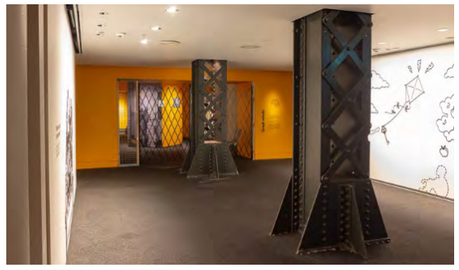
ELEMENT	IMAGE	GRADING	NOTES
Gallery stairs (north)		● EXCEPTIONAL	The north-eastern gallery access stairs are an original element of the building and of exceptional significance.
Modern inserts (including floor extension, southern mezzanine and museum displays)		● LITTLE	The modern inserts including extension of the north gallery to divide the Engine House into two distinct exhibition spaces, the southern mezzanine, etc are modern fabric installed as part of the 1980s adaptive reuse of the site for the Powerhouse Museum, and are of little heritage significance. The existing fit out in the Engine Room, including modern stairs and museum displays, obscures the significant fabric (columns, beams and trusses and views to gantry cranes) and special volume of the Engine Room.

Figure 10.12 Engine House Grading of Significance Map (Basement)

Figure 10.13 Engine House Grading of Significance Map (Level 1)

Figure 10.14 Engine House Grading of Significance Map (Level 2)

