

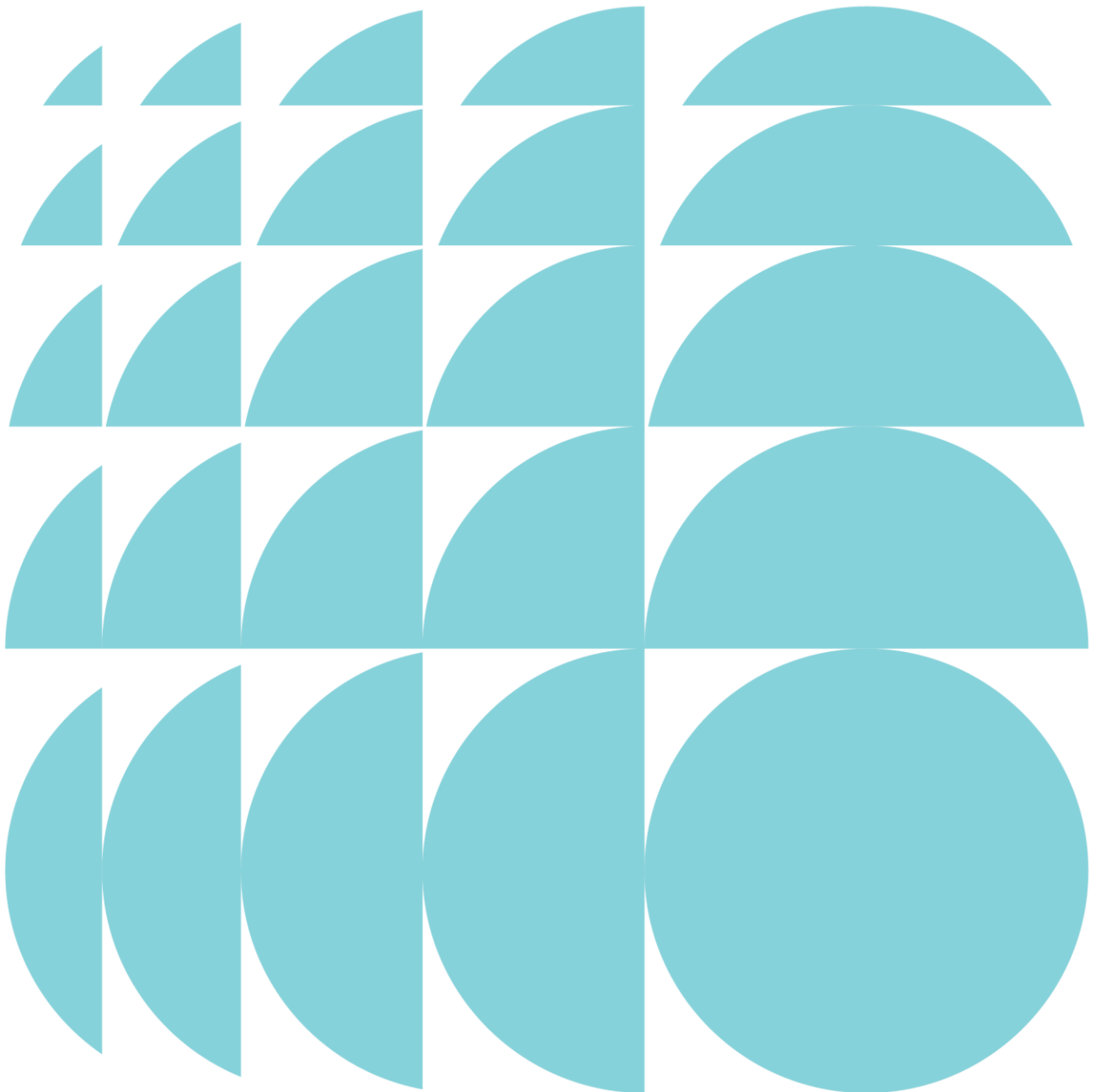
ETHOS URBAN

Environmental Impact Statement (SSD 9452)

1 William Street, Sydney
The Australian Museum, Alterations and Additions

Submitted to Department of Planning &
Environment on behalf of The Australian Museum

04 October 2018 | 218139



CONTACT

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Chris Forrester

4/10/2018

Kate Tudehope

04/10/2018

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Statement of Validity

Development Application Details

Applicant name	Australian Museum
Applicant address	1 William Street, Sydney
Land to be developed	Lot 1 in DP 1157811, Lot 3 in DP 1046458 and Lot 11 in DP 588102
Proposed development	Alterations and additions to the Australian Museum as described in Section 3.0 of this Environmental Impact Statement

Prepared by

Name	Chris Forrester
Qualifications	BPLAN, UNSW
Address	173 Sussex Street, Sydney
In respect of	State Significant Development - Development Application

Certification

I certify that I have prepared the content of this EIS and to the best of my knowledge:

it is in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000;

all available information that is relevant to the environmental assessment of the development to which the statement relates; and

the information contained in the statement is neither false nor misleading.

Signature



Name

Chris Forrester

Date

4/10/2018

1.0 Executive Summary

Purpose of this Report

This submission to the Department of Planning and Environment (the Department) comprises an Environmental Impact Statement (EIS) for a Development Application under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It relates to the proposed alterations and additions to the Australian Museum.

Development for the purposes of cultural, recreation and tourist facilities (which includes a museum) with a capital investment value of more than \$30 million is State Significant Development (SSD) for the purposes of the EP&A Act. As the proposed development will have a capital investment value of \$57,500,000 it is SSD.

A request for the issue of Secretary's Environmental Assessment Requirements (SEARs) was sought on 29 June 2018. Accordingly, the SEARs were issued on 27 July 2018. This submission is in accordance with the Department's guidelines for SSD applications lodged under Part 4 of the EP&A Act, and addresses the issues raised in the SEARs.

Overview of the Project

The State Significant Development Application (SSDA) seeks approval for various alterations and additions to the Australian Museum, including extension of the existing Crystal Hall. The key objective of the proposal is to provide a large and flexible exhibition space that is capable of accommodating blockbuster exhibitions, including the upcoming *Tutankhamun* exhibition, as well as improving the day to day operations of the Museum by enhancing visitor experience and wayfinding.

The Site

The site is located at 1 William Street, along the eastern edge of the Sydney CBD within the City of Sydney Local Government Area. It is located in a prominent setting on the corner of College and William Streets, adjacent to Hyde Park and opposite Cook and Phillip Park and St Mary's Cathedral. It shares a large block with Sydney Grammar School.

The site comprises three lots with a total area of 10,858m² and is legally described as Lot 1 in DP 1157811, Lot 3 in DP 1046458 and Lot 11 in DP 588102.

Planning Context

Section 6.0 of the EIS considers all applicable legislation and the proposal is consistent with the requirements of all relevant SEPPs. The site is zoned B8 Metropolitan Centre and the proposal relates to the existing use of the site as a museum which is permissible with consent and meets the objectives of the subject zone.

Environmental Impacts and Mitigation Measures

This EIS provides an assessment of the environmental impacts of the project in accordance with the SEARs and sets out the undertakings made by the Australian Museum to manage and minimise potential impacts arising from the development.

The key issues of the assessment relate to urban design and protecting the Museum's significant heritage fabric. The site is the subject of a masterplanning exercise to guide the long term expansion of the Museum and the proposed works are the result of extensive architectural and urban design analysis which was undertaken in conjunction with input from heritage specialists.

In addition, appropriate environmental management practices during the physical construction of the works have been assessed and addressed through the preliminary Construction Environmental Management Plan located at **Appendix L**.

Conclusion and Justification

The EIS addresses the SEARs and includes adequate information to assess the environmental impacts of the proposed development and ensure any impacts can be appropriately managed.

The proposal will facilitate the next stage of the Museum's evolution in accordance with the long term masterplan for the site and will significantly enhance its role as a world class educational and cultural facility. The proposed alterations and additions will increase the Museum's capacity to attract blockbuster exhibitions and will allow more of its collection to be accessible to the public.

Given the merits of the proposal, the proposed development warrants approval by the Minister for Planning and Environment.

2.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning and Environment pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in support of an application for State Significant Development (SSD).

Development for cultural, recreation and tourist facilities with a capital investment value of more than \$30 million is identified in Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* and is therefore declared to be SSD for the purposes of the EP&A Act.

The report has been prepared by Ethos Urban on behalf of the Australian Museum, and is based on the Architectural Plans provided by Hames Sharley and Neeson Murcutt Architects (see **Appendix A**) and other supporting technical information appended to the report (see Table of Contents).

This EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and the SEARs for the preparation of the EIS, which are included at **Appendix C**. This EIS should be read in conjunction with the supporting information and plans appended to and accompanying this report.

2.1 Overview of Proposed Development

This application seeks approval for various alterations and additions to the Australian Museum. The key objectives of the proposal are to provide a flexible exhibition space that is capable of accommodating blockbuster exhibitions, including the upcoming *Tutankhamun* exhibition, as well as improving the day to day operations of the Museum by enhancing visitor experience and circulation.

Key components of the proposed development include:

- Retention of the existing access ramp on College Street servicing the main Ground Floor entry in the Crystal Hall and the capacity to muster school and other large groups on the Lower Ground Floor;
- Extension of the Crystal Hall (the modern addition on William Street) to create a larger ticketing hall;
- Creation of new openings in the William Street façade of the Parkes Farmer Building Ground Level (within Crystal Hall) to facilitate new entries into the Museum;
- Various internal works including:
 - Demolition of internal elements within the Touring Exhibition Hall including structure, plant, the existing storage space at Basement Level and the existing mezzanine floors at Lower Ground Level and Level 1 to facilitate new exhibition spaces;
 - Reorientation of stairs connecting William Street to Lower Ground Level and new group facilities;
 - Construction of new facilities for groups on the Lower Ground Level entering off William Street including toilets, lockers, an education room and a member's lounge / community room;
 - Installation of new escalators to the Touring Exhibition Hall / Great Hall and a new passenger lift to provide access between the Basement Level (William Street) and Ground Level;
 - Relocation of the museum and exhibition shop to near the Crystal Hall entrance at Ground Level;
 - Construction of a new café and commercial kitchen, toilets and kids' space on Level 2;
 - Construction of a new education space on Level 2;
- New photovoltaic cells on the Lewis Wing and Vernon Wing rooftops;
- New landscape works, including a Biodiversity Garden, to the undercroft of the extended Crystal Hall; and
- Removal of trees and the introduction of a bus bay within the adjacent William Street public domain.

