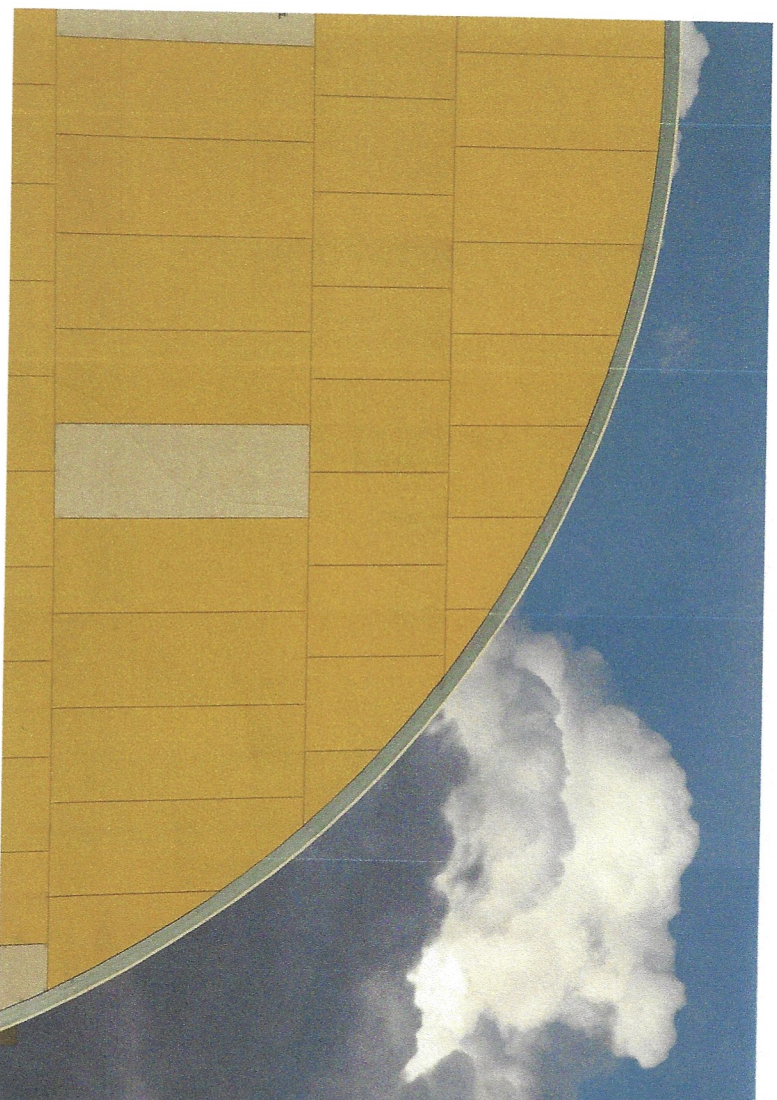


# POWERHOUSE MUSEUM

500 Harris Street, Ultimo  
Sydney NSW



## Conservation Management Plan

**DRAFT**

April 2022

prepared for  
CREATE NSW & MAAS



### 3.3 AESTHETIC SIGNIFICANCE

The aesthetic values of the place are borne out of the design ethos of Lionel Glendenning. The contrast between the old and new elements and a link to history in the architecture and composition of the precinct is key to its aesthetic qualities. The aesthetic values are discussed in detail in relation to the Powerhouse Museum Design Principles and include an assessment of site's context and setting and the significant views to the precinct.

#### STAGE I & II POWERHOUSE MUSEUM DESIGN

##### 3.3.1 A NEW PRECEDENT FOR MUSEUMS

Conceived by architect Lionel Glendenning, Dr Lindsay Sharp (Museum Director), Jack Ferguson (Deputy Premier) and Neville Wran (Premier), Powerhouse Museum was distinctive to other Museums in the 80s. It had few equivalents in the world and none in Australia.<sup>187</sup> The architectural character of the Museum was complemented by the innovative and refined approach to exhibition design by Richard Johnson. Not only did the project preserve the significance of the site for its former use as a Power House and Tram Depot, it referenced this in the new buildings. The old buildings were conserved, adapted, and presented anew as part of the Museum. The large volume spaces and the three-dimensional spatial character of the old buildings was retained. Lionel Glendenning's design set an exemplary precedent for adaptive reuse of industrial structures, well ahead of its time. His contribution to the field of heritage conservation and sustainability that underpins adaptive reuse is invaluable. The Powerhouse Museum presaged the Tate Modern - the conversion of London's Bankside Power House. Closer to home, it inspired many industrial building renewals – such as Casula Powerhouse, Tamworth Power Station Museum, Carriageworks, and the Longreach Power House Museum.<sup>188</sup>

The Museum became the first project to be nominated for three categories in the *National Architecture Awards* and won the *President's Award for Recycled Buildings* and the *Belle Interiors Award for Interior Design*, and became a finalist for the *Sir Zelman Cowen Award*.<sup>189</sup> It won the *Museum of the Year* award and the prestigious *NSW Sulman Award for Architectural Merit* 1988. The Sulman Award jury comprising prominent people working in the field of architecture - Ken Woolley, Suzanne Dance, David Logan and Prof Barry Maitland, remarked:

*A great popular success which appears to owe as much to the building and its exhibition design as to the contents themselves. Four old power-station buildings of varied character are joined by the insertion of stepped floors surmounted by two vaulted halls, one glazed and one covered-over. A colonnade, corner plaza and rear courtyard complete the ensemble. The internal arrangement cleverly exploits the fall of the site and the floors of the halls, to provide a sequence of overlapping views. Across the stepping down of the volumes runs a long ramp system, passing tall exhibits at various levels.*

*The old buildings are in the functional tradition, most apt for the historical technology of many of the exhibits. This character is enhanced by much of the new detailing which is very direct and, in the new sections is a successful adaptation of high tech. A variety of long and high, low and wide, dark and light spaces admirably serves the great range of exhibits. Much of the immediate success and impact of the museum is due to the design of the exhibits, the collaborators deserving commendation in this regard.*

*Externally, the great brick halls of the old building have an enormous presence in important views from Darling Harbour and the city, matching in scale the wool stores and warehouses of the district. The new buildings have a much lighter construction in glass and metal, some of it brightly coloured and the new forms are large, bold and simple. They succeed in establishing an extra identity and a consistency of the character out of their contrast of form and weight. From the main approaches in Ultimo, the new buildings are positive and assert a striking presence in form and colour, a welcome point of emphasis in the otherwise busy industrial traffic.<sup>190</sup>*

##### 3.3.2 SYNTHESIS OF COMPLEX IDEAS

Complex ideas and themes were explored and synthesised in the approach to the Museum's design. These themes investigated ways to embed the Museum in Ultimo at a time when the Museum was trying to attract wider audiences by producing engaging exhibitions. Radical ideas such as adaptive reuse of a large set of

industrial structures paralleled the evolution of experimental and interactive Museum displays. The potential tension between traditional and novel ways to present old buildings and accompanying exhibitions was resolved and assimilated by the creativity and collaboration of Lionel Glendenning, Lindsay Sharp and Richard Johnson and their respective teams. Divergent architectural philosophies and movements of minimalism and decoration produced new styles that linked the new buildings with the traditional architecture of the old buildings as explained by Lionel Glendenning:

*A number of ideas are developed and explored in this project including:*

- *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 House.*
- *Adaption and reuse of existing fragments of the city.*
- *Separation, layering, transparency, screen, density, diversity, intervention.<sup>191</sup>*

##### Australian Spirit

Lionel Glendenning's appreciation of the Australian landscape and the Australian sky and a deep understanding of its distinctiveness from other places added new layers to the buildings. He noted that the Australian sky is markedly different to Europe. Taken in by Jørn Utzon's mastery over the interpretation of the harbour setting in the shells of the Opera House and capturing of the Australian spirit in the interiors, Lionel Glendenning advanced this design ethos with the Wran Building. The building's cavernous incomplete vault was inspired by the impressive arch of the Normanston Railway Station – a grand foyer for both arrivals and departures. The arch of the station beautifully captures a "slice" of the infiniteness of the Australian landscape, reflected in the Wran building which became the grand foyer to the journey through the collections. Merging with this, the vaulted galleries on a cruciform plan of the Garden Palace emerged into the tall Galleria with the curved roof form. The two vaults captured the history and present of the Australian spirit catapulting the same into the future. According to Lionel Glendenning, the same spirit is evident in the collections - *this museum has a uniqueness, it has a quality that captures the mongrel character of Australia.*<sup>192</sup> The cloud murals at either ends of the Wran is a manifestation of this spirit as Lionel Glendenning explains:

*So, the sky is a trompe-l'oeil, it's saying, "Look, I'm not afraid to decorate a building." If you look at Jørn Utzon's ceiling interiors for the Opera House, they were beautifully decorative, they were extraordinarily coloured draped curtains. So that's the sky, capturing a piece of Australia. I couldn't capture it enough, so I wanted that sense of infinity in the building.*



Figure xx: A detail view of the north facade of the Wran Building, 1988. (Photographer: Jamie Piazza)

Figure xx: Australian sky painted at the northern end of Wran Building, 1988. (Image source: MAA5)



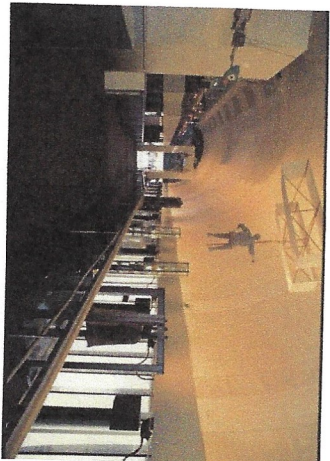


Figure xx: View of the sky looking back at the entry, 1988.  
(Image source: MAAS)



Figure xx: A view of the sky from the Level 4 internal terrace.  
(Image source: MAAS)