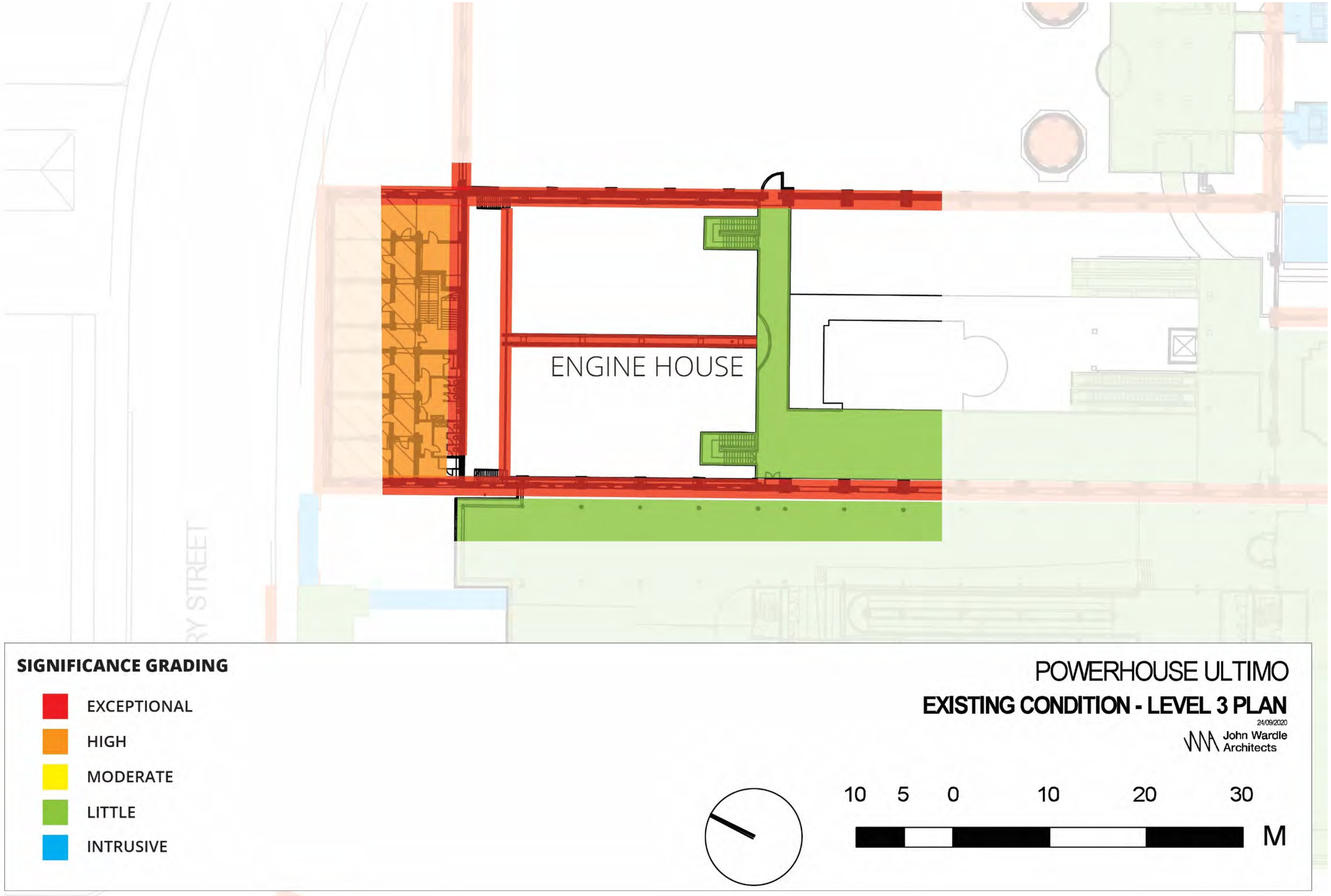


Figure 10.15 Engine House Grading of Significance Map (Level 3)