2.2 Background to the Development

2.2.1 Australian Museum Masterplan

Hames Sharley was commissioned by the Australian Museum in 2016 to develop the 'AM Masterplan' to guide the delivery of the Museum's 'NEW Vision' for 2027. The vision for the Museum is to be a world class destination with 20% of its collection on display (including a substantial increase to the exhibition of its Pacific and Indigenous collection) and annual visitation of 1 million people. It also seeks to generate new income streams through commercial partnerships to target 48% of its annual operating expenses.

The AM Masterplan considered three development options for the site, involving varying degrees of alterations and additions to the Museum, to maximise the development potential of the site and achieve the objectives of the Museum's vision.

The first option was the Government Architect's Office scheme developed in 2013 which sought to develop a new building on the corner of Yurong and William Streets to increase the Museum's usable floor space (refer to **Figure 1**). This option included a new separate structure in front of the Parkes Farmer Wing for public access from William Street (Crystal Hall) which was partly constructed in 2015. At the time, this option sought to double the number of visitors to the Museum and create Australia's leading touring exhibition hall. Whilst representing a significant expansion of museum space, this option did not provide the necessary floor space to achieve the new vision of the Museum for 2027.

The preferred option (refer to **Figure 1**), developed by Hames Sharley, built on the Government Architect's Office scheme to deliver additional floor space by building marginally above the existing height limit for the site. The design also solved many of the Museum's current circulation and functional accommodation problems. This option forms the basis the current AM Masterplan. It is noted that Option 3 was similar to the preferred option, however sought additional height.

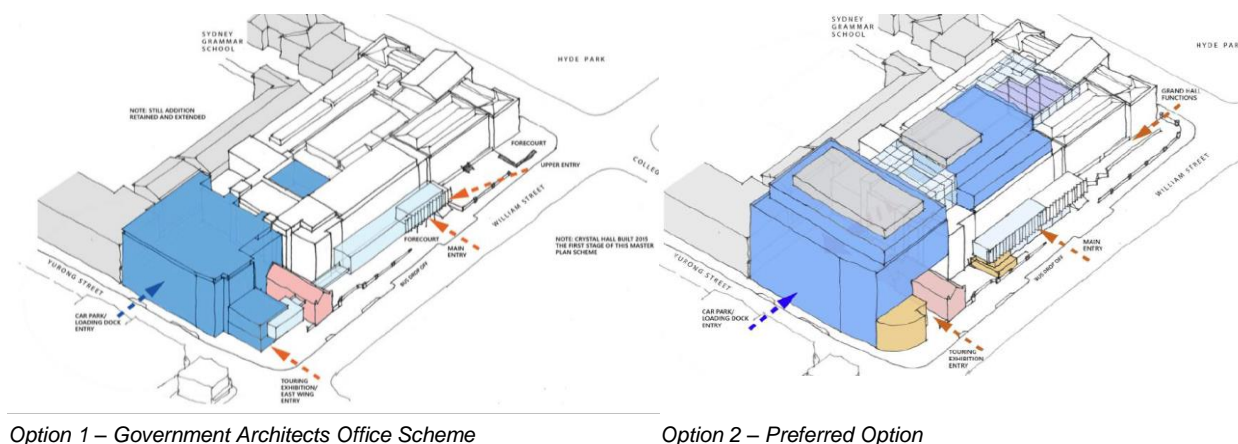


Figure 1 Preferred Masterplan Option (subject to future planning processes)

Source: Hames Sharley

The AM Masterplan is proposed to be delivered in two phases subject to the Museum's future needs and funding. The works proposed under this SSDA constitute Phase 1 and involve the expansion of exhibition and visitor spaces, largely within the existing envelope, and the extension of Crystal Hall. Phase 2, if pursued, will then seek to expand the Museum eastward through the construction of a new building at the eastern end of the site. It should be noted that, notwithstanding the Museum's own commercial masterplan (which has no statutory weight), the proposed Phase 1 works stand in their own right and are functionally planned and durable to withstand extended use. Matters relating to Phase 2 of the masterplan will be addressed as part of a separate application in the future and the carrying out of Phase 1 of the masterplan will not affect the ability of the Museum to implement any future stage(s).

2.2.2 Tutankhamun Exhibition

The Australian Museum will host an exclusive blockbuster exhibition, *Tutankhamun: Treasures of the Golden Pharaoh*, for 6 months from early 2021. The exhibition is the largest and most impressive Tutankhamun exhibition to ever leave Egypt and would see the Museum host 911,000 visitors over the duration of the exhibition, equivalent to 9 visitors every minute.

The exhibition features more than 150 objects from Tutankhamun's tomb, including 60 treasures never previously displayed outside of Egypt. The exhibition features advanced display technology and the latest science about Tutankhamun's life, health, death and lineage.

In order to accommodate such blockbuster exhibitions, as well as to improve the day to day operations of the Museum, the Australian Museum has resolved to undertake a range of alterations and additions that were identified through the AM Masterplan process.

2.3 Analysis of Alternatives

As discussed above, there is a strategic need for the proposal in order to increase the exhibition capacity of the Museum to accommodate the *Tutankhamun* exhibition in early 2021 and to continue to attract the best exhibitions from around the world in the future. There is also a need to improve the general functionality and user experience of the Museum and enhance its educational facilities.

The Australian Museum has undertaken a detailed analysis of a range of options available in responding to the identified needs above and ensuring the Museum maintains its status as a world class education and tourist facility. Four main options are available to the Museum which are evaluated below.

Option 1 - Do nothing

Under the 'do nothing' scenario the Museum would remain in its current state and would not have sufficient exhibition space or meet the functional requirements to attract blockbuster exhibitions. This would result in a missed opportunity to improve a significant educational and cultural facility available to Sydneysiders, and residents of NSW, and reduce Sydney's competitiveness in attracting interstate and international tourists. Failing to capitalise on this opportunity would also weaken the ongoing commercial viability of the Museum and its ability to provide its important role in the education of school students.

Option 2 - Develop a new exhibition space elsewhere

Option 2 involves the development of a new exhibition space elsewhere. This option is not desirable as it would result in the split of the Museum's collection across different sites and not deliver on the vision of upgrading the existing Museum to create a world class facility. In addition, land within the Sydney CBD is scarce and the use of existing site should therefore be optimised to ensure the efficient and economic delivery of important social infrastructure to the public.

Option 3 - Expand the museum elsewhere on the site and/or develop an alternative design

Option 3 involves the expansion of the Museum elsewhere on the site or the development of an alternative design to accommodate the required growth. This option is not preferred as the Museum has undertaken an extensive masterplanning process which involved the consideration of a number of development options based on analysis of the site's constraints and opportunities. Implementing an alternative design would be inconsistent with the Masterplan and may hinder the delivery of other future stages.

Option 4 - The Proposal

Option 4 involves following through with the proposed development detailed in this SSD application (as described in **Sections 2.0 and 4.0**). This option aligns with the objectives of the Museum, creating new exhibition space to accommodate blockbuster events and simplify wayfinding and circulation around the Museum. The proposal will address the strategic need identified above and deliver improvements to the Museum in accordance with Masterplan.

2.4 Secretary's Requirements

In accordance with section 4.39 of the EP&A Act, the Secretary of the Department issued the requirements for the preparation of the EIS on 27 July 2018. A copy of the Secretary's Environmental Assessment Requirements (SEARs) is included at **Appendix C**.

Table 1 provides a detailed summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 1 Secretary's Requirements

Requirement	Location	
General		
<p>The Environmental Impact Statement (EIS) must address the <i>Environmental Planning and Assessment Act 1979</i> and meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the Environmental Planning and Assessment Regulation 2000.</p> <p>The EIS must also be accompanied by a report from a qualified quantity surveyor providing:</p> <ul style="list-style-type: none">• a detailed calculation of the capital investment value (CIV) of the development (as defined in clause 3 of the Regulation), including details of all assumptions and components from which the CIV calculation is derived• an estimate of the jobs that will be created by the development during construction and operation verification that the CIV was accurate on the date that it was prepared.	Environmental Impact Statement	
Key Issues	Report / EIS	Technical Study
<p>1. Environmental Planning Instruments, policies and guidelines</p> <ul style="list-style-type: none">• Consideration of the relevant statutory provisions contained within the applicable EPIs, including:<ul style="list-style-type: none">○ State Environmental Planning Policy (State & Regional Development) 2011○ State Environmental Planning Policy (Infrastructure) 2007○ State Environmental Planning Policy No. 33 – Hazardous and Offensive Development○ State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)○ Draft Remediation of Land SEPP○ State Environmental Planning Policy No 64—Advertising and Signage○ State Regional Environmental Plan (Sydney Harbour Catchment) 2005○ Draft Environment SEPP○ Sydney Local Environmental Plan 2012.• Consideration of the relevant provisions, goals and objectives in the following:<ul style="list-style-type: none">○ NSW State Priorities○ Future Transport Strategy 2056 and associated plan○ Better Placed – An integrated design policy for the built environment of New South Wales.○ Guide to Traffic Generating Developments (RMS)○ A Plan for Growing Sydney○ Eastern City District Plan○ Towards our Greater Sydney 2056○ Sydney Development Control Plan 2012○ Sustainable Sydney 2030	Section 6.1	-
<p>2. Heritage and archaeology</p> <ul style="list-style-type: none">• A Statement of Heritage Impact (SOHI) prepared by a suitably qualified heritage consultant with experience in comparable heritage projects. The SOHI is to be prepared in accordance with the guidelines in the NSW Heritage Manual and best practice conservation principles. The SOHI is to address the impacts of the proposal on the cultural significance of the site, of the different winds that collectively compose the Australian Museum and of adjacent areas and is to identify the following:<ul style="list-style-type: none">○ all heritage items and heritage conservation areas (state and local) both on and within the vicinity of the site including built heritage, landscapes and	Section 6.6	Appendix D