## Old & New

Lionel's design was inspired by fundamentals of architectural design. This response was generated from the fact that the old buildings and their spaces were based on the Golden Ratio. Architecture and finishes of the new buildings were based upon the old buildings on site and were designed to be reminiscent of the great cathedrals of Europe. People's sense of familiarity with old buildings and Lionel's mastery of blending old and new forms elicited positive comments and reactions from people.<sup>198</sup> The power, strength and robustness of the old buildings of Power House and Tram Depot was translated into new designs to elevate the human experience, Lionel Glendenning says:

*What I needed to ask myself was: what is it about the existing environment that can be enhanced? What can I make stronger?<sup>199</sup>*

*Linked by a clever combination of contemporary architecture, the completed museum weaves the past into the future, the sharp modern lines of steel and glass flowing easily into the pink brick arches of the past. It is a compliment to the skills of the architect Lionel Glendenning who has achieved the challenge of transforming a derelict building into a world class museum with spectacular results.<sup>198</sup>*

*The west building is built up of architectural forms from the old buildings, which themselves are part of the sequence of progression from new to old. The beautiful arched Romanesque brickwork of the turbine Hall will form a screen through which people will enter into a waterfall effect, the building stepping down and climaxed with the huge Boiler Hall, which is one of the great double cube spaces.<sup>198</sup>*

The design response to the surviving Power House buildings related to their condition and the constraints of the collection. There was some initial consideration to the existing structures as facades and to divide up the internal volumes into traditional floors. But the approach to retain the large volume spaces and the three-dimensional spatial character of the spaces was chosen and celebrated. The mezzanine spaces, the coloured external lift and stairs to the Boiler House (that interpreted the external elements of the Power House such as the coal elevator and the pneumatic ash handling plant), the steam vents in the west facade of the Boiler House and the interpretative graphics on the east elevation were designed to refer to the scale of the equipment that was removed.<sup>197</sup> The new structures referenced the inception of the Power House and celebrated its significance through complex ideas manifested in new forms. The simple steel roof form of the Turbine Hall and Boiler House was recreated in the Boardroom which has a painted ceiling with two cherubs signifying the new beginnings of MAAS on site. This is explained by Lionel Glendenning:

*It's a miniature Boiler Hall / Turbine Hall, it's the primal hut, if you study the beginnings of architecture, they say that architecture really emerged when that form of rectangular building with a pitched roof originated, and it captured the essence of architecture. So, it's a building within a building, and it's reflective of how you might deal with the bigger spaces in the building.<sup>198</sup>*

The Wian Building changes at the intersection of the various phases of the brick buildings. For instance, the Galleria abuts the Turbine Hall to the east and references its structural grid in the new columns,<sup>199</sup> making sure that the visitors can sense a transition as well as a continuity of the modern work as they pass through the arched brick screen. The building was envisioned as a porous space with a sense of beginning a journey through the collections. The Galleria Frames the external walls of the Ultimo Power House where the sequence and the scale of the great Ultimo Power House spaces, deliberately invites exploration and discovery across the scale and extent of both architecture and the Museum's collection. The visitors were able to experience a sense of arrival as they entered the grand space harboured by Vault 2. The ends painted with Australian sky heightened the sense of arrival by layering in a sense of infinity.



Figure xx: View of the Galleria, 1988. Note the structural grid references the old structures. (Image source: MAAS)



Figure xx: Steam vents, the western wall of Boiler House, 2020. (Photographer: Katherine Lu)

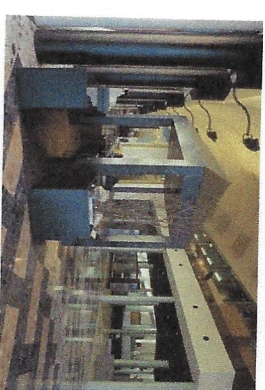


Figure xx: The grand entry foyer offered an opportunity to the visitors to orient themselves and appreciate the contrast and connection of old and the new, 1988.

Figure xx: Boardroom as a miniature Boiler House / Turbine Hall, 1988.

## Conservation, Innovation & Sustainability

The decision to retain the Power House buildings owing to budgetary restrictions led to the exploration of new avenues for design, conservation and recycling of old buildings. The adaptive reuse of the old buildings enabled MAAS, established since 1980, to move into a premises that had an extraordinary history linked with Ultimo. The approach to retention of old structures underpinned the mental link that buildings create for people in the urban



environment and the loss of such a vital link was likened to 'collective lobotomy' by Lionel Glendenning. The extant fabric of the Power House and Tram Depot was used and complemented by new materials and finishes. Roof trusses were retained and strengthened. Internal finishes were retained and restored where possible. Wall tiles were retained in-situ. Where floors tiles were extensively damaged, they were replaced with a similar pattern. Surviving equipment in the Turbine Hall was retained with some restoration.<sup>290</sup> The condition of some existing finishes resulted in the application of new finishes. While further fabric was removed in some instances, the building shell was retained essentially intact as 'skin enclosing technology'. The technology being the new exhibits of the Museum.<sup>291</sup> With this project, issues relating to heritage conservation, reconstruction, and sustainability were tackled and brought to the forefront of modern architectural design in Australia, as explained by Lionel Glendenning:

*This project sets a new paradigm for our industrial urban fabric - no longer can the major resource commitment of past investment be discounted or ignored in the future. Depreciation also represents appreciation when 'values' are considered. Twenty years ago, this consideration was radical. Pressure for demolition was intense. Retention of the remnant power as a 'base resource' from which the new Museum might emerge - an appropriate metaphor for a venerable institution - led quickly to many innovative systems that exploited existing elements of the structures - the spectacular volumes and spaces, the harbour cooling conduits, the structural capacities, free spans and the cultural memory - a link to a past and a reaffirmation of the value not only of past generations but our generation providing a link to the future generations - a cultural investment in the 'collective memory' from this primary decision to forego demolition and to work with the existing fabric came countless innovations.<sup>292</sup>*

The Powerhouse Museum houses unique collections. The design for interior spaces responded well to these challenges and created spaces that displayed the unique collections in new innovative ways, but always protected from deterioration. The Museum was innovative on several levels which related to energy efficiency. The building was completed within the original budget. The air conditioning system developed by David Rowe provided a stratified system of conditioned air. The lower four metres was conditioned to Museum standards, but the standards tapered in relation to height. This approach proved to be highly efficient in energy consumption and operating costs.<sup>293</sup> The utilisation of the 'Water Cooling System and Manifold' – the old condenser water tunnels as a heat exchanger reactivated an important historical link that the tunnels had with the Power House.<sup>294</sup> The complexity of the building is relayed by the following comment by Lionel Glendenning:

*This building is a complex building. A giant machine running at the highest museum standards that were developed from the museums in England, America. All the services designed opened to the highest standards, in terms of environmental response. The lighting, the security lighting and all the fluorescents. All the glazing in the building, it's laminated with a special interlayer that filters out UV light, that's why we can place objects in the galleries.<sup>295</sup>*

### Finishes & Colours

The homogeneity and stripped details were traits of modern architecture that Lionel Glendenning did not want the buildings to be designed with. The careful selection of colours by George Freedman to capture an element of playfulness seamlessly integrated with the minimalist decoration that the building has. A general approach was developed for the building interiors, and the colours graded from dark to light as one rose through the building emphasising its height in much the same way as a Gothic Cathedral. The floors were dark grey, the wall a lighter shade approximately matching the original finish and the ceilings white. The interior finishes and external colours honoured the existing buildings in many ways. The Museum was seen as a series of set pieces, the Eruscan red and gold theatre, the black art deco theatre. Designed by Lionel Glendenning, the terrazzo floor tiling using large marble chips to create what Lionel refers to as 'nougat', in the Wran Building was a reference to the complex flooring patterns in great cathedrals. The cloud mural was designed to stress the spaciousness of the interior. The Tiepolo ceiling of the boardroom created a sense of grandeur and the two cherubs marked new beginnings of MAAS.<sup>296</sup> The Museum's exterior was highly coloured to stand out and be noticed in the then relatively drab industrial / commercial setting - an idea of a fun place. The graphics concept by Emery Vincent responded to these colours and formulated a corporate identity for the Museum's signage, exhibitions, publishing, and collectible items – part of the Powerhouse brand. This was in a time when creation of a corporate identity for public institutions such as Museums was still in its infancy.



Figure xx: Harris St. forecourt 1988. Note the Powerhouse logo displayed on the Harris St colonnade. (Image source: MAAS)



Figure xx: Nougat tiles in the grand foyer of the Wran Building, 1988. (Image source: MAAS).



Figure xx: View of the Coles Theatre, 1988. (Image source: MAAS).

Figure xx: Tiepolo ceiling in the boardroom in the Galleria, 1988. (Photographer: Jamie Plaza)

### 3.3.3 DESIGNED FOR MAAS

The Powerhouse Museum was designed as a suitable location for displaying the extensive MAAS' state collections and as a spatial environment in which to develop imaginative, popular exhibitions on scientific, technological and artistic subjects. Lionel Glendenning's team achieved this vision while celebrating the history of the institution in Ultimo and the architectural character of the derelict brick buildings. The eclecticism and the breadth of the collections was referenced in the marvellous contrast between the new and the old buildings. The rusticity of the brick buildings was presented against the bold and colourful modern architecture. The north elevation shows a connection between the double height arched windows of the North Building<sup>297</sup> and the vault of the Galleria that references the curved roof form of the Garden Palace. Lionel Glendenning states that:

*The architectural design explored the rich history of the museum from its early beginnings in the great Garden Place exhibition in 1879. The West Building (later Wran Building) and the Galleria derive from the arched form of the earlier building whilst also creating spatial sequences that expand and augment the existing great rectangular volumes of the Turbine and boiler halls - the Ultimo / Pyrmont 'cliff of buildings'.<sup>298</sup>*

The extent and diversity of the collection informed architectural design on several levels. The need to provide a secure bomb proof storage was considered a priority. The extent of deterioration of the Tram Depot, in contrast to the Power House, was influential in its conversion to the basement storage and curatorial area. The deteriorated



fabric was substantially reconstructed to match the original form which was quite consistent with conservation practices of the time. The need to present key parts of the collection ahead of the Stage II was instrumental for Stage I of the Powerhouse Museum. The eclecticism of the collections paralleled the different architectural styles of the interconnected buildings. The Power House buildings and the Post Office collectively represented multiple design movements and their largely utilitarian architecture was captured in the shed-like minimalism of the Wran Building.