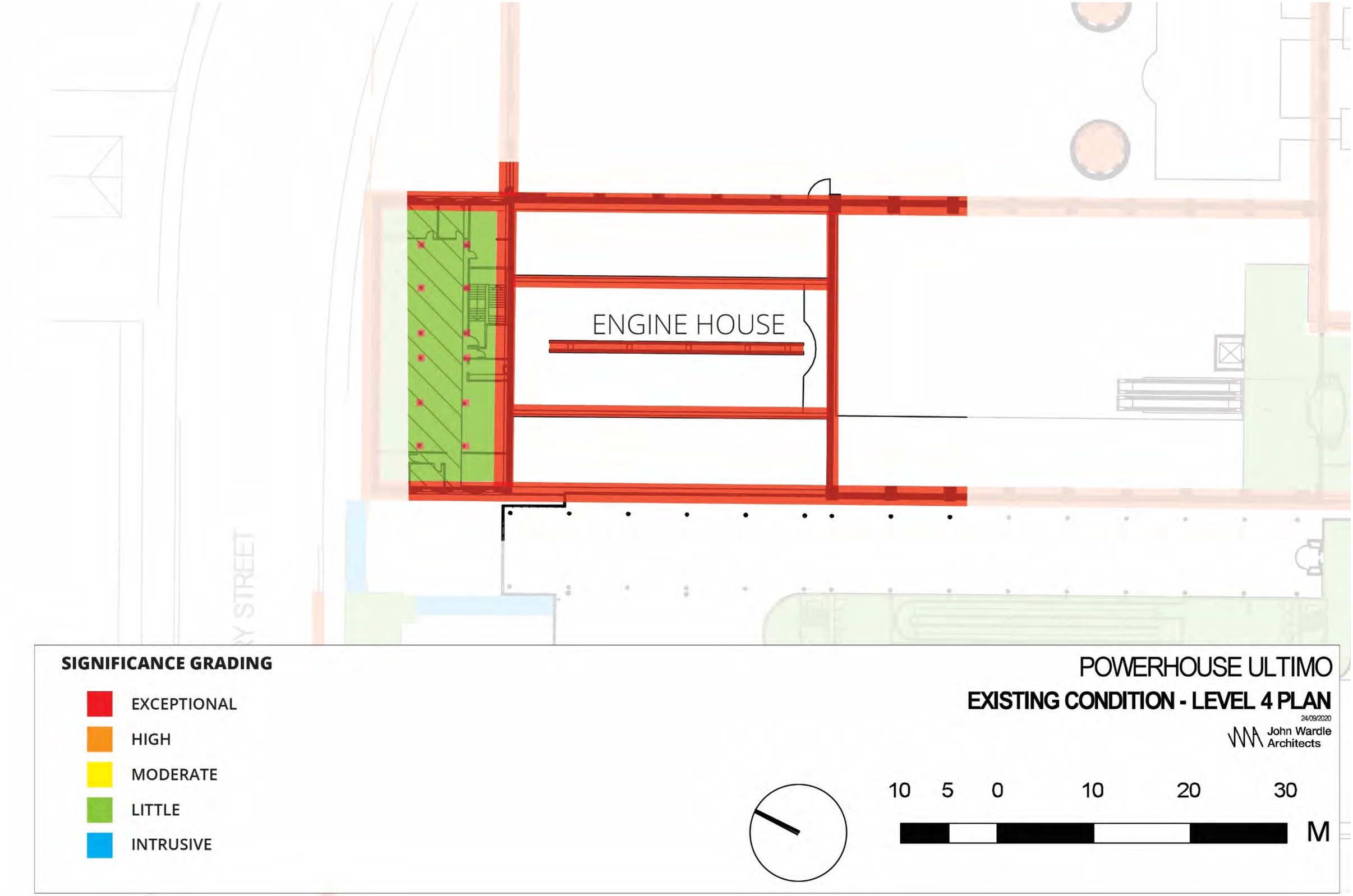


Figure 10.16 Engine House Grading of Significance Map (Level 4)

Figure 10.17 Engine House Grading of Significance Map (Level 5)