Requirement	Location	
<p>archaeology, detailed mapping of these items, and assessment of why the items and site(s) are of heritage significance</p> <ul style="list-style-type: none"> ○ compliance with the relevant Conservation Management Plan and other heritage management documents ○ the impacts of the proposal on heritage items and heritage conservation areas including visual impacts, required BCA and DDA works, new fixtures, fittings and finishes, any modified services ○ different approaches explored to avoid, minimise and/or mitigate any potentially adverse impact on the heritage significance or cultural heritage values of the site, the different wings that collectively compose the Australian Museum and the surrounding heritage items and heritage conservation areas. ○ justification for any changes to the heritage fabric including options analysis. <ul style="list-style-type: none"> • If the SOHI identifies impact on potential archaeology, an historical archaeological assessment should be prepared. This assessment should identify what relics, if any, are likely to be present, assess their significance and consider the impacts from the proposal on this potential resource. Where harm is likely to occur, it is recommended that the significance of the relics be considered in determining an appropriate mitigation strategy. If harm cannot be avoided in whole or part, an appropriate Research Design and Excavation Methodology should also be prepared to guide any proposed excavations. • If there is any ground disturbance, a Aboriginal Cultural Heritage Assessment Report (ACHAR) is required to identify and describe Aboriginal cultural heritage values that existing across the area affected by the development. This may include a surface survey and test excavation. The identification of cultural heritage values must be conducted in accordance with the Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW, and guided by Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW. • If required, consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal Cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the ACHAR. • The ACHAR must also document any impacts on Aboriginal cultural heritage values including attempts to avoid impacts. Where impacts are unavoidable, the ACHAR must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH. 		
<p>3. Design excellence</p> <ul style="list-style-type: none"> • Outline the process to ensure that design excellence is achieved for the current and future stages of redevelopment including opportunities for future competitive design excellence processes. • How comments from the Government Architect NSW through the NSW State Design Review Panel (SDRP) process have been addressed. • Outline the continuation of design review through the SDRP and a record of this throughout the planning process. The record should include a summary report from the SDRP and an outline of how the Panel advice has been documented and addressed. • Outline the continuing involvement of the design architect of the original Crystal Hall in all works associated with the proposal. • Demonstrate the integration of the proposal with a long-term master plan for the entire Australian Museum site and future competitive design excellence processes. • Consider the provisions of clause 6.21 of the Sydney Local Environmental Plan 2012. 	Section 6.2	Appendix E
<p>4. Built form and urban design</p> <ul style="list-style-type: none"> • In consultation with the Government Architect NSW (through the NSW SRDP process) ensure that the proposal demonstrates design quality with reference to the SDRP advice through consideration of the following: <ul style="list-style-type: none"> ○ An outline of the design process leading to the proposal with justification of the suitability of the site for the proposal. ○ An urban design analysis with consideration of the building's historic character, architectural design, setbacks, materials, detailing, views, connectivity and street activation. ○ A table identifying the proposed land uses including a floor-by-floor breakdown of GFA, total GFA and site coverage. 	Section 6.2	Appendix A

Requirement	Location	
<ul style="list-style-type: none"> Site and context including planning, massing, access and circulation options and preferred strategy for future development. Provide detail of the long-term master plan for the Museum site and how the current proposed works will integrate with this. Contextual fit including height, bulk and scale, setbacks and interface of the proposal with surrounding development, topography, streetscape, public open spaces and heritage items. Built form including overall site layout, planning and massing, facades, building articulation and scale, materials and colours. Architectural design approach to new work in relation to heritage fabric. Crime Prevention Through Environmental Design Principles. Aboriginal culture and heritage, to be development in consultation with the local Aboriginal community and cultural groups and incorporated holistically in the design proposal. Environmental amenity including access to natural daylight and ventilation, acoustic separation, access to landscape and outdoor spaces and future flexibility. Integration of services including waste management, loading zones and mechanical plant. 		
5. Building Use <ul style="list-style-type: none"> Details of any changes to the proposed use and/or operational details for the development, including but not limited to: <ul style="list-style-type: none"> hours of operation patron capacity any music to be provided on the premises proposed lighting and illumination. 	Section 5	-
6. Visual impacts <ul style="list-style-type: none"> A visual impact assessment to identify the visual changes and view impacts of the project to/from key vantage points and surrounding land, including from the eastern approach of William Street. Photomontages or perspectives should be provided showing the project. 	Section 6.9	Appendix E
7. Public domain and public access <ul style="list-style-type: none"> Provide detail on the interface of the new entry way with the public domain and street activation. This is to include photomontages. Identify any street tree removal. Identify any changes to street kerb and parking arrangements. Provide a detailed study that tests options for the location and layout of the primary entry, equitable public access and circulation. The study should demonstrate how the proposal considers and integrates the future development and expansion of the museum. Landscape design, including consideration of equity and amenity of outdoor spaces, and integrated with built form, security, shade, topography and existing vegetation. 	Section 6.4	Appendix P
8. Transport, traffic, parking and access <ul style="list-style-type: none"> A transport and accessibility impact assessment prepared in accordance with the relevant guidelines identifying: <p><u>Operation</u></p> <ul style="list-style-type: none"> current daily and peak hour traffic generation (light and heavy vehicle), coach facilities, public transport, walking and cycling movements, existing traffic and transport facilities located within the vicinity of the proposed development estimated daily and peak hour traffic generation (light and heavy vehicle), coach facilities, public transport, point to point transport, walking and cycling trip generation during operation an assessment of the impact of additional traffic generated by the proposed development on the existing road network and bus service operation an assessment of the existing and future pedestrian and cycle facilities within the vicinity of the site and identify measures to manage the likely future increase in public transport, pedestrian and cycle demands of the proposed development an assessment of the parking, loading and servicing demand and capacity for the proposed development in accordance with appropriate parking codes and justification for the amount of car parking, loading and servicing facilities provided for the proposed development 	Section 6.12	Appendix F

Requirement	Location	
<ul style="list-style-type: none"> appropriate bicycle parking provisions including end-of-trip facilities considering the availability of public transport and the requirements of the relevant parking codes and Australian Standards sustainable travel initiatives for staff and visitors, particularly for the provision of green travel plans and wayfinding strategies location of pedestrian and bicycle parking facilities in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance access to, from and within the site from the road network including intersection locations, design and sight distance (i.e. turning lanes, swept paths, sight distance requirements) service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times) proposed access arrangements including vehicle access, drop-off arrangements (including coaches and point to point transport), service vehicles, emergency vehicles and loading areas for the development and measures to mitigate any associated traffic, public transport, pedestrian and bicycle networks impacts an assessment of predicted impacts on road safety. <p><u>Construction</u></p> <ul style="list-style-type: none"> an assessment of traffic and transport impacts during construction and how these impacts will be mitigated for any associated traffic, pedestrians, cyclists (particularly along William Street) and public transport services, including the preparation of a draft Construction Pedestrian Traffic Management Plan. This Plan shall include vehicle routes, truck numbers, construction program, works zone location, hours of operation, access arrangements, cumulative impacts of other development. Existing CPTMPs for developments within or around the development site should be referenced in the CPTMP to ensure that coordination of work activities are managed to minimise impacts on the transport network. details of construction vehicle routes, peak hour and daily truck movements, hours of operation, access arrangements at all stages of construction and traffic control measures for all works an assessment of construction impacts on road safety at key intersections and locations for potential pedestrian, vehicle and bicycle conflicts details of access arrangements for workers, emergency services and the provision for safe and efficient access for loading and deliveries. 		
9. Signage <ul style="list-style-type: none"> Detail on the location, size and content of any proposed signage. Identify current signage and explore opportunities for signage rationalisation. 	Section 4.5	-
10. Noise and vibration <ul style="list-style-type: none"> A noise and vibration assessment prepared in accordance with the relevant EPA guidelines. This assessment must detail construction and operational noise impacts on nearby noise sensitive receivers (including Sydney Grammar School) and outline proposed noise mitigation and monitoring procedures. Confirmation of whether the museum will be served by a back-up generator. 	Section 6.18.1	Appendix G
11. Air quality, odour and waste <ul style="list-style-type: none"> The potential air quality, odour and waste impacts during the construction of the development and appropriate mitigation measures. 	Section 6.18	Appendix L
12. Ecologically Sustainable Development (ESD) <ul style="list-style-type: none"> Detail of how best practice ESD principles (as defined in clause 7(4) of Schedule 2 of the Regulation) will be incorporated in the design, construction and ongoing operation phases of the development. Practical opportunities to implement water sensitive urban design principles, including stormwater re-use for grounds maintenance and toilet flushing. Practical opportunities to minimise consumption of energy generated from non-renewable sources and to implement effective energy efficiency measures, including passive solar design. 	Section 6.16	Appendix H
13. Contamination <ul style="list-style-type: none"> Compliance with the requirements of SEPP 55. 	Section 6.14	Appendix I

Requirement	Location	
<ul style="list-style-type: none"> Detailed assessment of potential site contamination, including information about groundwater. Confirmation of how any associated UPSS would satisfy the requirements of the Protection of the Environment Operations (Underground Petroleum Storage System) Regulation 2014 (including a properly designed and installed secondary leak detection system, loss detection procedures, environment protection plan documentation and incident log). The Australian Museum Trust holds Radiation Management Licence (RML) 5079378. The EIS should address what impact the proposed development may have on existing equipment covered by the proponent's licence as well as any active geological specimens held by the Trust. 		
14. Developer contributions <ul style="list-style-type: none"> The scope of developer contributions proposed. 	Section 6.19	-
15. Building Code of Australia and the Disability Discrimination Act <ul style="list-style-type: none"> A BCA and access report demonstrating compliance with the Building Code of Australia and the Disability Discrimination Act 1992. 	Section 6.17	Appendix J
16. Infrastructure <ul style="list-style-type: none"> Identify the existing infrastructure on-site and any possible impacts of the construction and operation of the proposal on this infrastructure. The existing capacity and any augmentation requirements of the development for the provision of utilities, including staging of infrastructure and additional licence/approval requirements in consultation with relevant agencies. The Applicant should determine service demands following servicing investigations and demonstrate that satisfactory arrangements for drinking water, wastewater and recycled water (if required) services have been made. 	Section 4.10	Appendix K
17. Construction, Environment Management Plan <ul style="list-style-type: none"> Prepare a draft Construction, Environment Management Plan for the proposed works, including the following: <ul style="list-style-type: none"> community consultation, notification and complaints handling impacts of construction on adjoining development and proposed measures to mitigate construction impacts noise and vibration impact on and off site water quality management for the site dust control measures construction waste classification, transportation and management methods in accordance with DECCW's Know Your Responsibilities: Managing Waste from Construction Sites Guideline identification, handling, transport and disposal of any asbestos waste, lead-based paint and PCBs that may be encountered during demolition, site preparation and construction operational waste management in accordance with the waste management hierarchy. 	Section 6.18	Appendix L
Consultation	Report	Technical Study
<p>During the preparation of the EIS, the applicant must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular, consultation is required for the following agencies:</p> <ul style="list-style-type: none"> The City of Sydney Council Government Architect NSW Roads and Maritime Services Sydney Coordination Office within Transport for NSW The Office of Environment and Heritage Local Aboriginal community and cultural groups Environmental Protection Authority Ausgrid 	Section 5.0	Appendix Q