Figure xx: A view of the grand foyer with the Garden Palace silhouette, 1988. (Image source: MAAS)

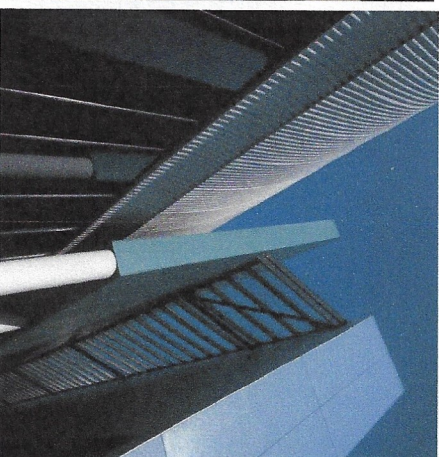


Figure xx: The minimalism of the new architecture, 1988. (Image source: MAAS)

### Collections & Architecture: Role of Design & Technology in Everyday Life

The development of the site as a Power House and a Tram Depot was intrinsically linked to the technological, economic and industrial development of Ultimo. During the same period, MAAS had been part of the educational and creative development of the precinct. MAAS's collections range from the fields of science, technology, industry, design, decorative arts and history. The contribution of the fields of science, technology, industry and design are synonymous with the use of the site for the Power House and Tram Depot. These have been instrumental in the everyday lives of the people until their closure. Particularly, the Power House had been at the forefront of technological advancements in power generation and a source of pride for Sydney's engineers, manufacturers and citizens. The 1978 Feasibility Study noted these intriguing parallels between the history of the Museum in Ultimo, the aspirations for a new museum of science and technology and the abandoned buildings of Ultimo Power House and Tram Depot that stood as a testament to the significant contribution that science and technology had made to people's everyday lives during the course of Ultimo's industrial development. Lionel Glendenning:

*For the purpose of developing a new Science and Technology Museum in the late twentieth-century, the site has outstanding potential. It is historically appropriate, structurally flexible, and remarkably cost-effective. What could be more appropriate for such a Museum than the first major powerhouse in Sydney? And what building in Sydney has interior spaces built on such a generous scale to accommodate the Museum's exceptional transport and engineering collections?*<sup>209</sup>

The Boulton and Watt became the premier exhibit in the world's largest collection of "steam engines." The placement of the steam engines within the Engine Room re-established a significant historic connection. These engines stood where once three massive vertical reciprocating steam engines – direct descendants of the Boulton

and Watt - cranked out 850 kilowatts of electricity to drive Sydney's trams and later, its trains.<sup>210</sup> Lionel Glendenning:

*The museum is almost unique with this collection in this building - it's quite an amazing fit. The uniqueness of the collection, and its appropriateness in these various spaces is wonderful. So often, buildings interfere with the understanding of the objects. This museum doesn't do that, it has an affinity for the collections.*<sup>211</sup>

*The other insight was built around the eclectic, slightly mad, universal, bewitching nature of the collection in an age of specialisation - this serendipitous finding of the breadth of the collection across the range of human endeavour and social existence posed a potentially impossible demand upon the architecture.*<sup>212</sup>

The Powerhouse Museum celebrated this interlinked history in the architecture, and two small exhibitions as part of the 'Orientation' for visitors on arrival in the Wran Building. This introduced the visitors to the history of the Powerhouse and the history of MAAS.<sup>213</sup>



Figure xx: Boulton and Watt Steam Engine in the Galleria, 1988. (Image source: MAAS)

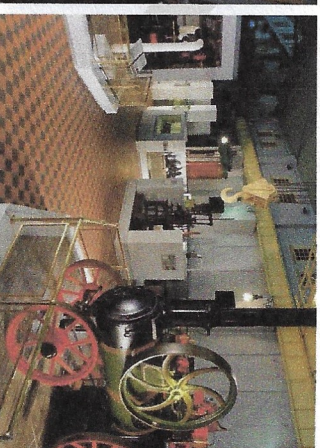


Figure xx: Steam Revolution in the Engine Room. (Image source: MAAS)

### Architecture & Exhibition Design

The Exhibition Design made a unique connection to the architecture of the new buildings. Museum practice at the time, fascinated with black box and secluded galleries, was challenged in the free flowing, theatre/ amusement park like exhibition frameworks designed by Richard Johnson. Being an architect, Richard Johnson brought in a spatial quality to the organisation of exhibits designed around large and medium sized elements that created a dialogue between the architecture and the exhibits exhibited, as explained by Richard Johnson:

*The architecture, the objects and the small-scale exhibition is critical to the interpretation of these buildings. It's an intermediary scale that mediates between the big vast character of the Boiler Hall and if necessary, an individual object in that hall. That's the only way. If you put the object in the hall, it's dead, the object can't survive.*<sup>214</sup>

Richard Johnson developed a "Hierarchy of Visitor Perception" to coordinate the great variety of design input. His main concern was to avoid 'museum fatigue' and to create a journey through the exhibits that was easily navigable and did not confuse people. Visitor expectations and their comfort for spaces with natural light resulted in innovative use of lighting. Enormous spaces with natural light contrasted with black box spaces, thereby introducing the visitor to a variety of experiences. The diversity of the collection inspired the Exhibition designers working with Johnson - Iain Halliday, Desmond Freeman, David Katon and Neil Burley, all of whom later became leaders in their field. Designs by different designers were coordinated to achieve a design consistency under the overarching concept for exhibition design. The use of audio-visual aids, interactive displays and electronic information systems created an experience that is remembered by people even today, as Richard Johnson explains

*I made maps of experience - so where was density of objects, where was the sound, where was the audio-visual, where were the interactives, where were the quiet spaces, where were the points of landmark objects, where could somebody delve and*



get into immense detail in a subject that fascinated them. And then I mapped it all out and I put it on layers of clear acrylic and I mapped these sensory perceptions with a coloured dot on the plan and then I put them all together ... and then when I did it to some of our emerging exhibitions, it was like reading music, you could actually see through the colour - the variation, the pauses, the changes of emphasis, you could read the experience of moving through the museum. The building itself did that and if the exhibitions negated that, it was all pointless to conserve those buildings.<sup>215</sup>

The social response of the architecture in preserving the history of the place, was also reflected in the Exhibition Design. The exhibitions in 1988 covered themes such as human achievement, science and technology, the decorative arts, and the everyday lives of Australians. These themes were heavily influenced by the social history movement then sweeping the world's museums.<sup>216</sup> Architecture and exhibition design set new standards by simply responding to the demands of the time. The ethos of the exhibition design captured human's capacity for enjoyment and play.<sup>217</sup> This is summarised in comments by Dr Lindsay Sharp:

*The ultimate key to the success of any display or any exhibition or any communication with other people is to involve people and make it humancentric ... I believe we should have a whole series of zones and different types of displays ranging from the tranquil-traditional on the one hand to the totally futuristic, totally immediate, totally involving on the other ... A science museum should try to involve the visitors and give them a sense of accomplishment, and enjoyment of science.<sup>218</sup>*

As an exhibition space, the Powerhouse had few equivalents in the world and none in Australia. The Museum exhibited around 9,500 pieces – 20 percent of the museum's total collection when the Stage II opened. There were 25 different exhibitions that explored five broad themes: creativity and Australian achievement; everyday life in Australia; decorative arts; science, technology and people; and bringing people together.<sup>219</sup>

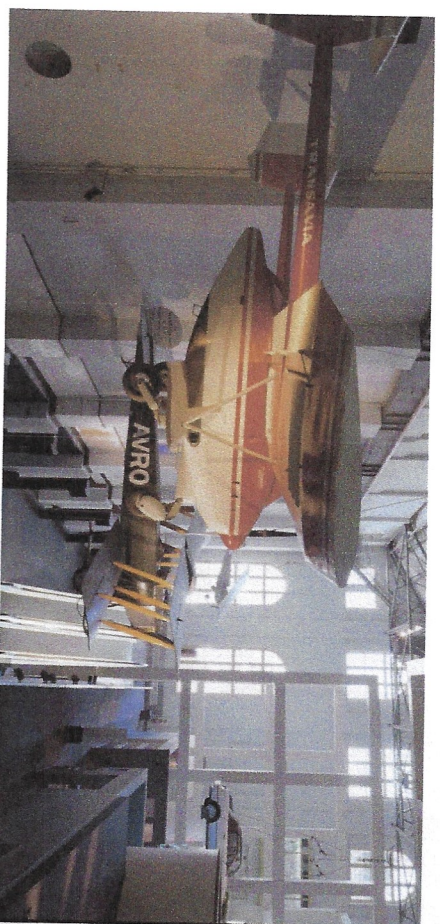


Figure 2.4.7: Turbine Hall, 1988. (Photographer: Penelope Clay for M.A.A.S, 00213548.jpg)