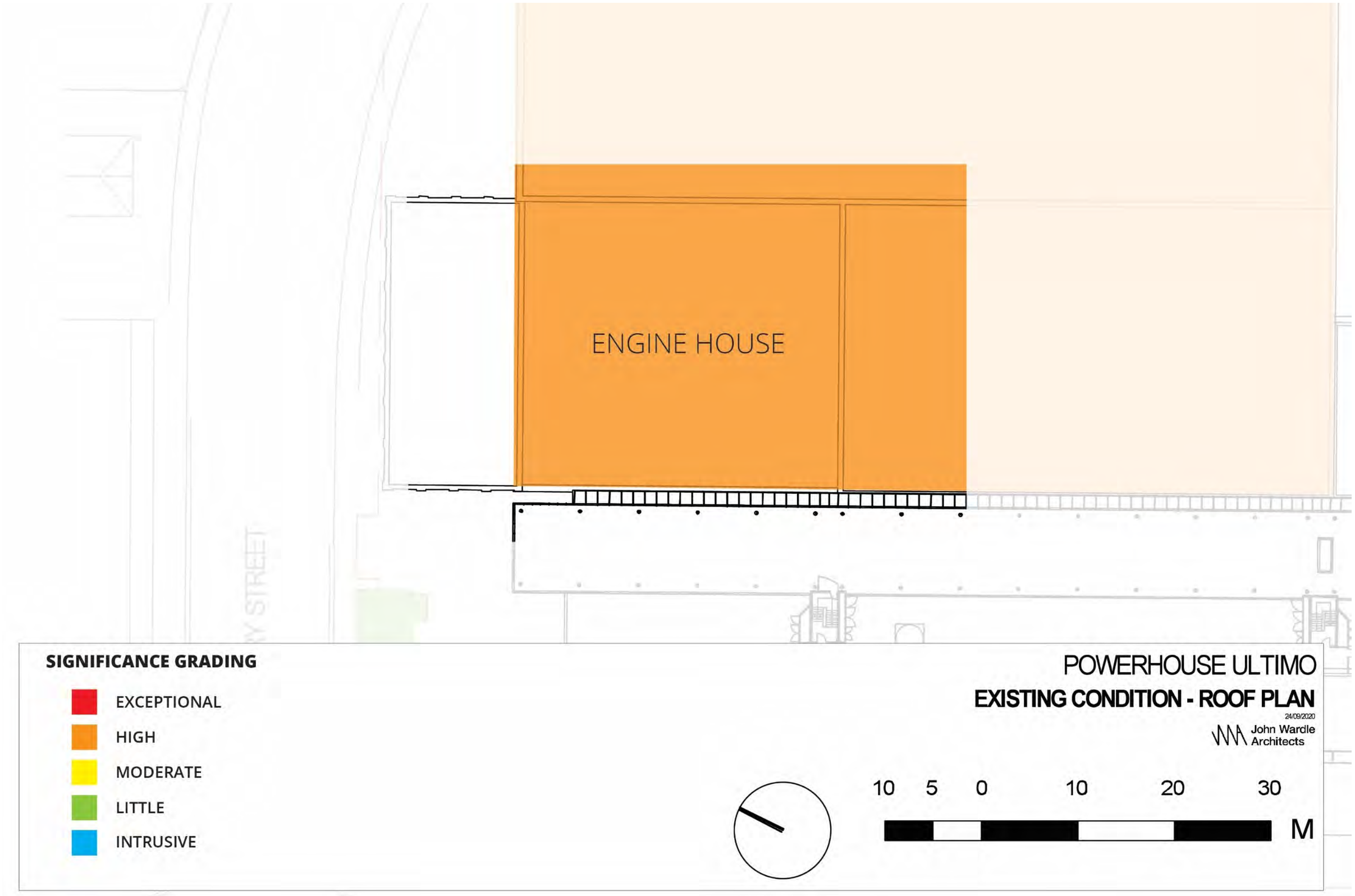


Figure 10.18 Engine House Grading of Significance Map (Roof)

10.4 OPPORTUNITIES AND CONSTRAINTS

Opportunities and constraints specific to the Engine House include:

Opportunities

- The existing fitout, including the modern stairs and museum displays, obscures the significant fabric and special volume of the Engine House. There is an opportunity through future works (such as removal of the modern fabric of the stairs and mezzanine inserts etc) to reinstate the original spatial volume and visual sightlines to the full-height of the columns, the overhead gantry cranes, overhead gantry tracks and associated remnant industrial fabric of the Engine House.
- Interpretation of the history and former use of the Engine House, including significant remnant elements of the gantry beams, columns, overhead tracks and cranes.

Constraints

- Any new elements proposed to be introduced into the Engine House space in future should not visually obscure the original gantry crane beams, overhead tracks, columns and gantry crane. New elements, if required to be introduced, should act as stand-alone lightweight elements that can be readily reversed in the future.
- Any future works to convert the Engine House space will need to consider how to manage elements such as light spill and acoustics so that there are no detrimental impacts to the original fabric of the building, as well as its spatial volume and overall visual aesthetic.
- Any activity that would require closing in the open roof plan (i.e. such as a false ceiling), covering and/or impacts to the trusses, gantry crane and columns would have a detrimental visual and physical impact on the significance of the building and would not be compatible or consistent with the remnant significant fabric and space.

10.5 ITEM-SPECIFIC CONSERVATION POLICIES

Policy 5—Buildings and Structures: The readability and presentation of the interior open space of the Engine House, Turbine Hall, and Boiler House is a significant feature of these former Power House buildings, and should be retained. The Engine Room, including its spatial volumes and associated original fabric (i.e. roof trusses, gantry columns, overhead tracks, beams and gantry cranes) form part of the significant fabric of the building. They should be retained, conserved and interpreted as part of any future use of the site.

Policy 7—Fabric: The removal of the modern stairs (little significance) within the Engine House would enhance the heritage values of the Engine House, allow the original space to be reinstated and appreciated in full.

Policy 15—Compatible Use: Any activity in the open spaces of the Engine House that would require closing in the open roof plan (i.e. such as a false ceiling), covering and/or impacts to the trusses, gantry crane and columns, would have a detrimental visual and physical impact on the significance of the building and would not be compatible or consistent with the remnant significant fabric and space.