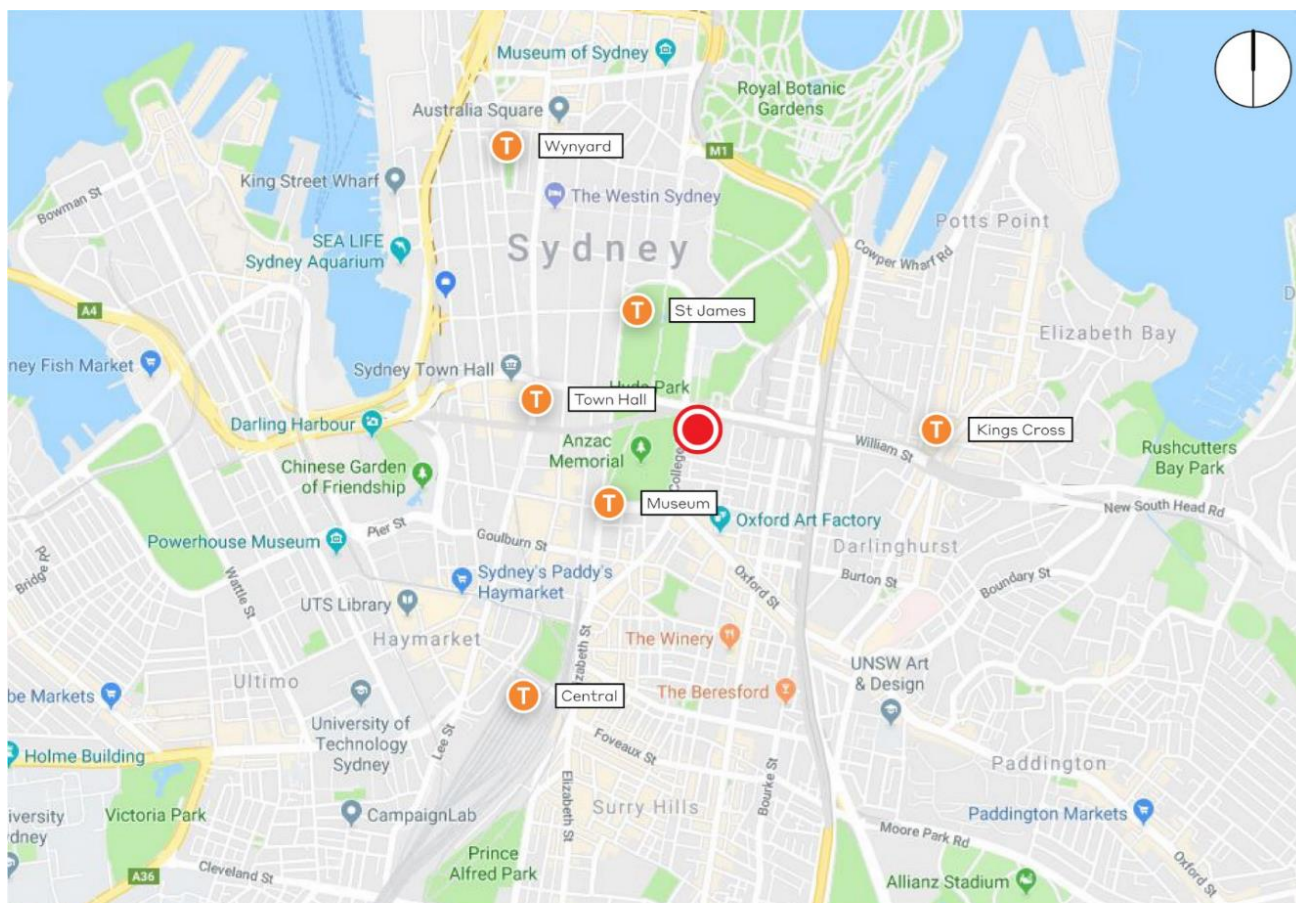
3.0 Site Analysis

3.1 Site Location and Context

The site is located at 1 William Street, along the eastern edge of the Sydney CBD within the City of Sydney Local Government Area. It is situated to the east of Hyde Park on the edge of Darlinghurst and is located between Museum and St James Stations which are situated approximately 320m south west and 400m north west of the Museum, respectively.

The Museum is located in a prominent setting on the corner of College and William Streets, adjacent to Hyde Park and opposite Cook and Phillip Park and St Mary's Cathedral. It shares a large block with Sydney Grammar School and a mid-rise residential apartment block in the south east corner. The block is bounded by William Street to the north, Yurong Street to the east, College Street to the west and Stanley Street to the south. The Museum fronts onto all but Stanley Street and the primary frontage of the site is toward the major thoroughfare of William Street which connects the Sydney CBD to the eastern suburbs.

The site's locational context is shown at **Figure 2**.



 The Site

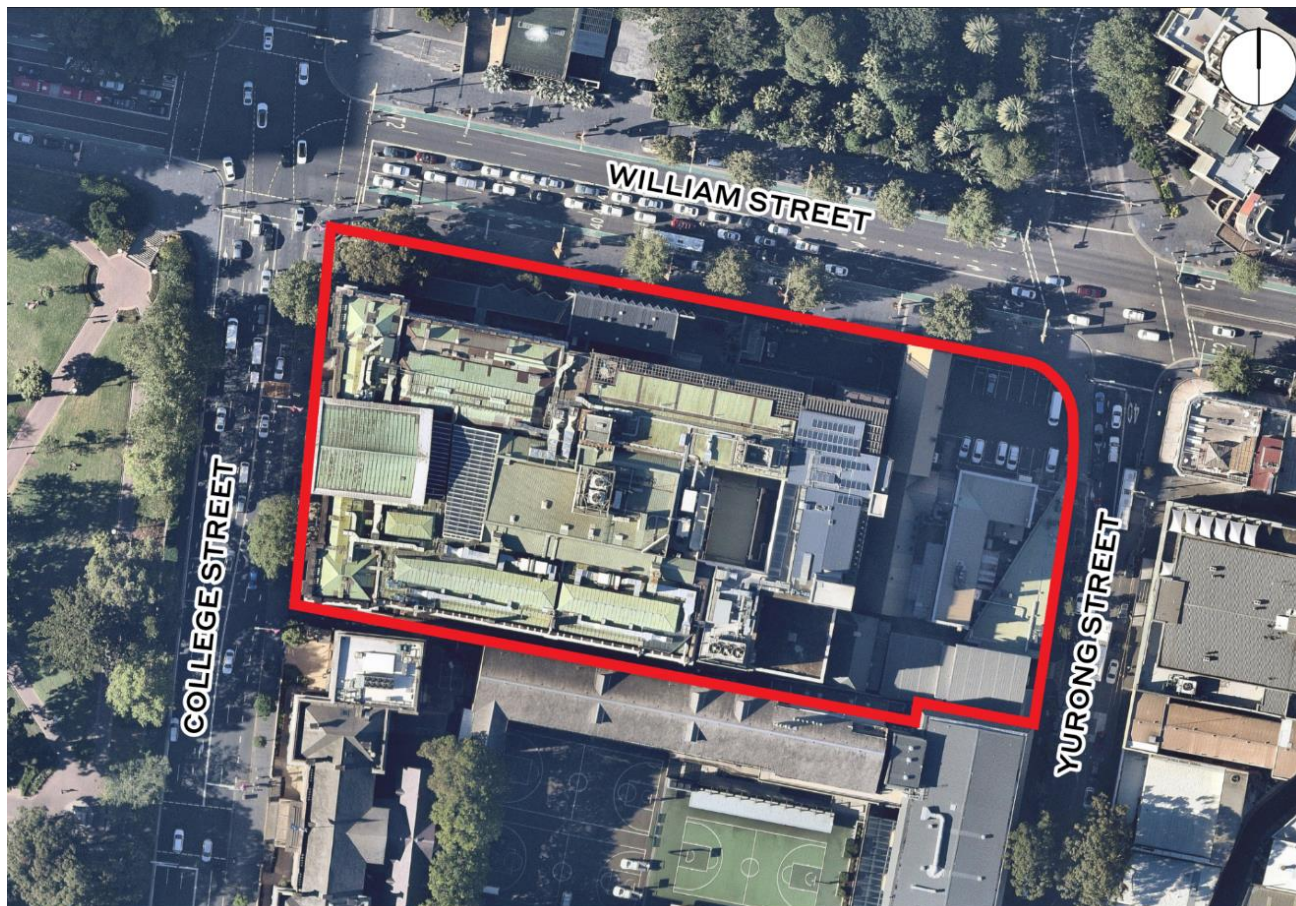
Figure 2 Site context

Source: Nearmap

3.2 Site Description

The Australian Museum site covers a number of buildings and has a total site area of 10,858m². The site comprises three lots and is legally described as Lot 1 in DP 1157811, Lot 3 in DP 1046458 and Lot 11 in DP 588102. The land is owned by the Australian Museum Trust.

A survey plan of the site is located at **Appendix B** and an aerial photo is shown at **Figure 3**.