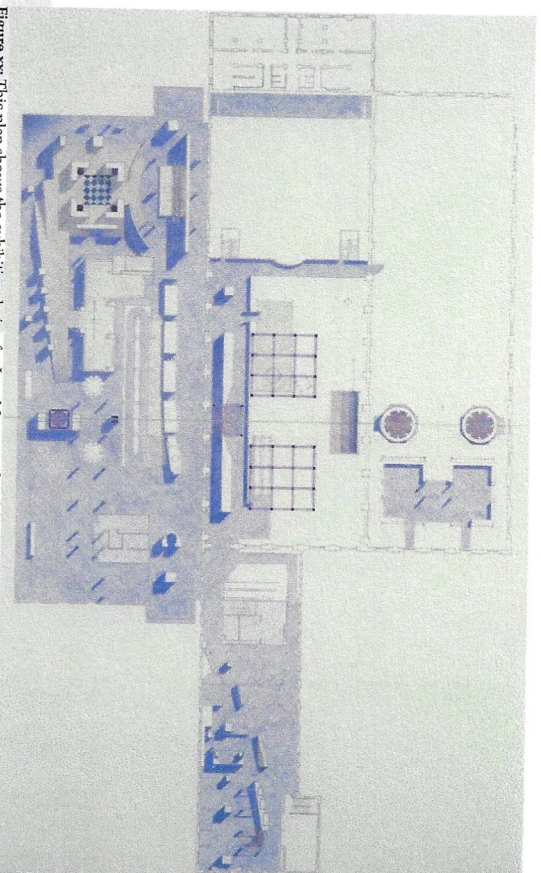


Figure xx: This plan shows the exhibition design for Level 3 – entry level from Harris Street. Intermediate elements that responded to the buildings were designed as part of the navigation through the Museum, 1988. (Image source: M.A.A.S)

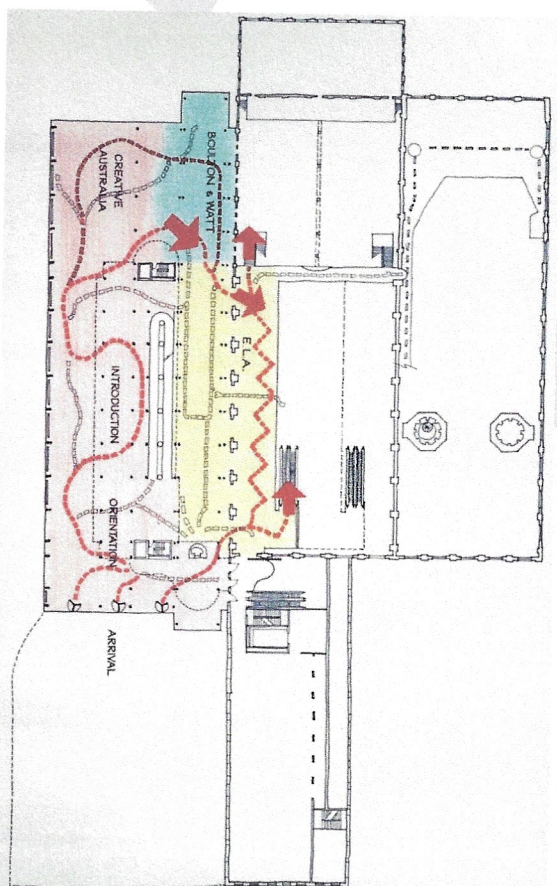


Figure xx: Navigation through the Museum, 1988. (Image source: M.A.A.S)



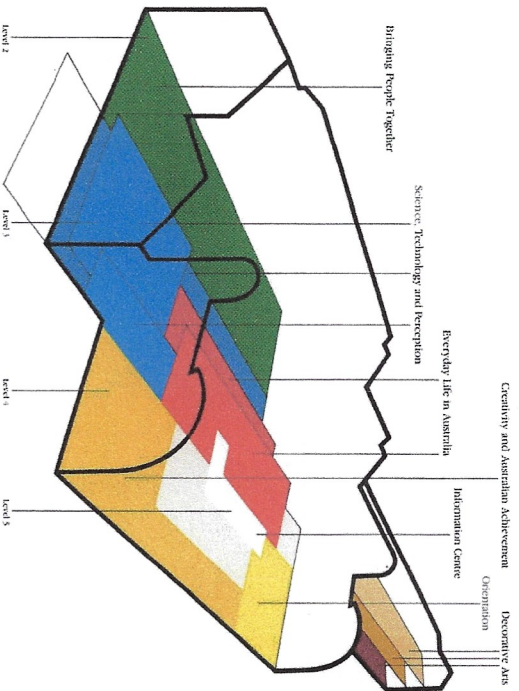


Figure xx: A variety of spaces supported exhibitions of different kinds, 1988. (Image source: The Powerhouse Overview Report, June 1984)

### 3.3.4 A COLLABORATIVE EFFORT

The Powerhouse Museum was a result of collaboration and the creative and managerial expertise of the people involved, particularly Lionel Glendenning. His efforts were matched by the enthusiasm and support of then Premier Neville Wran and then Deputy Premier Jack Ferguson who initiated the project. From the inception of the 1978 Feasibility to the completion of Stage II, the project brought high profile designers who later became pioneers in their fields. The coordination and collective knowledge of engineers, exhibition designers, contractors, museum staff and curators resulted in the spectacular displays enjoyed by people first in 1981 and subsequently in 1988. Working within the budget of \$54 million and within time constraints,<sup>220</sup> the massive project was completed with a sophistication that matched Centre Pompidou (opened 1977) or the Museum d'Orsay (opened 1986). Throughout the design process imagination, excellence and innovation preceded all design and management decisions, as explained by Richard Johnson:

*... if you think about the design disciplines and specialist skills that have gone into the creation of the building, I don't think there would be any other building which would encompass and integrate so many of the design skills. Lionel Glendenning was talking about the theatrical set painters who painted the cloudscape. There are also audio and visual experts, there are sound experts, there are graphic designers, there are colour consultants, there are lighting design specialists, there are specialists in print finishes, there are specialists in weaving special carpets ... Public buildings actually demand the coordination and contribution of all that amount of design, technical and artistic expertise.<sup>221</sup>*

### 3.3.5 URBAN PRESENCE

The architectural response to the derelict Power House was firstly to recognise its urban context. The re-amalgamation of the site (former Power House and former Tram Depot) enabled the original city block to be understood. The 1978 Feasibility study recognised that the site was on the south-west fringe of the CBD, that the only form of direct public transport was by bus, and that the city route via Pymont Bridge suffered from traffic congestion and bus overcrowding.<sup>222</sup> With most streets in the area 'frequently crowded with cars,' the study suggested 'comprehensive redevelopment of the Markets area' so that parking 'will be shared with facilities provided for the new Entertainment Centre and linked by a pedestrian bridge over the darling Harbour Goods Line.'<sup>223</sup> The authors of the study had high hopes and expectations for the new museum site which could be Sydney's Centre Pompidou – a major focal point of the cultural activities of the whole city.<sup>224</sup> The study not only underpinned the vision for the Museum design, it also highlighted the urban connections to be made for the new Museum to be successful.

Initially designed as verandah to the city with an expansive skillion roof with signage, the design of the Wran Building was later developed into the curved roof form with a colonnade facing Harris St. With a powerful presence on Harris Street, the vaulted volume of the Wran building was meant to intrigue and encourage a passerby to come into the Museum. To strengthen this purpose, the Colonnade was designed to be a large display wall, never realised due to the planning in Harris Street.<sup>225</sup> The early concept design envisioned the Galleria as a curved entity (on plan) that terminated at the corner of Harris and Macarthur Streets. The site could be accessed at multiple levels and had multiple entry points – Harris St, Macarthur St, Mary Ann St and through the Grace Bros courtyard, integrating the building with the wider links that were created with Ultimo and Darling Harbour. These included the active rail corridor used to bring trains to the museum, and the overpass from the Harris St forecourt to connect to the Entertainment Center, carpark, monorail station, and Darling Harbour Park developments. The spectacular Galleria referenced the adjacent woolstore laneways and captured the block pattern of Ultimo (with north south orientation of laneways and the roads) in the linear qualities of the Wran Building.

The potential urban presence of the Powerhouse Museum was also explored. The underlying aim was to establish links between the contents of the Museum and the city. Key factors such as landmark potential of different buildings, views (long and close views) and access to the Museum buildings and their daytime and night time presence were taken into consideration. The Museum physically was seen as an active, dynamic building. The north and eastern facades as big scale landmarks catered to both motorists and pedestrian traffic, the motto being "If it's good at a glance, it's worth a visit."

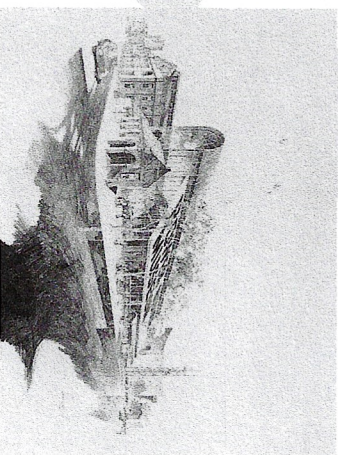


Figure xx: Powerhouse Museum early concept sketch showing the corner of Harris and William Henry Streets.

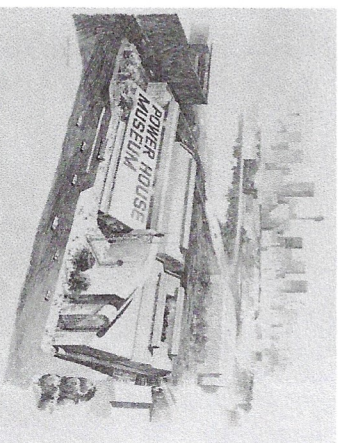


Figure xx: Powerhouse Museum early concept sketch showing the verandah roof with its large signage and Galleria curving out to Harris St.