10.6 PHOTO REGISTER FOR THE ENGINE HOUSE

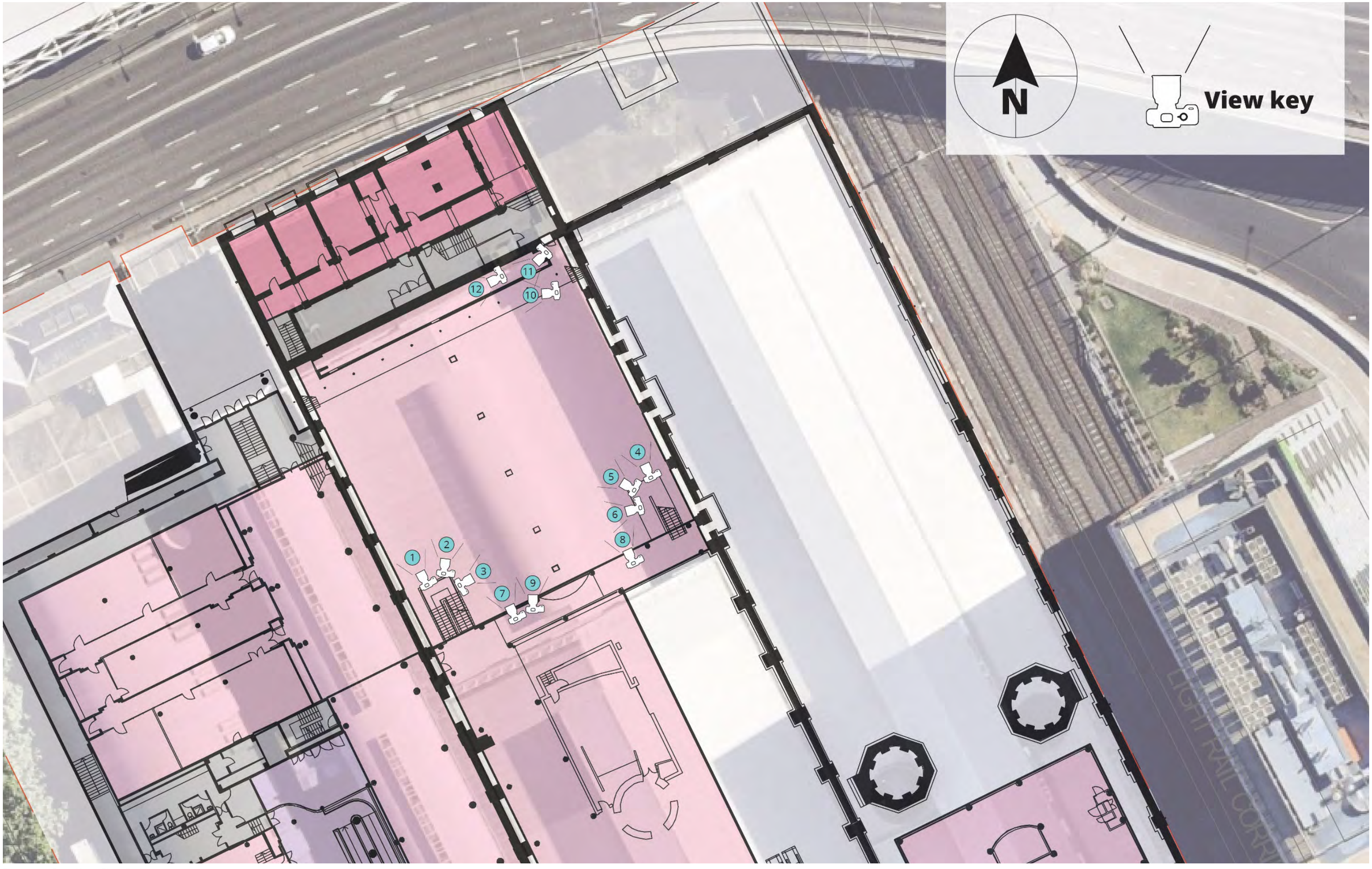
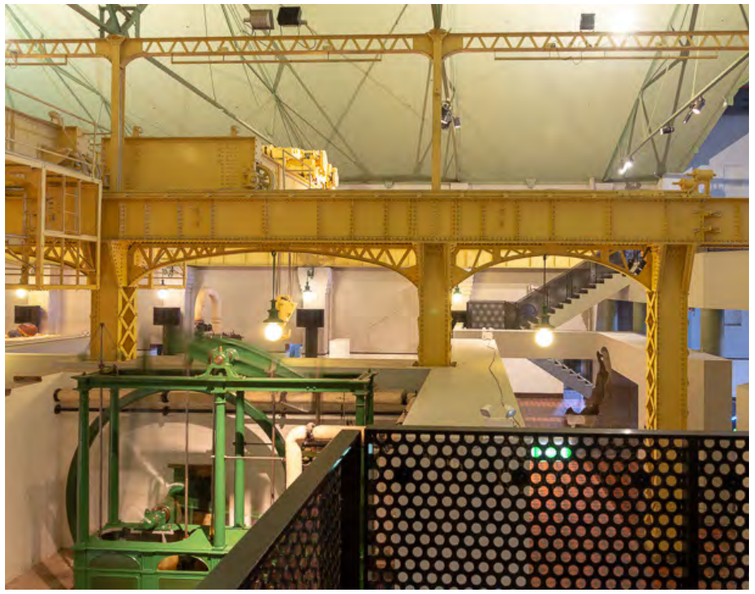