 The Site

Figure 3 Site aerial

Source: Nearmap

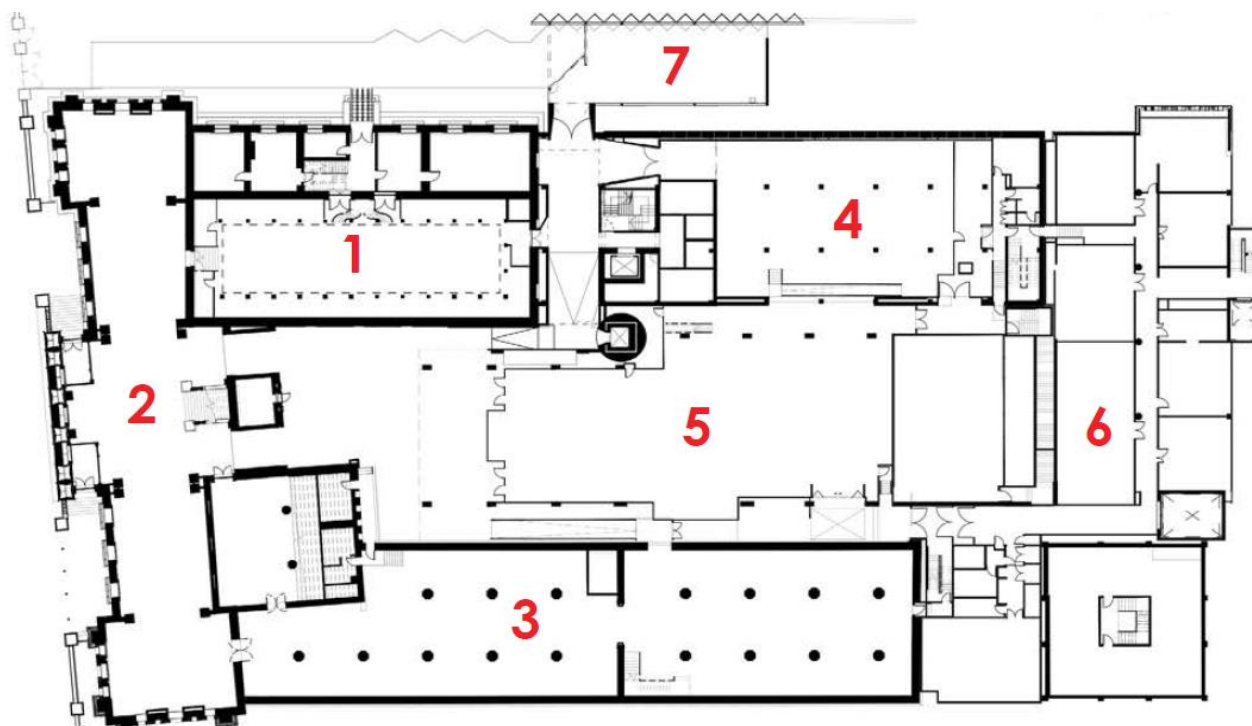
Existing Built Form

As described in the Heritage Impact Assessment prepared by Orwell and Peter Phillips (**Appendix D**) the Australian Museum is the oldest museum in Australia, comprising several buildings constructed over a period of some 160 years. The first building was constructed in 1846 and subsequently added to by successive Colonial and NSW Government Architects as its role and requirements evolved.

An overview of each of the interconnected buildings comprising the Museum is provided at Table 2 and its spatial layout is depicted at **Figure 4**. A full description of the built form is provided in the heritage and design reports at Appendices D and E respectively.

Table 2 Overview of existing built form

Plan Reference	Built form component	Description
1	Lewis Wing (refer to Figure 5 below)	First museum building on the site, located in the north western corner of the site and fronting William Street. It comprises a two storey building with basement and was constructed between 1846 and 1852. A third storey was added to the Lewis Wing in 1890. The majority of the Lewis Wing is rated as 'exceptional' heritage significance and the later third storey addition is rated as 'high' significance with some intrusive elements.
2	Barnett Wing (refer to Figure 6 below)	The two storey Barnett Wing, fronting College Street, was added to the Lewis Wing between 1862 and 1864. A separate two storey building with basement was constructed to the south, between 1896 and 1901, and was linked to the Barnett Wing by a covered walkway. A Spirit House was subsequently built behind the Barnett Wing in 1897. The Barnett Wing is rated as having 'exceptional' heritage significance'.
3	Vernon Wing	In 1909, the Vernon Wing was constructed in place of the covered walkway. The Vernon Wing extends along the southern boundary of the site and presents as a two storey structure. It is generally rated as having 'high' heritage significance'.
4	Parkes Farmer Wing (refer to Figure 7 below)	Between 1957 and 1964, the Parkes Farmer Wing was constructed along the William Street frontage of the site which included six floors with a roof top terrace. A new Spirit House was subsequently completed at the south eastern corner of the site. The Parkes Farmer Wing is rated as having 'medium' heritage significance.
5	Still Addition (refer to Figure 8 below)	The Still Addition was constructed in the centre of the site (in place of the old Spirit House) in 1988. The Still Addition included six floors with two basement levels. It is rated as having 'low' heritage significance.
6	AMRI Building (refer to Figure 9 below)	The AMRI Building is the Collection and Research building located at the eastern end of the site and constructed between 2006 and 2008. It is rated as having 'low' heritage significance.
7	Crystal Hall (refer to Figure 7 below)	Crystal Hall is a relatively new addition to the Museum, constructed in 2015. It is a light-weight, pop-out structure, located along the William Street frontage and today acts as the primary entrance to the Museum for visitors. It is rated as having 'low' heritage significance.

**Figure 4 Museum built form layout**

Source: Hames Sharley + Neeson Murcutt Architects



Figure 5 **Lewis Wing**



Figure 6 **Barnett Wing**



Figure 7 **Crystal Hall and Parkes Farmer Wing**



Figure 8 **Still Addition**



Figure 9 **Former School (centre), AMRI Building (right) and parking area (left)**

Heritage Listings

The Australian Museum is listed on the State Heritage Register (SHR No 000805) and as a Local Heritage Item (I246) under the *Sydney Local Environmental Plan* (LEP) 2012. It is also listed as an area of archaeological potential under the Central Sydney Archaeological Zoning Plan.

A number of other heritage items and conservation areas are also located in proximity to the site (refer to **Figure 10**), including:

- I247 – Sydney Boys Grammar School including buildings and their interiors, fence to College Street and Frances Street and grounds;
- I495 – Sydney Boys Grammar School including buildings and their interiors, fence to College Street and Frances Street and grounds;
- I1654 – Hyde Park including north and south park reserves;
- I1655 – Cook and Phillip Park; and
- C16 – William Street South Conservation Area.



Figure 10 Extract of heritage map

Source: Sydney LEP 2012

Topography

The site's topography slopes downwards in a generally easterly direction from College Street to Yurong Street, with the current RL's of the site ranging between RL 24.32 and RL 13.22. A survey detailing the contours and slope of the site has been prepared by LTS Locky and is included at **Appendix B**.

Vegetation

Vegetation within the site is confined to the north western corner where three large trees and ground cover vegetation is located. A number of street trees are also located within the public domain along College and William Streets.

The site does not contain any protected vegetation that would likely be affected by the works. This was recognised by the Department of Planning and Environment with the granting of a waiver from the preparation of a Biodiversity Development Assessment Report (BDAR) on 1 August 2018 (refer to **Appendix O**).

Transport and Access

The site is located approximately 320m north east of Museum Station, 400m south west St James Station and 500m to the south east of Town Hall Station. As such, convenient access is provided to the majority of frequent

Sydney Trains suburban lines and to NSW TrainLink interurban and regional services. There are also numerous bus services in the vicinity of the site with frequent services which connect the site with the wider Sydney CBD and a variety of suburban locations.

The main pedestrian access point to the Museum is through the Crystal Hall from William Street. A secondary access point is provided from College Street, however this is not publicly accessible and is used as an emergency exit only. A number of staff only access points are also available along William and Yurong Streets.

There are several cycleways near the site, including east west along William Street and north-south along Yurong and College Streets. The Museum currently has end of trip facilities on Ground Floor, comprising:

- 6 x male and 6 x female showers;
- 60 x lockers; and
- 17 secure bicycle spaces

Museum vehicles access the site's loading area from a driveway to the eastern end of the William Street frontage and general vehicular access is via Yurong Street which is restricted by security gates. There is limited parking for Museum vehicles on site and no public or staff parking is provided.

3.3 Surrounding Development

The Australian Museum is located on the eastern edge of the Sydney CBD and is surrounded by a range of land uses, including; public open space, recreational facilities, civic buildings, educational institutions, residential and commercial.

The site borders William Street to the north which is a four-lane road forming the major gateway to the Sydney CBD from the east. Across William Street is Cook and Phillip Park Pool and St Mary's Cathedral is located beyond this (refer to **Figure 11**). A 13 storey residential flat building is located to the north east of the site, to the east of Cook and Phillip Park, and commercial buildings of a similar scale align the northern side of William Street.

East of the site, on the opposite side of Yurong Street and south of William Street, is a mixed use block of lower scaled buildings generally between two and five storeys in height. Uses in this block include; a pub, visitor accommodation, retail, commercial offices and cultural facilities. This area forms the East Sydney Conservation Area.

Sydney Grammar School occupies most of the remainder of the Museum's block to Stanley Street and is a multi-building campus centred around an internal courtyard with buildings ranging in height from 2 storeys in the western portion of the site up to approximately 11 storeys toward Yurong Street. The school opened in 1857 and is a State Heritage Item. Further south is a high density residential building fronting College Street and St Paul's Lutheran Church to the east.

West of the site, on the opposite side of College Street, is Hyde Park which includes the ANZAC War Memorial and Pool of Reflection. The Sydney CBD is located west beyond this.



Figure 11 Cook and Phillip Park Pool and St Mary's Cathedral



Figure 12 Development north east of the site, across William Street



Figure 13 Development east of the site, across Yurong Street



Figure 14 Sydney Grammar School



Figure 15 Hyde Park

4.0 Description of the Development

This application seeks approval for the following development:

- Retention of the existing access ramp on College Street servicing the main Ground Floor entry in the Crystal Hall and the capacity to muster school and other large groups on the Lower Ground Floor;
- Extension of the Crystal Hall (the modern addition on William Street) to create a larger ticketing hall;
- Creation of new openings in the William Street façade of the Parkes Farmer Building Ground Level (within Crystal Hall) to facilitate new entries into the Museum;
- Various internal works including:
 - Demolition of internal elements within the Touring Exhibition Hall including structure, plant, the existing storage space at Basement Level and the existing mezzanine floors at Lower Ground Level and Level 1 to facilitate new exhibition spaces;
 - Reorientation of stairs connecting William Street to Lower Ground Level and new group facilities;
 - Construction of new facilities for groups on the Lower Ground Level entering off William Street including toilets, lockers, an education room and a member's lounge / community room;
 - Installation of new escalators to the Touring Exhibition Hall / Great Hall and a new passenger lift to provide access between the Basement Level (William Street) and Ground Level;
 - Relocation of the museum and exhibition shop to near the Crystal Hall entrance at Ground Level;
 - Construction of a new café and commercial kitchen, toilets and kids' space on Level 2;
 - Construction of a new education space on Level 2;
- New photovoltaic cells on the Lewis Wing and Vernon Wing rooftops;
- New landscape works, including a Biodiversity Garden, to the under croft of the extended Crystal Hall; and
- Removal of trees and the introduction of a bus bay within the adjacent William Street public domain.