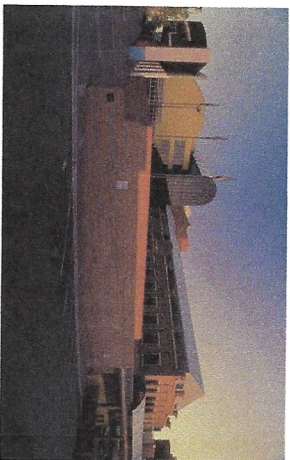


Figure xx: View of the Museum in 1988 showing the overpass to Darling Harbour. (Image source: MAAS)



Figure xx: Harris Street courtyard as a key urban space used for gathering and performances, 1988. (Image source: MAAS)



Figure xx: Grace Bros Courtyard 1988. (Image source: MAAS)



Figure xx: Sunken courtyard off Macarthur Street, 1988. (Image source: MAAS)

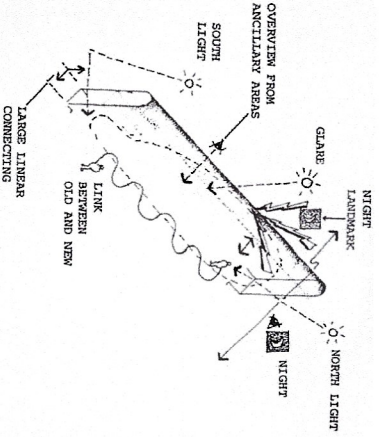


Figure xx: Design concept sketch for the Galleria and its potential as a landmark structure. (Image source: MAAS)

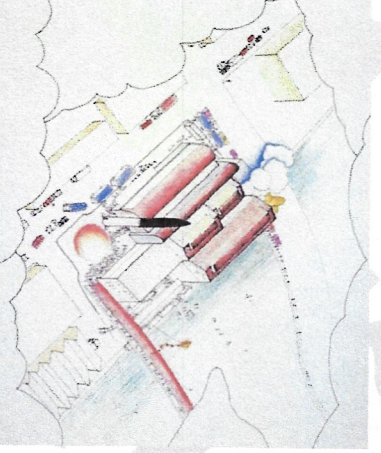


Figure xx: An aerial sketch view. (Image source: MAAS)

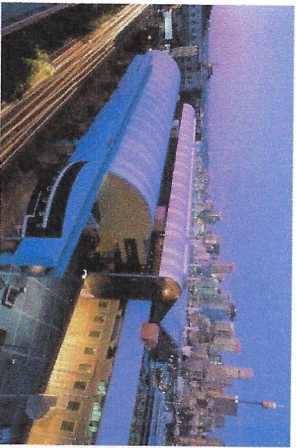


Figure xx: Night view, 1988. (Image source: MAAS)



Figure xx: View of the east wall of the Boiler House with the outline of the 'fine dust extraction plant' painted in black as part of heritage interpretation. (Image source: Sydney Harbour Foreshore Authority)

### 3.3.6 MUSEUM IDENTITY

#### "Powerhouse" – The Name

The name "Powerhouse" resonated with the history of the site and its use as a power station. The new name - "Powerhouse Museum" was aimed at creating an identity for the site's use as a Museum - a flagship of the Museum of Applied Arts & Sciences. The abbreviation - MAAS did not have the same vigour as "Powerhouse". The name "Powerhouse" was first used during the design phase:

*It was at this time that the name Powerhouse was used: constantly titling drawings 'Museum of Applied Arts and Sciences' was less than inspiring. 'MAAS' was meaningless - so using our 'cob' stencils, the project became the Powerhouse Museum. Later, arts secretaries sought to change this simple, effective brand to the 'Museum of Human Achievement and Creativity' and other pretentious titles, but the Powerhouse has become etched in the colloquial consciousness. Somehow the extraordinary breath of that initial observation of the eclectic, boverbird-like collection, ringing across the broad range of human existence is captured in the word 'Powerhouse'.<sup>225</sup>*

#### "Powerhouse" – Graphic Identity

The graphic design by Emery Vincent for Stage II of the Powerhouse Museum brought together the different buildings and elements of the site by creating a corporate identity that was readily identified with the Powerhouse Museum itself. The corporate identity was applied to the Museum logo, stationery, publications, reports, handouts, brochures, advertisements, marketing, exhibitions, billboards, building name and all major forms that represented the Powerhouse Museum. The museum logo was born out of the architectural design for the Museum, and it incorporated bold colours and easily identifiable roof forms of the buildings on site. It was displayed on the colonnade fronting Harris St introduced people to the key design elements of the site providing a condensed form of the complex design ideas. This branched out from the idea that formed the basis for the Museum - that it should be easy to understand and easy to approach. A coherent identity was considered crucial to create an imprint of the Museum in people's minds as an identifiable institution in Ultimo, as explained by Lionel Clendenning:

*The exemplary work that Garry Emery did - the corporate identity of the Museum, the building identity, the graphic design, the marketing, the publications, and the graphic imagery of the exhibitions were all integrated. And that was even inspired or connected to the design of the carpets, it was the same colours. That's an example of not only collaboration but interdisciplinary collaboration - where one design inspired the other.<sup>226</sup>*



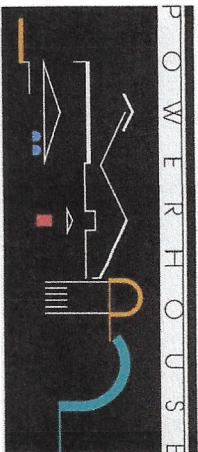


Figure xx: Powerhouse logo designed by Eimery Vincent. (Image source: MAAS)



Figure xx: Products from Powerhouse publishing reinforced the Museum identity. (Image source: MAAS)

### 3.3.7 ASSOCIATION WITH SIGNIFICANT PEOPLE, EVENTS, PLACES & AWARDS

#### 3.3.7.1 ASSOCIATION WITH SIGNIFICANT PEOPLE

##### Henry Deane, Engineer in Chief, NSW Railways 1891-1906, and Engineer in Chief Commonwealth Railways Construction Branch 1912-1914

Henry Deane, engineer and an accomplished botanist, was born at Clapman Common in London on 26<sup>th</sup> March 1847. He arrived in Sydney in January 1880. The following month, he was appointed as a railway engineer under John Whitton. He became the district engineer for the railways in 1881, and was confirmed as engineer-in-chief for railways in July 1891. He was responsible for the design and development of tramways from 1899.<sup>227</sup>

The construction drawings for the 1899 Ultimo Power House buildings are signed by Henry Deane as the *Engineer-in-Chief for Railway Construction*. His contribution to the design of the Ultimo Power House and Ultimo Tram Depot needs further research and analysis.

Deane set up his private practice in Sydney and became consultant to the Commonwealth Oil Corporation Ltd and was responsible for the construction of its railway from Newnes to Clarence. He became the Engineer-in-Chief for the Commonwealth railways construction branch in 1912, resigning in 1914 to practice as a consulting engineer in Melbourne.<sup>228</sup>

Deane was an accomplished botanist and published many papers on botany and paleontology. He made a special study of Australian timbers (*Eucalyptus danieli* was named after him). He was associated with several community and natural sciences societies based in NSW, London and Victoria.<sup>229</sup> He founded Engineers Australia in 1920.<sup>231</sup> He died on 12<sup>th</sup> March 1924 while working in his garden at Malvern.<sup>232</sup>

##### Walter Liberty Vernon, NSW Government Architect

Walter Liberty Vernon was born in 1846, in England. Educated as an architect, he worked in England from 1862 to 1883 when he left for Australia. He was appointed the government architect in 1890, a designation he would occupy until 1911. As Government Architect, Vernon designed major public buildings such as National Art Gallery of New South Wales, Darlinghurst fire station and country buildings such as the Court House. His mastery over architecture is represented in the finely detailed buildings designed predominantly in federation style.<sup>233</sup>

Vernon designed more than two dozen buildings in Federation style with Romanesque, Classical, Queen Anne, Arts & Crafts features, to name a few. Vernon designed short of a dozen Post Offices in NSW, including the former Ultimo Post Office and the Amandale Post Office in Federation Free Classical style. He also designed the Pyrmont Post Office which is an interesting contrast to the Ultimo and Amandale Post Offices.

His attention to detail, highest quality design input, and use of improved materials and construction techniques was reflected in the work of the Architects Branch under his command. He transformed the branch from a

budding office to an efficient public service machine.<sup>234</sup> After retiring, he resumed private practice. He died in 1914.

##### Lionel Glendenning, Architect Stage I & Stage II Powerhouse Museum

Lionel Glendenning was born in 1941. He completed his architecture degree at Harvard School of Design in 1969, and was the first RG Menzies Scholar to study there in 1968. As a student architect, first at UNSW and then at Harvard, Lionel won many academic awards including the WE Kemp Prize 1963, RAIA Prize 1966 and Byera Hadley Testimonial Prize 1966.<sup>235</sup>

Lionel worked at the NSW Government Architect branch from 1958 to 1988. His design for Claymore Public School won the RAIA Merit Award 1980. As the Principal Architect of Public Buildings at the department, Lionel headed the Powerhouse Museum project which won many state and national accolades including the prestigious RAIA Sir John Sulman Award for Public Buildings 1988 and the RAIA President's Award for the recycling or new use of a building 1988. His design for the Bicentennial Park in Homebush Bay won the RAIA Merit Award 1988. Following his association with the NSW Government Architect, Lionel worked at Edwards Madigan Torzillo & Briggs as a Managing Director from 1988 to 1994. He worked as the Director of Design at HBO+EMTB from 1994 to 2012. While working for HBO+EMTB, he designed the IMAX Theatre in Darling Harbour, which won the RAIA NSW Merit Award 1997, amongst other national awards.

Lionel's design for the Powerhouse Museum is arguably his most successful project.

[Further research and conversation with Lionel to complete this section.]

##### Richard Johnson, AO, MBE, Lead Exhibition Designer Stage II Powerhouse Museum

Richard Johnson was born in Sydney in 1946. He completed his architecture degree from UNSW in 1969 and went on to study Master of Philosophy in Town Planning from UCL. In 1976 Richard was made a Member of the Order of the British Empire for services to Architecture. In 2008 he was awarded the AIA Gold Medal for his exceptional body of work and contribution to the profession. Richard Johnson commenced his own architectural practice as founding director of Denton Corker Marshall (DCM) in 1987 and remained there until 2000. As part of the firm, he worked on the Powerhouse project as the lead exhibition designer. Exhibitions in the Stage II of the Powerhouse Museum were based on the vision of Lindsay Sharp who wanted the Museum to be a playful and engaging experience. Mental maps, natural light and proportion were key elements employed by Richard Johnson for successful exhibition design at the Powerhouse Museum.