Figure 10.19 Pump House Photo Register

Engine House Viewpoint 1: Level 2 (view from stairway landing)

Engine House Viewpoint 2: Level 2 (view from stairway landing)



Engine House Viewpoint 3: Level 2 (view from stairway landing)

Engine House Viewpoint 4: Level 2 (view from stairway landing)

Engine House Viewpoint 5: Level 2 (view from stairway landing)

Engine House Viewpoint 6: Level 2 (view from stairway landing)

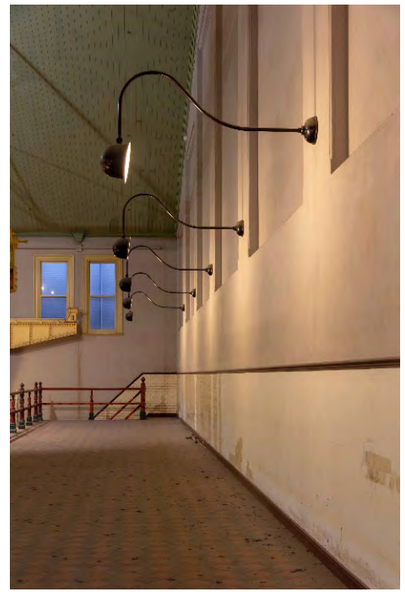
Engine House Viewpoint 7: Level 2 (view from level 3)

Engine House Viewpoint 8: Level 2 (view from level 3)

Engine House Viewpoint 9: Level 2 (view from level 3)