Architectural Drawings prepared by Hames Sharley and Neeson Murcutt Architects are provided at **Appendix A** and a photomontage of the proposed development is shown at **Figure 16**.



Figure 16 Photomontage of proposed development

Source: Hames Sharley + Neeson Murcutt Architects

4.1 Objectives and Design Principles of the Development

The objectives and design principles of the proposed works to the Australian Museum are to:

- Provide critical alterations and additions to the Australian Museum required to accommodate the exclusive *Tutankhamun* exhibition;
- Improve the ability of the Museum to attract other future blockbuster exhibitions by enabling the Museum to hold one large exhibition or two smaller exhibitions simultaneously;
- Improve the functionality and legibility of the Museum to cater to the projected visitor demand and enhance user experience;
- Improve wayfinding and circulation within the Museum and between exhibitions;
- Refurbish and expand the ancillary café and shop to increase revenue to support the ongoing operations of the Museum;
- Expand the existing educational facilities to allow double the number of school student visitors which is projected to be up to 100,000 a year; and
- Protect the significant heritage fabric of Australia's oldest museum whilst allowing for its next stage of evolution to strengthen its role as a world class cultural facility.

4.2 Numerical Overview

The key numeric development information is summarised in Table 3.

Table 3 Key development information

Component	Proposal
Site area	10,858m ²
GFA <ul style="list-style-type: none"> • Existing • Proposed 	<ul style="list-style-type: none"> • 25,940m² • 24,670m²
FSR <ul style="list-style-type: none"> • Existing • Proposed 	<ul style="list-style-type: none"> • 2.39:1 • 2.27:1
Maximum Height	RL 47 (as existing)
Boundary Setbacks	As existing
Car spaces	Nil (as existing)
Landscaped Area	741m ²
Site Coverage	93.2% (as existing)

4.3 Internal Alterations

It is proposed to undertake a series of internal alterations to non-heritage components of the Parkes Farmer Wing and Still Addition with the objective of opening up the Museum to accommodate large, blockbuster exhibitions and improve user experience. A floor by floor summary of the key alterations proposed is included at Table 4 and full details of the proposed works are shown on the demolition and proposed floor plans prepared by Hames Sharley and Neeson Murcutt Architects (refer to **Appendix A**).

Table 4 Proposed internal alterations

Level	Summary of Works
Loading Dock	<ul style="list-style-type: none"> • New lift pit within the Still Addition.
Basement (William Street)	<ul style="list-style-type: none"> • Demolition of internal walls, lift pit, risers and columns within the Still Addition. • Relocation of fire stairs adjacent the Parkes Farmer Wing. • Reorientation of stair connecting William Street to Lower Ground Level and construction of new kiosk. • Construction of new access and group entry from the proposed Biodiversity Garden. • Construction of new touring exhibition space, including a new floor approximately 200mm above slab. • Installation of new escalators and lift for access to/from Ground Floor. • Construction of new back of house room at the eastern end of the exhibition hall.
Lower Ground	<ul style="list-style-type: none"> • Demolition of internal walls of the Parkes Farmer Wing. • Demolition of tier floor, cleaner's store and redundant services within the Still Addition. • Relocation of fire stairs adjacent the Parkes Farmer Wing. • Cut out of slab for stair well within the Still Addition. • Installation of new escalators and lift for access to/from Ground Floor. • Construction of new member's entry, lounge, amenities and storage within the Parkes Farmer Wing. • Construction of new mechanical plant and server areas.
Lower Ground Mezzanine	<ul style="list-style-type: none"> • Demolition of slab and columns within the Still Addition. • Relocation of fire stairs adjacent the Parkes Farmer Wing.
Ground Floor	<ul style="list-style-type: none"> • Demolition of internal walls and amenities within the Parkes Farmer Wing and the Still Addition. • Relocation of fire stairs adjacent the Parkes Farmer Wing. • Demolition of ramp in the Parkes Farmer Wing and stairs/ramps within the Still Addition. • Cut out of new wall opening on the northern façade of the Parks Farmer Wing for access through to the Crystal Hall Entry, including new bridge link. • Construction of touring exhibition space and 'Great Hall'. • Construction of new Museum exhibition shop and amenities adjacent the Crystal Hall entrance. • Refurbishment of atrium floor finishes. • Installation of new escalators and lift for access to/from Ground Floor. • Construction of new cloak room adjacent Lift 1.
Level 1	<ul style="list-style-type: none"> • Demolition of fire stairs adjacent the Parkes Farmer Wing. • Relocation of fire stairs adjacent the Parkes Farmer Wing. • Demolition of Still Addition mezzanine floor. • Demolition of external roof element. • Construction of new amenities within the Parkes Farmer Wing.
Level 2	<ul style="list-style-type: none"> • Demolition of internal walls within the Parkes Farmer Wing and Still Addition. • Relocation of fire stairs adjacent the Parkes Farmer Wing. • Construction of new 'search and discover' exhibition and education spaces within the Parkes Farmer Wing and Still Addition. • Construction of new amenities within the Parkes Farmer Wing and baby change feed rooms within the Still Addition. • Construction of new café and servery within the Still Addition. • Construction of new roof in the light well and modification of windows and smoke exhaust vents along eastern Still Addition elevation.
Level 3	<ul style="list-style-type: none"> • Relocation of fire stairs adjacent the Parkes Farmer Wing. • Cut through of new slab opening for the proposed stairs. • Construction of new amenities within the Parkes Farmer Wing.
Level 4	<ul style="list-style-type: none"> • Relocation of fire stairs adjacent the Parkes Farmer Wing.

Level	Summary of Works
	<ul style="list-style-type: none"> • Cut through new lift opening. • Construction of new store room adjacent Lift 1. • Reconfigure plant room within the Still Addition.
Roof	<ul style="list-style-type: none"> • New photovoltaic cells on the Lewis Wing and Vernon Wing rooftops.

4.4 Crystal Hall Extension

It is proposed to extend the Crystal Hall by approximately 13.4m to the east to accommodate a larger ticketing and queuing area and improve circulation space into the Museum (refer to **Figure 17**). The height of the extended structure will remain consistent with the existing Crystal Hall, at RL 33.3.

A wider entrance is proposed to be cut into the northern façade of the Parkes Farmer Wing at Ground Floor, aligning with the length of the existing Crystal Hall footprint, and a new bridge link constructed across the previous void. These proposed additions will increase the total area of the Crystal Hall by 148m².

The materials of the proposed Crystal Hall extension will be consistent with the existing, including internal diamond shades and colour laminated glass with pyramid interlay.

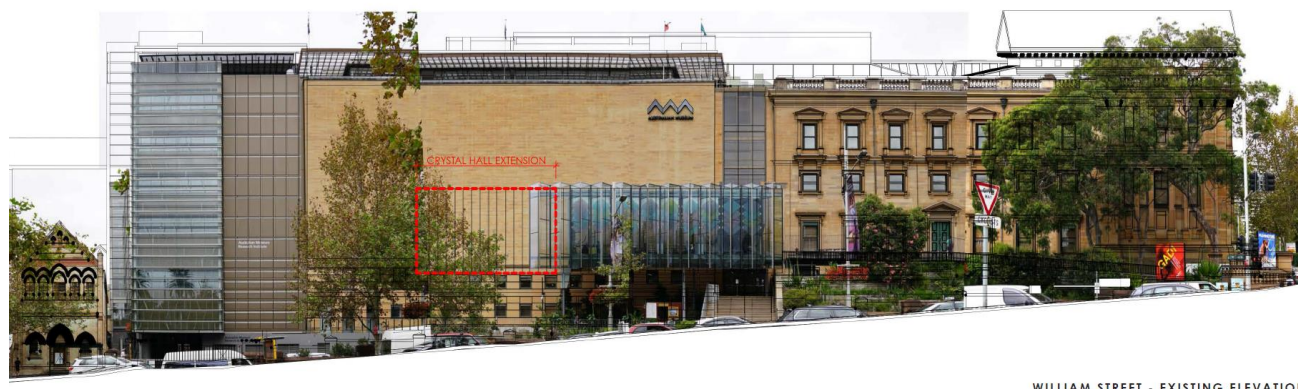


Figure 17 Proposed extension to Crystal Hall

Source: Hames Sharley + Neeson Murcutt Architects

4.5 Signage

No additional signage is proposed as part of this application. Any additional signage required for upcoming exhibitions will be subject to separate approval.

4.6 Pedestrian Access

The primary pedestrian access to the Museum will continue to be via the existing ramp from College Street to the Crystal Hall. A secondary entry point will be introduced via a stairway below the Crystal Hall structure for groups and for direct access to the member's entry and lounge. The secondary entry will require a new opening to the Parkes Farmer Wing façade at Basement Level, below the existing Crystal Hall opening.

4.7 Vehicular Access and Parking

The proposal does not include any changes to the existing vehicular access points to the Museum and no additional car parking or loading facilities are proposed.

A new bus pick-up/drop-off zone is proposed on William Street adjacent the Biodiversity Garden and Crystal Hall. The proposed bus zone has been designed to cater for a 14.5m long rigid bus and will require the removal of two on-street metered car parking spaces and three trees. The proposed bus bay will be in addition to the existing bus bay located outside Sydney Grammar School.