In 2000 Richard Johnson with Adrian Pilton and Jeff Walker, the Sydney based directors of DCM demerged and formed a new practice – Johnson Pilton Walker (JPW). Johnson is highly regarded for his vision for exhibition designs that incorporate varied techniques such as axial routes, vistas, focal points and lighting design to suit the mood and purpose of the exhibitions. He has designed several popular exhibitions for prominent museums and galleries, including but not limited to the Art Gallery of NSW and the National Portrait Gallery. In addition to exhibition design, Richard Johnson's repertoire includes projects focusing upon architecture, planning, landscape design and urban design. In 1998 he was appointed to advise the Sydney Opera House Trust on the strategic plan for the future of the Sydney Opera House, and in collaboration with Jørn Utzon compiled Utzon's vision for the Opera House in the *Sydney Opera House Utzon Design Principles*. He has collaborated with both Jørn Utzon, and his son Jan, on several projects for the Opera House before Jørn Utzon's death in 2008.<sup>236</sup>

##### Lindsay Sharp, MAAS Director 1976-1986

Lindsay Sharp was born in England in 1947 and was educated in Sydney. Lindsay completed his doctorate in history of ideas/ science from Oxford University in 1976, and was elected to the Clifford Norton Research Fellowship in the History of Science at Queen's College, Oxford in 1972. After teaching the history of science and completing his degree, he acted as a researcher for the BBC Horizon science programme. His museological career



Physical evidence of houses, as well as artefact assemblages from underfloor deposits, cesspits, and rubbish pits may have the potential to provide an insight into living conditions, social interactions, occupations and gender. Evidence from the archaeological resource of the northern site, such as personal and domestic artefacts, has the potential to be compared with the assemblages from sites within the local vicinity and beyond, to contribute to addressing research questions relating to urbanisation, material culture, consumerism, identity, and social interactions within this local vicinity.

The potential archaeological resource within the UCP, if present with good integrity, is likely to have a high level of research potential and may meet the threshold for state significance.

3.5.3 ABORIGINAL ARCHAEOLOGICAL DEPOSITS

Historical activities at the site have resulted in moderate to high levels of ground disturbance, including significant impacts such as construction of buildings for the early town houses, Ultimo Power Station, bulk excavations for the Ultimo Power Station buildings, and the Wran Building, as well as landscape activities such as land clearance and two possible quarries. While numerous Aboriginal archaeological excavations have taken place across this area of the Ultimo Pyrmont Peninsula that have encountered significant Archaeological deposits, these investigations have also demonstrated that:

- It is unlikely that reclamation would have disturbed the natural soil profiles within the study area, which is located solely within the Gympie soil landscape;
- Resources available in the Pyrmont-Ultimo Peninsula area, such as reliable fresh water sources and seafood within the area, would have been attractive to Aboriginal occupation and use of the area, and Aboriginal archaeological deposits, should they be present within or in the vicinity of the current study area, would be most likely to consist of PAD (Potential Archaeological Deposits) sites, stone artefact sites, shell midden sites, or a combination of both.
- There are currently no registered Aboriginal archaeological sites within the study area. The registered AHIMS sites that are in closest proximity to the study area (AHIMS #45-5-2979 and AHIMS #45-2652), indicate a high potential for natural soil profiles (and hence PAD sites) to also exist within the Powerhouse Ultimo boundaries.

Areas of the site that have the highest potential for natural soils to be present (and corresponding potential for intact Aboriginal archaeological deposits), are areas where the least levels of historical development and excavation have been undertaken. These areas include beneath the Wran Building forecourt, north of the Wran Building in the space between Wran and the Post Office, south of the Boiler House, south of the Harwood Building, and carpark spaces along the eastern boundary of the study area.<sup>27</sup>

3.6 COMPARISON WITH SIMILAR PLACES

The following comparative analysis provides some context for the aesthetic and technical values of the Powerhouse Museum. The information assists in the assessment of the significance of the building, in particular its importance as a unique example of a Museum of Applied Arts and Sciences in Australia.

Much of the following descriptions have been drawn from the information provided on the NSW Heritage Inventory Sheet for each building, and their associated statements of cultural significance. Where this is not available description of the significant values of the place have been pieced together by the authors of this report.

3.6.1 CONVERSION OF INDUSTRIAL & CIVIC BUILDINGS TO CULTURAL CENTRES

Located in Australia and overseas.

**Designmuseum Danmark, Denmark (originally Royal Frederick Hospital, designed by Nicolai Eigtved)**

Built: 1752-57  
Regenerated: 1920s, 2018  
Architect: Ivar Bensen and Kaare Klint



**Listing:** Designmuseum Danmark  
**Register:** Danish Agency for Culture  
**Description:** Constructed in the 1750s, the buildings used to house the Royal Frederick's Hospital. In the 1920s, the buildings were renovated and adapted to museum use. The Museum is located in Copenhagen's historic centre. The historic fabric of the buildings was carefully considered in the building's renovation in the 1920s. The external form with multiple windows allows the galleries to be naturally lit. The 2018 renovation project opened up the arrival area of the museum and created a more inviting and transparent setting for the museum and its surroundings. The arrival area acts as a meeting place where visitors and passers-by can experience and explore design – even before they enter the museum.<sup>28</sup>

Images source: Archdaily  
**Statement of Significance**

A Statement was not readily available for inclusion in this CMP

**Musée d'Orsay, Paris**

Built: 1947-1963  
Regenerated: 1986  
Architect: ACT Architects with Gae Aulenti



**Register:** Monument historique  
**Description:** The former Gare d'Orsay was transformed into an Arts Museum in 1986. The huge, vaulted space of the station was filled with two long, narrow stone structures, roughly 20 feet high and set parallel to each other. These structures have art displayed in front of them, in them and on top of them.<sup>29</sup>

Images source: Archdaily  
**Statement of Significance**

A Statement was not readily available for inclusion in this CMP.



## Scienceworks, Melbourne

Built: 1897

Regenerated: 1992

Architect: Peter Roy



Images source: Museum spaces

**Listing:** New Farm Powerhouse

**Register:** Brisbane City Heritage Listing

**Significance:** Local

Scienceworks adaptively reused the century old pumping station and new buildings were constructed in the complex. Scienceworks links Melbourne's industry, heritage and applied technology in one place with modern interactive displays and a planetarium.<sup>269</sup> The pumping station hosts functions and gatherings surrounded by a fascinating collection of engineering tools, equipment and relics. The precinct comes across as a collection of disjointed buildings and elements that are not linked architecturally. The new building generally comprises of black box exhibition spaces owing to the nature of the interactive displays in these spaces.

## Tate Modern, London, U.K.

Built: 1947-1963

Regenerated: 2000

Architect: James Stirling



Images source: The Architectural Review

## Statement of Significance

A Statement was not readily available for inclusion in this CMP.

## Brisbane Powerhouse, Queensland

Built: 1918

Regenerated: 2000

Architect: Peter Roy



Images source: brisbanepowerhouse.org

**Listing:** New Farm Powerhouse

**Register:** Brisbane City Heritage Listing

**Significance:** Local

The complex is listed as a former Tram Station and is noted for the retention of its robust form in its transformation into a Museum. **Description:** The Brisbane Powerhouse is an arts and cultural hub located in the former New Farm Powerhouse. The external fabric has been largely retained, so is the massive steel columns, cement floors and the original finishes internally. New structural elements in concrete blend nicely with the original structures and are contrasted with the use of bold colours.

## 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 Tramuys 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.<sup>281</sup>

## Queen Victoria Museum and Art Gallery, Launceston, Tasmania

Built: 1870s to 1940s

Regenerated: 2001

Architect: John Duncan



Images source: QVMAG

## Statement of Significance

As part of the conversion, the original concrete and timber structures were retained and restored with modern interventions that allow for a better understanding of the site's history. The sharp forms of the modern architecture do not detract from the original finishes and the overall rusticity of the industrial structures. Use of bold colours contrast with the original structures adding a layer of newness that separates old from new.

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 Edmund 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.<sup>281</sup>



### Carriageworks Arts Centre, Eveleigh, NSW

Built: 1880-1889  
Regenerated: 2007  
Architect: Tonkin Zulaikha Greer Architects

**Listing:** Eveleigh Railway Workshops  
**Register:** NSW Government State Heritage Inventory  
**Significance:** Local



Images source: Archtype Review

#### Statement of Significance

*The Eveleigh Railway Yards are some of the finest historic railway engineering workshops in the world and Eveleigh contains one of the most complete late 19th century and early 20th century forge installations, collection of cranes and power systems, in particular the hydraulic system. The place is of international significance and is one of Australia's finest industrial heritage items. The value of the place is increased by the fact that it is comprised of assemblages, collections and operational systems rather than individual items. Conversely, the significance has been reduced by its closure, relocation of some machinery and its disassociation from the operating rail network.<sup>259</sup>*

### Casula Powerhouse Arts Centre, NSW

Built: 1951  
Regenerated: 2008  
Architect: Tonkin Zulaikha Greer Architects

**Listing:** Casula Powerhouse Arts Centre (former Power Station),  
**Register:** NSW Government State Heritage Inventory  
**Significance:** Local



Images source: MGNNSW

#### Statement of Significance

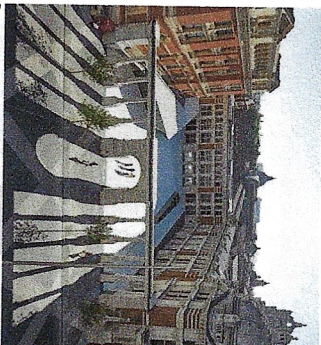
*The Powerhouse Regional Arts Centre demonstrates the development of Casula during a period when economic conditions of industrial expansion and residential growth in the region required a interim local generating capacity and power supply facility. The complex in its design, construction and use as 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 siting on a ridge along the banks of the George 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 affected by nuclear testing in South Australia. There is the potential to gain more information on the complex from further architectural, archaeological and documentary research.<sup>260</sup>*

### 3.6.2 LEADING MUSEUMS & MUSEUM PRECINCTS

Located in Australia and overseas.