Engine House Viewpoint 10: Level 2

Engine House Viewpoint 11: Level 2



Engine House Viewpoint 12: Level 2

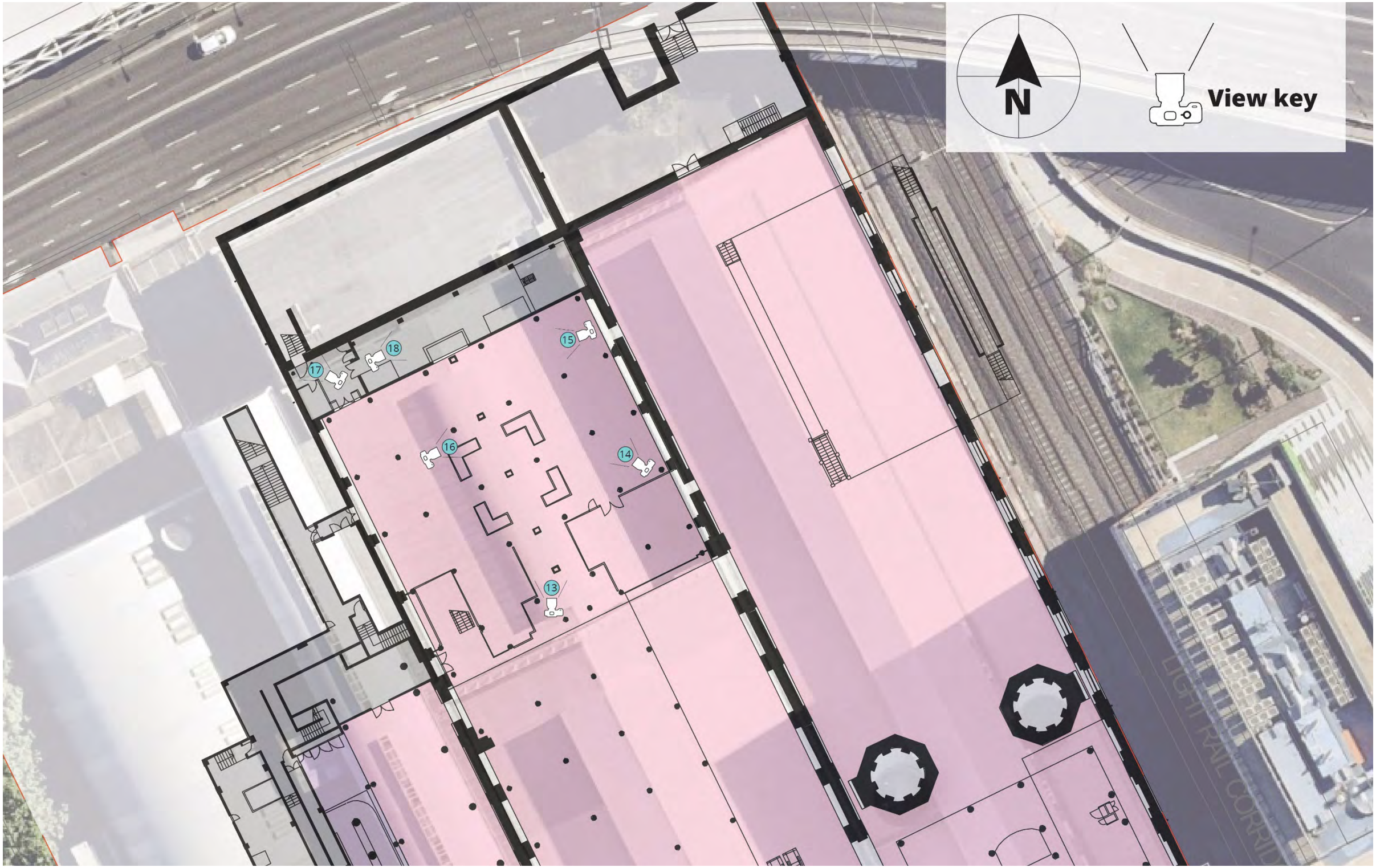


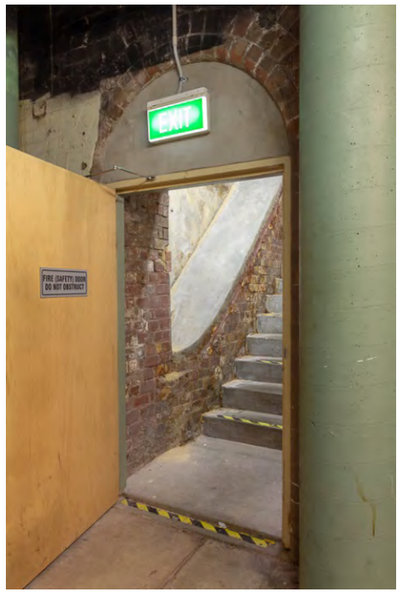
Figure 10.20 Engine House Photo Register (Level 1)

Engine House Viewpoint 13: Level 1

Engine House Viewpoint 14: Level 1

Engine House Viewpoint 15: Level 1

Engine House Viewpoint 16: Level 1



Engine House Viewpoint 17: Level 1. Access leading to North Annex. (See North Annex Viewpoint 5)

Engine House Viewpoint 18: Level 1 (view from stairway landing)

10.7 ENDNOTES

1 Steam Engines manufactured by E. P. Allis Co of Milwaukee, U.S.A; NSW Department of Public Works, 1900, p. 22.
2 Godden et al 1984, p. 87.
3 NSW Department of Public Works, 1900, p. 23.
4 'Fire at the Ultimo Power House', *Goulburn Evening Penny Post*, 14 September, 1901, p. 4.
5 TKD Architects, 2018, p. 5.
6 Godden et al, 1984, p. XVIII.
7 ibid, p. 23.
8 'Power-House Flooded', *Sydney Morning Herald*, 18 Mar 1932 p. 12.
9 Godden et al, 1984, p. 12.
10 Ibid, p. 15-16.
11 Ibid, p. XX, 15.
12 SHR Listing, *Ultimo Power House*. State Heritage Inventory, NSW Office of Environment & Heritage, Ultimo Power House (State).
13 Godden et al 1984, p. 6 ; Architectural Projects, 2003, p. 70.

11 TURBINE HALL