4.8 Landscaping and Public Domain

Landscape Plans prepared by Sue Barnsley Design are included at **Appendix P** and an extract of the overall landscaping and public domain strategy is shown at **Figure 18**. New landscaping is proposed along the William Street frontage of the site to complement the proposed new built form works and enhance visitor experience. Key features of the design include:

- Retention of existing significant trees at the corner of College and William Streets;
- Removal of timber retaining walls and replacement of all planting except for the *Doryanthes Excelsa*;
- Retention of the existing Crystal Hall entry ramp and sandstone walls;
- Public bicycle racks;
- A new Biodiversity Garden within the undercroft of Crystal Hall which will provide a collective space for outdoor teaching, storytelling, performance and passive recreation. The garden includes:
 - A new frog pond, custom seating and bluestone chevron cut paving;
 - Planting comprising species derived from Hawkesbury Sandstone based ecological communities, mosses and liverworts, ferns and cycads or primitive angiosperms; and
 - Edible indigenous plants woven into the garden and stingless bees hidden amongst the foliage.

It is proposed to remove three street trees in the public domain adjacent Crystal Hall to facilitate the provision of the new bus drop-off/pick-up bay along William Street, however these will be replaced with the same species on either side of the proposed bus zone.

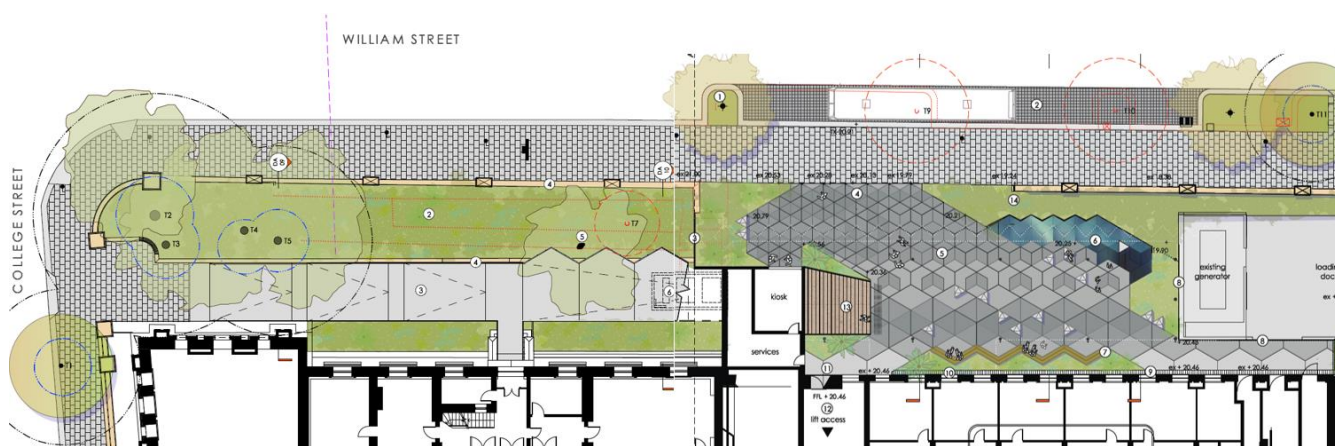


Figure 18 Proposed landscaping

Source: Hames Sharley + Neeson Murcutt Architects

4.9 Operational Details

Hours of operation

The Museum will continue to operate in accordance with the existing hours of operation.

Music

The Museum will continue to operate in accordance with its existing conditions of consent.

Lighting and illumination

Existing street lighting is to be retained. No additional illumination of the façade is proposed as part of this application.

Staff

The proposed works will result in up to an additional 13.9 full time equivalent staff members.

4.10 Infrastructure and Services

The site is located in an existing urban area and is serviced by existing water, sewer, power and telecommunications infrastructure. If required, the infrastructure will be augmented to accommodate the proposed development.

ADP have been engaged to upgrade the existing building services to accommodate future blockbuster exhibitions, including the upcoming *Tutankhamun* exhibition, and have prepared a services brief to outline the required works (refer to **Appendix K**). In summary, the following upgrades will likely be required:

- Replacement of selected mechanical air services and installation of new equipment;
- Standby redundancy plant for the touring exhibition storage and communications/equipment rooms;
- Modification of the existing smoke hazard management system;
- Replacement of electrical distribution boards and provision of a new and separate electrical and communications cupboard for the touring exhibition hall;
- Upgrading of the existing security and CCTV installation;
- Extension of incoming water supply from the water main;
- Extension of gas service (if required);
- New sanitary plumbing, sewer and trade waste drainage as required; and
- Upgraded fire services.

The proposal will not require any changes to the Museum's Radiation Management Licence or disturb any of the Museum's active geological specimens. An Underground Petroleum Storage System is not currently located on the site and is not required for the development.

5.0 Consultation

In accordance with the SEARs issued for this project, consultation was undertaken with relevant public authorities and Council and a summary of the consultation undertaken to-date is provided below. Several consultants have undertaken additional consultation with relevant parties during the preparation of their reports and is detailed in the relevant appendices where applicable.

The proposed development will be placed on public exhibition for 28 days in accordance with clause 83 of the *Environmental Planning and Assessment Regulation 2000*. During the public exhibition period Council, State agencies and the public will have an opportunity to make submissions on the project.

5.1 Local Aboriginal community and cultural groups

Local Aboriginal community and cultural groups have been engaged throughout the Museum's masterplanning exercise and as part of the design process of the current proposal. In particular, consultation was undertaken with the Metropolitan Local Aboriginal Land Council in September 2016 in relation to AM Masterplan. Participants were supportive that the Museum intends to showcase more of the Aboriginal and Torres Strait Island collections and the idea to create an entrance that heralded the Gadigal People. In addition, the Museum has consulted with a number of Indigenous Museum staff members about the AM Masterplan, and actively involved them in its development.

A meeting and subsequent consultation between the Landscape Architect, Sue Barnsley Design, and one of the Museum's Indigenous Educators, Renee Cawthorne, took place to inform the design of the Biodiversity Garden proposed for the undercroft of the extended Crystal Hall. Input was also sought from the Museum's Indigenous Collection Managers.

5.2 City of Sydney Council

Numerous meetings and consultation sessions have been held with Council staff during the development of the overall AM Masterplan. Most recently, a meeting was held on 20 August 2018 where the specific works proposed as part of this SSDA presented.

Council was generally supportive of the current proposal, however raised the proposed removal of street trees as a potential concern and suggested that this aspect of the proposal may be better addressed as part of a separate application. The proposed tree removal is required to accommodate a new bus bay, which is needed to support the proposed scope of works, and this matter is addressed in **Section 6.5** below.

5.3 Government Architect of NSW / State Design Review Panel

The Museum undertook preliminary consultation with the NSW Government Architect and the scheme was initially presented to the State Design Review Panel (SDRP) on 17 May 2018. The latest version of the proposal (the subject of this SSDA) was subsequently presented to the SDRP on 22 August 2018.

The SDRP raised a number of queries relating to the capacity of the Museum, circulation and the queuing of visitors. The relationship of the current proposal to the overall AM Masterplan was also queried. These matters have been addressed at Table 5 and the Architectural Design Package at **Appendix E**. A separate briefing session on the AM Masterplan subsequently took place on 4 September 2018 and comments made by the SDRP in response to this presentation have also been addressed at Table 5 below. It is noted that the SDRP will be engaged if the overall Masterplan proceeds.

Table 5 Response to SDRP Comments

Issue	Response
Masterplan	<p>The AM Masterplan was prepared to guide the long term expansion of the site to achieve the objectives of the Museum's 'NEW Vision' for 2027. Although the proposed works under this application are identified in the Masterplan, the works constitute a standalone application in which the Masterplan has no statutory weight. The proposal involves modifications and additions for the specific purpose of ensuring that the Museum can accommodate blockbuster events in the short term, in particular the upcoming <i>Tutankhamun</i> exhibition in early 2021. Notwithstanding, the carrying out of the works will not affect the ability of the Museum to implement any future stage(s) of the Masterplan and are functionally planned and durable to withstand extended use if required.</p> <p>If the Museum does pursue development in accordance with future stages of the Masterplan, this will be addressed as part of a separate application and will be subject to the relevant planning controls and processes at the time. It is noted that this may involve the preparation of a Stage 1 DA and subsequent competitive design competition as necessary. Further, if the long term development requires changes to the existing planning controls, this would be subject to a rezoning process which would require the Museum to undertake a comprehensive assessment of the design matters raised by the Panel, including the determination of an appropriate amount of GFA.</p>
Heritage	<p>It is noted that the SDRP holds concerns with the potential impact of the potential additional massing identified in the Masterplan, however this SSDA is limited to the proposed internal alterations and extension of Crystal Hall. Accordingly, this matter will be addressed as part of a future application if the Museum proceeds with these works.</p> <p>The design of the proposed Crystal Hall extension has included the original architect, Neeson Murcutt Architects, to ensure a consistent and high quality design outcome is achieved. The proposed extension of Crystal Hall adopts appropriate massing and utilises similar articulation and materials to the existing structure which positively respond to the heritage fabric of the building. The design intent of the Crystal Hall extension is described further in the Architectural Design Package (Appendix E) and Section 6.2 below.</p>
Circulation	<p>As recommended by the SDRP, analysis has been undertaken in regard to the circulation and exhibition requirements of the Museum and an overview of the circulation strategy is included within the Architectural Design Package at Appendix E.</p> <p>The incorporation of escalators between the exhibition levels allows visitors to explore the Museum in loops and limits the number of dead ends. Following feedback from the SDRP, the proposed lift has also been redesigned to incorporate two-sided access for improved accessibility.</p>
Entry	<p>The SDRP's preference of a single-entry from William Street is noted, however the immovability of the Palaeontology area requires the provision of separate entrances for the public and groups to ensure efficient access to the Museum. Notwithstanding, the proposal does not limit the ability to revert to a single entry in the future.</p> <p>As suggested by the SDRP, the design of the space around the entrance points incorporates a generous outdoor entry area off William Street, rather than an enclosed space under Crystal Hall.</p>
Architecture	<p>The SDRP's support of the materials and details for the Stage 1 works is noted. As above, matters relating to future components of the Masterplan will be addressed as part of a separate application.</p>
Aboriginal Cultural Heritage	<p>The SDRP support the design of the landscape garden and the Museum will continue to explore opportunities to respond to Aboriginal culture and heritage through any future developments at the site.</p>
Project Procurement	<p>The procurement of the construction works, including the selection and appointment of the Consultant Design Team is the responsibility of Create Infrastructure (CI). The Museum has been working closely with CI in the development of a Request for Tender package for the Consultant Design Team which has now been issued to shortlisted Architectural firms. An appointment of the successful Head Design Consultant will soon be made and they will be responsible for managing the remainder of the team as sub-consultants.</p> <p>Irrespective of the result of the tender, Neeson Murcutt Architects will have an ongoing role in the Crystal Hall works due to their previous work on this component of the Museum and to ensure design excellence is achieved. This is addressed further at Section 6.2 of the EIS below.</p>

5.4 Transport for NSW / Roads and Maritime Services

A meeting was held with representatives from Transport for NSW, Roads and Maritime Services (RMS) and Council (traffic department) on 7 August 2018. Minutes from this meeting are provided at **Appendix Q** and discussions focused around the proposed bus zone, loading, construction traffic management and traffic modelling. These matters have been addressed within this EIS (refer to **Section 6.12**) and the relevant consultant reports.