#### Victoria and Albert Museum, London

Built: 1899-1909  
Architect: Sir Aston Webb



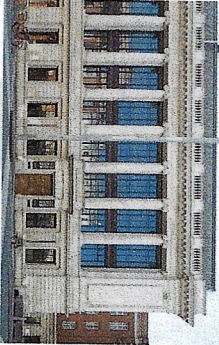
Images source: artnet news

#### Statement of Significance

A Statement was not readily available for inclusion in this CMP.

### Science Museum, London

Built: 1913-28  
Architect: Sir Richard Allison



Images source: Evening Standard, U.K.

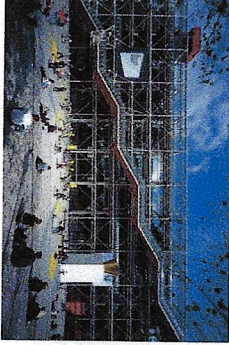
#### Listing: Not Listed

**Description:** The Science Museum has its origins in the Great Exhibition of 1851. The Museum has been a pioneer for interactive science interpretation in England since 1931 when the Children's Gallery was established. It is the most visited museum in the U.K. by school numbers.<sup>261</sup> The Museum hosts temporary and permanent collections displayed in large free-flowing gallery spaces spread over five levels. The galleries focus on science, technology, engineering, mathematics and medicine.<sup>262</sup> The interior spaces are generally flooded with natural light from the central skylight and tall windows along the building's facades. The museum has been progressively extended in the last century through to year 2000.

The Museum is part of the Science Museum Group, along with five other museums focussing upon exhibition themes mentioned above.

### Centre Pompidou, Paris

Built: 1971-77  
Architect: Richard Rogers and Renzo Piano in collaboration with Ove Arup & partners



Images source: NSHP

#### Listing: Not Listed

**Description:** Centre Pompidou, a 20<sup>th</sup> century architectural marvel is one of the leading cultural attractions in Paris. Home to the National Museum of Modern Art, it is a museum and centre for visual arts. As part of permanent collections, the building showcases works of iconic artists such as Matisse, Picasso, Dubuffet et cetera. Internationally renowned exhibitions are organized every year on the top floor, where visitors can enjoy a breathtaking view of Paris and its rooftops.<sup>263</sup> The building is instantly recognisable because of its industrial architecture, escalators hung off the structure and exposed services. The use of modern materials – steel, synthetic glass and coloured plastic accentuated by bold colours produces an aesthetic unique in the traditional Beaubourg area. The building's scale is generally reliable to the surrounding buildings and sits well in its context. The use of colours structures the building - blue for air flows, yellow for electricity, green for water circuits and red for pedestrian flow. The forecourt (Place Georges Pompidou) is a key public space which facilitates impressive views to the building and aids in understanding its impressive mass and character.



The area has the quality of a precinct - pedestrianised streets connecting the differently sized plazas in proximity to the building.

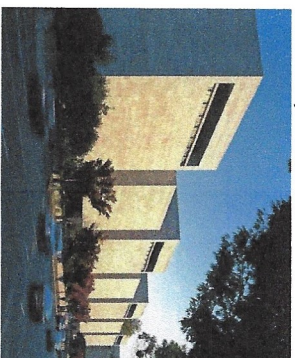
#### Smithsonian National Air and Space Museum, Washington

Built: 1972-76

Architect: Gyo Obata, HOK

##### Listing: Not Listed

**Description:** "The National Air and Space Museum maintains the world's largest collection of historic aircraft and spacecraft. It is also a vital center for historical research on aviation and spaceflight and related science and technology, and home to the Center for Earth and Planetary Studies, which performs original research."<sup>292</sup> The building comprises four marble encased cubes connected by three steel and glass atriums. The cubes contain smaller exhibits and the atriums are used for larger exhibits.<sup>293</sup> The building offers variety of exhibition spaces from black box spaces scenarios to spaces flooded with natural light. The atriums are flooded with natural light, here large aircrafts are hung off the roof trusses in a similar fashion to Ulmno Powerhouse.



Images source: Smithsonian

#### New Museum, New York

Built: 2007

Architect: SANAA

##### Listing: Not Listed

**Description:** The Museum exhibits innovative contemporary art from around the world. "The program of the Museum consists of four public galleries at the first four floors, which have free and flexible spaces for exhibitions; a "white box" auditorium in the basement, Education Center at the 5th floor, offices at 6th, a multi-purpose room at the 7th. By shifting the boxes, all galleries get natural illumination, combined with artificial, and the offices and the private locals on the top floors get terraces and opening views to the cityscape."<sup>294</sup> The squared blocks and buildings of Manhattan can be considered as starting point for the Museum's image.



Images source: Archdaily

### 3.6.2 CONCLUSIONS FROM COMPARATIVE ANALYSIS

The above comparative analysis was generally taken from a selection of eighteenth, nineteenth and twentieth century structures such as Power Stations, Tramways, Hospitals and Railway Workshops that have been converted into Museums and Arts Centres. The selection also includes design, art and science museums around the world that are considered benchmarks.

The comparison with the selection reveals that the Powerhouse Museum is unique for being one of the first examples of large-scale conversion of industrial structures for Museum use. The architectural design for the Stage II Powerhouse were displayed at Stage I opening in 1981 which preceded the completion of Musée d'Orsay. The scale of industrial structures readapted at the Ulmno Powerhouse is only matched by the Queen Victoria Museum and Art Gallery in Tasmania.

The design approach of the Powerhouse Museum is comparable to other Museums in the selection. The Museums in the selection have varied exhibition spaces - naturally or artificially lit which relate to the buildings and work with the buildings. The traditional architecture of the V&A and Designmuseum Danmark is celebrated in the exhibitions - the windows are not closed off and this facilitates views into and from the buildings. This allows the viewers to locate the building in its setting as they move through the various spaces. The buildings' forecourts are utilised as key public spaces, as orientation / entry and for temporary exhibitions. Multiple entrances allow multiple approaches to the Museums, creating a sense of porosity. At nighttime the buildings show life from inside with artificial lights through the clear openings. The architecture, exhibitions and open spaces work together to create porous, transparent, inviting spaces - an element that has been lost at the Powerhouse Museum.

None of the building in the selection had their design origins in the history of the institutions they would represent in future. The Powerhouse Museum is unique for celebrating the origins of MAAS in the Garden Palace. Lionel Glendenning synthesised the history of the institution and the industrial development of Ulmno in his designs, truly embedding the Museum in its place. The Powerhouse Museum's collections are intrinsically linked to the former uses of the site and assist in the reading of the place. The correlation between the role of power generation in people's lives and the Museum's collections that emphasise the role of design, science and technology in our lives is unique to the Powerhouse Museum. Although such a correlation exists at the Scienceworks Melbourne, the original pumping station at this Museum is not utilised for exhibition purposes.

The opportunities for heritage interpretation in the selected buildings include retention of original fabric finishes and structures with new interventions to complement the original structures. In addition to these, at the Powerhouse Museum there exist subtle opportunities such as the steam vents in the west façade of the Boiler House which give an indication of the former uses of the place.

The Powerhouse Museum is unique to display collections on history, science, technology, design, industry, decorative arts, music, transport and space exploration. The Museum therefore has a variety of exhibition spaces. The museum is unique to have a layered design approach that explored complex ideas such as historical references, urban connections, heritage conservation, innovation in Museum practice and building systems. The uniqueness of the Powerhouse Museum is furthered by the innovative approach to exhibition design by Richard Johnson. The introduction of intermediate elements to benefit the reading of the building and facilitate best exhibition designs were not contemporary ideas in the 1980s.



## SECTION 4

# STATEMENT OF CULTURAL SIGNIFICANCE

### 4.1 SUMMARY STATEMENT OF SIGNIFICANCE

The Powerhouse Museum in Ultimo, with its origins dating back to the 1879 Sydney International Exhibition held in the Garden Palace in Sydney's Royal Botanic Gardens, and then the Museum of Applied Arts and Sciences in Ultimo, is of exceptional significance as a cultural institution within NSW and the only museum in Australia specialising in the collection and display of artefacts and objects related to the fields of applied arts and sciences in their broadest sense.

The Powerhouse Museum was the result of the shared vision of Neville Wran, Lionel Glendenning, Lindsay Sharp and Norman Harwood and formed the centrepiece of a suite of developments in the Darling Harbour area to mark the Australian Bicentenary in 1988. A true collaboration between engineers, architects, exhibition designers, contractors, curators, and the museum design team resulted in the highest quality execution of an ingenious and exciting museum.

When Stage 2 opened in 1988, the Powerhouse Museum was one of the first and largest adaptive reuse projects of industrial sites and structures for cultural uses in Australia and received considerable recognition and a number of awards, including the prestigious RAAI (NSW) Sulman Award, the RAAI National President's Award for Recycled Buildings, the RAAI Belle Interiors Award, and the Westpac Museum of the Year Award. It was considered a leading cultural institution both nationally and internationally, particularly in the field of applied arts and sciences.

The significance of the site's use as a museum of applied arts, science and technology is bolstered by its past use as a Power Station and Tram Depot, significant and legible manifestations of the industrial revolution. This synergy is reinforced by the permanent exhibition displays of power generation, including the Boulton and Watt steam engine, Locomotive No.1, Steam Revolution and transport. The museum's name – 'Powerhouse' – continues to represent the role and power of design in innovation and excellence in all fields of endeavour, and is firmly anchored in the history and evolution of this Ultimo site.

The Powerhouse Museum in Ultimo comprises a landmark group of buildings from 1899 to 1988 with historical associations to the economic, social, cultural, technological, educational and industrial development of Sydney and particularly the Ultimo precinct.

The earliest of these, the former Ultimo Power House (1899) was the first power station constructed to provide electricity for Sydney's tramways network and the first large-scale coal-fired power station in Australia. It was at the forefront of electric power generation in the state from 1899 to 1923 with major technological advancements being trialled on this site. Built and opened in conjunction with the Power House, the Ultimo Tram Depot was the first specifically designed electric tram depot in Sydney and acted as a prototype for subsequent depots on the network. With its present use as a functional and complementary part of the Powerhouse Museum, it retains significant historic and functional links to the adjacent former Power House.

The 1980s alterations, additions and exhibitions by a collaborative team of exceptional architects, designers and curators led by Lionel Glendenning, Richard Johnson and Lindsay Sharp, established an internationally acclaimed benchmark as a museum and cultural institution showcasing the excellence and achievements of applied arts, science, and technology. The 1988 Wran building by Lionel Glendenning captures a 'slice' of the infiniteness of the Australian landscape in the incomplete arch over the original grand foyer – a place of arrivals and departures inspired by the Normanton railway station in remote Queensland. The dramatic linear Galleria references the 1880s Garden Palace, its 'laneway' framing the external walls and openings of the Ultimo Power House that deliberately invite exploration and discovery across the scale and extent of both the architectural spaces and the museum's collection.

The collective vision for the Powerhouse Museum at its inception in the late 1970s was to celebrate and showcase the museum's extensive collections in a spatial environment that facilitated imaginative, engaging and popular exhibitions. The extraordinary breadth and depth of the museum's collection is enhanced by the opportunities for engagement and discovery, and the integration of exhibition design with the unique scale and configuration of the spaces. This engagement, discovery and integration continues to be appreciated and valued by museum visitors and guides, and especially families, educators and students across all ages, and personal, cultural and professional backgrounds.

The community's incredible passion for the Powerhouse Museum, both buildings and collections, are a testament to its contemporary social esteem. This passion is evident in the community's welcome of the state's 2020 decision to retain and rename Ultimo's Powerhouse Museum. The renewal represents the evolving expectations of the people of NSW for this treasured public institution – the Powerhouse Museum.

### 4.2 EXISTING LISTINGS

#### 4.2.1 STATUTORY LISTINGS

The listing sheet on the State Heritage Register for the Ultimo Power House contains 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/Pymont 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 Pymont 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/Pymont 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.

The listing sheet on the State Heritage Register for the Ultimo Post Office contains the following Statement of Significance:

The building dates from one of the key periods of layers for the development of Ultimo/Pymont 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/Pymont 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 WL 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).*

The local listing for the Powerhouse Museum Former Warehouse Buildings, including interiors contains the following Statement of Significance:

*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 Sultan Mahal.*

The local listing for the Former Ultimo Post Office Including Interiors contains the following Statement of Significance:

*The building dates from one of the key period of layers for the development of Ultimo/Pymont 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/Pymont 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 WL 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).*

**Important Note:**

The existing statutory listings do not capture a holistic assessment of the significance of the place and unequal emphasis has been placed on the historic uses of the place in comparison to its current use. The non-statutory listings (on National Trust Register and Register of National Estate) have been more successful in documenting the significance of the place as a museum. This CMP considers the historic as well as contemporary tangible and intangible values of the place to guide the assessment process and reflects the same in brief as part of the Statement of Cultural Significance.

**4.3 SIGNIFICANCE GRADINGS**

Different elements of a place make different contributions to the overall cultural significance of the place as a whole. These elements may also have significance in their own right. It is important to understand the relative contribution of an item or its components to the significance of a place to assist in decision making about the management of these elements and also to assess the potential impact of proposed changes.

Each element is made up of various component parts and each of these is addressed within Section 5, *Conservation Policy*, and in its associated *Tolerance for Change and Opportunities for Change* tables. Refer to further explanation in Section 5.3.1. The terms *element* and *component* are explained in the same section.

The various elements of the Powerhouse Museum, its structures, elements and spaces, have been graded according to their relative significance in the section 4.3.2 and Figures 4.1 to 4.13 below.

**4.3.1 DEFINITIONS OF LEVELS OF SIGNIFICANCE**

Levels of significance	Definitions
1 <b>Exceptional significance</b>	These structures, elements and spaces are of Exceptional cultural significance. They retain a high degree of intactness and demonstrate a significant phase or use of the place. They may contain elements that have been altered or adapted but which do not compromise their significance. They play a crucial role in supporting the significance of the place.
2 <b>High significance</b>	These structures, elements and spaces are of High cultural significance. They may feature a high degree of original or early fabric or are demonstrative of a key part of the place's significance, with a degree of alteration that does not unduly detract from that significance. They play an important role in strengthening and supporting the significance of the place.
3 <b>Moderate significance</b>	These structures, elements and spaces are of Moderate cultural significance. They may include altered, obscured or modified components, components that make a lesser contribution to the overall significance of the place. They play a moderate role in supporting the significance of the place.
4 <b>Low significance</b>	These structures, elements and spaces are of Little or Neutral cultural significance. They may have been substantially altered or include later changes that make a minor or negligible contribution in supporting the overall significance of a place.
5 <b>Intrusive</b>	Intrusive items have a negative impact on the overall cultural significance of the place, and/or its significant fabric. They obscure rather than support the significance of the place.

**4.3.2 SCHEDULE OF LEVELS OF SIGNIFICANCE**

Below is a summary of levels of significance for the site, including buildings and elements:

Powerhouse Museum generally	1
<ul style="list-style-type: none"><li>The Powerhouse Museum, including its assemblage of adaptively reused industrial structures and purpose-built new structures, spaces and elements from the 1980s.</li><li>Its functions as a highly regarded Museum housing and displaying exhibits of the Applied Arts and Sciences.</li></ul>	







# POWERHOUSE MUSEUM

## SIGNIFICANCE GRADING SITE ELEMENTS

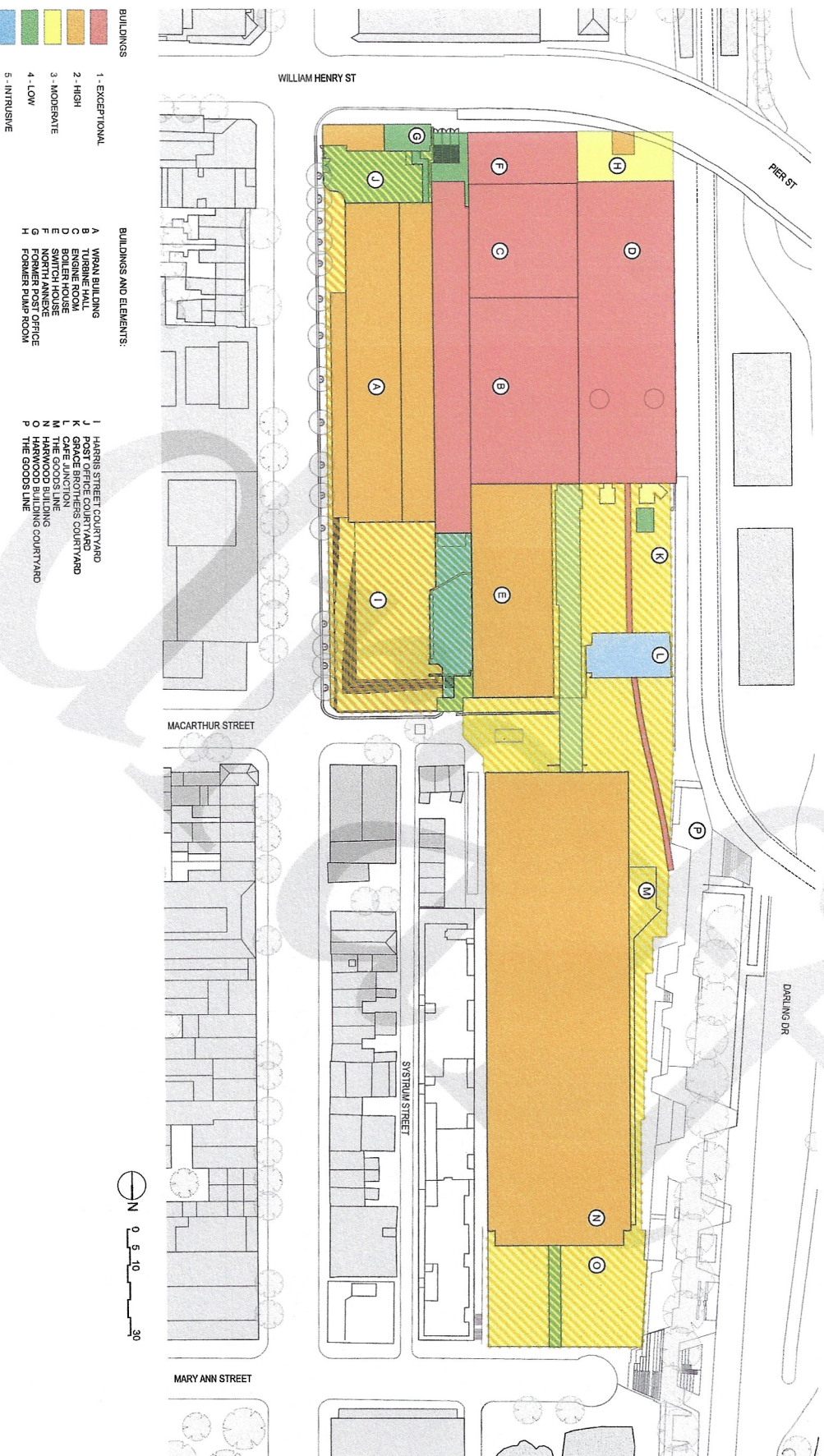


Figure 4.1: Powerhouse Museum Grading of Significance Diagram.