5.5 Office of Environment and Heritage

A meeting was held with Office of Environment and Heritage (OEH) staff on 8 August 2018 and no significant issues were raised with the proposal. The heritage impacts of the proposal are addressed at **Section 6.6** below and within the Heritage Impact Statement prepared by Orwell and Peter Phillips (**Appendix D**).

5.6 Ausgrid

Consultant Building Services Engineers has consulted with Ausgrid through the design process to confirm the requirements for upgrading the incoming power supply. In this regard, an enquiry to Ausgrid was submitted and approval to connect an extra 400A was received.

6.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the proposed DA. It addresses the matters for consideration set out in the SEARs (see **Section 1.5**). The Mitigation Measures at **Section 7.0** complement the findings of this section.

6.1 Relevant EPIs, Policies and Guidelines

The relevant strategies, environmental planning instruments, policies and guidelines as set out in the SEARs are addressed in Table 6.

Table 6 Summary of consistency with relevant Strategies, EPIs, Policies and Guidelines

Instrument/Strategy	Comments
Strategic Plans	
NSW State Priorities	<p>The NSW State Priorities are a series of reforms designed to grow the economy, deliver infrastructure, and improve health, education and other services across NSW. The proposal aligns with a number of these Priorities in that it:</p> <ul style="list-style-type: none"> • Will facilitate and encourage increased attendance at cultural venues and events; • Improve educational infrastructure and experiences available to NSW students, noting that the NSW State Priorities seek to improve educational results; and • Create both construction and ongoing employment opportunities.
Future Transport Strategy 2056	<p>The proposal is consistent with this strategy in that it will accommodate additional capacity for cultural facilities and events at the site without adversely impacting transport infrastructure. The site is well connected by existing public transport infrastructure and no new parking is proposed in order to continue to manage private vehicle congestion in an area of high demand.</p>
Better Placed – An integrated design policy for the built environment of New South Wales.	<p>The objectives of Better Placed have been considered and responded to in the design of the proposed alterations and additions. The Architectural Design Package at Appendix E outlines how each objective has been addressed.</p>
Guide to Traffic Generating Developments (RMS)	<p>The RMS Guide to Traffic Generating Developments has been used as a reference document for the Transport and Accessibility Impact Assessment prepared by TTV (Appendix F)</p>
The Greater Sydney Region Plan	<p>The proposal is consistent with the Greater Sydney Region Plan as it supports the city's visitor economy and will increase opportunities for people to participate in arts, cultural and heritage experiences. The proposal is also consistent with the considerations of Strategy 24.2 of the Plan in that it will:</p> <ul style="list-style-type: none"> • Improve the design and function of a centrally located cultural facility; • Strengthen the role of the Museum in enhancing the amenity, vibrancy and safety of central Sydney; • Supports the ongoing use of the site for cultural and educational activities; • Improves the offerings and accessibility of a prominent public facility; and • Accommodate additional visitor capacity of an existing tourist attraction in an accessible location.
Eastern City District Plan	<p>The proposal is consistent with the Eastern City District Plan in that it builds on the city's competitive advantage of cultural and tourist assets. Specifically, it contributes to achieving the Actions of Planning Priority E13 (supporting growth of targeted industry sectors) by implementing place-based initiatives to attract more visitors, improve visitor experiences and ensure connections to transport at key tourist attractions. It will also enhance the tourist and visitor economy in the District, including a coordinated approach to tourism activities and events.</p> <p>The project will contribute to Planning Priority R6 (creating and renewing great places and local centres, and respecting the District's heritage) by enhancing the city's rich cultural and educational institutions and ensuring the ongoing protection and enjoyment of a significant heritage site.</p>
Sustainable Sydney 2030	<p>The proposal will provide much needed upgrades to the Museum to allow it to attract blockbuster events and accommodate increased visitor numbers. This will help ensure Sydney remains Australia's global city and international gateway with world-renowned tourist attractions and sustained investment in cultural infrastructure and facilities.</p>

Instrument/Strategy	Comments																																		
State Legislation																																			
EP&A Act	<p>The proposed development is consistent with the objects of the EP&A Act as it will:</p> <ul style="list-style-type: none"> • Promote the proper management, development and conservation of an artificial resource for the purpose of promoting the social and economic welfare of the community; • Promote and co-ordinate the orderly and economic use and development of land; • Continues the ongoing use of the land for public purposes; • Promote good design and amenity of the built environment • Improves the provision and co-ordination of community services and facilities at the site; and • Be designed and constructed in accordance with the principles of ecologically sustainable development. <p>The proposed development is consistent with Division 4.7 of the EP&A Act, particularly for the following reasons:</p> <ul style="list-style-type: none"> • The development has been declared to have State significance; • The development is not prohibited by an environmental planning instrument; and • The development has been evaluated and assessed against the relevant heads of consideration under section 4.15(1). 																																		
EP&A Regulations	<p>The EIS has addressed the specific criteria within clause 6 and clause 7 of Schedule 2 of the EP&A Regulation. Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle (and other considerations), which assesses the threats of any serious or irreversible environmental damage (see Section 9.3).</p> <p>As required by clause 7(1)(d)(v) of Schedule 2, the following additional approvals will be required in order to permit the proposed development to occur.</p> <table> <tr> <th>Act</th><th>Approval Required</th></tr> <tr> <td colspan="2">Legislation that does not apply to State Significant Development</td></tr> <tr> <td>Coastal Protection Act 1979</td><td>N/A</td></tr> <tr> <td>Fisheries Management Act 1994</td><td>N/A</td></tr> <tr> <td>Heritage Act 1977</td><td>N/A (would otherwise apply)</td></tr> <tr> <td>National Parks and Wildlife Act 1974</td><td>N/A (would otherwise apply)</td></tr> <tr> <td>Biodiversity Conservation Act 2016</td><td>N/A (A BDAR Waiver has been granted for the development)</td></tr> <tr> <td>Rural Fires Act 1997</td><td>N/A</td></tr> <tr> <td>Water Management Act 2000</td><td>N/A</td></tr> <tr> <td colspan="2">Legislation that must be applied consistently</td></tr> <tr> <td>Fisheries Management Act 1994</td><td>No</td></tr> <tr> <td>Mine Subsidence Compensation Act 1961</td><td>No</td></tr> <tr> <td>Mining Act 1992</td><td>No</td></tr> <tr> <td>Petroleum (Onshore) Act 1991</td><td>No</td></tr> <tr> <td>Protection of the Environment Operations Act 1997</td><td>No</td></tr> <tr> <td>Roads Act 1993</td><td>Yes</td></tr> <tr> <td>Pipelines Act 1967</td><td>No</td></tr> </table>	Act	Approval Required	Legislation that does not apply to State Significant Development		Coastal Protection Act 1979	N/A	Fisheries Management Act 1994	N/A	Heritage Act 1977	N/A (would otherwise apply)	National Parks and Wildlife Act 1974	N/A (would otherwise apply)	Biodiversity Conservation Act 2016	N/A (A BDAR Waiver has been granted for the development)	Rural Fires Act 1997	N/A	Water Management Act 2000	N/A	Legislation that must be applied consistently		Fisheries Management Act 1994	No	Mine Subsidence Compensation Act 1961	No	Mining Act 1992	No	Petroleum (Onshore) Act 1991	No	Protection of the Environment Operations Act 1997	No	Roads Act 1993	Yes	Pipelines Act 1967	No
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Protection of the Environment Operations Act 1997	No																																		
Roads Act 1993	Yes																																		
Pipelines Act 1967	No																																		
SEPP 55 and Draft Remediation of Land SEPP	A contamination study is currently being prepared and will be submitted prior to public exhibition.																																		

Instrument/Strategy	Comments
SEPP (Infrastructure)	<p>The development has access to a classified road (William Street), however does not involve 50 or more parking spaces and therefore the development is not classified as traffic generating development under the SEPP.</p> <p>In accordance with section 4.42 of the EP&A Act 1979, the provisions of Section 138 of the Roads Act 1993 continue to apply to State Significant Development. The development involves the provision of a new bus bay on a public road, and so requires approval under Section 138(1)(a) of the Roads Act 1993. This application will be referred to City of Sydney Council for approval.</p>
SEPP (State and Regional Development)	<p>The aim of the policy is to identify development that is SSD. Pursuant to the SRD SEPP a project will be SSD if it falls into one of the classes of development listed in Schedule 1 of the SEPP.</p> <p>The development triggers SSD as it is for the purposes of a 'cultural, recreation and tourist facility' (museum) and has a capital investment value (CIV) in excess of \$30 million. A Quantity Surveyor's certificate confirming the total CIV of the project has been submitted under separate cover.</p>
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development	The development will not disturb areas of the Museum used for potentially hazardous or offensive industry or storage, and does not propose any new potentially hazardous or offensive uses. Therefore, this SEPP is not applicable to the development.
State Environmental Planning Policy No 64—Advertising and Signage	No additional signage is proposed as part of this application. Any additional signage required for upcoming exhibitions will be subject to separate approval.
State Regional Environmental Plan (Sydney Harbour Catchment) 2005	<p>The site is not located in the Foreshore and Waterways Area, is not a strategic foreshore site, and is not 'zoned' under the SREP, where the majority of the plan's aims/provisions apply. Notwithstanding, the proposal is consistent with the aims of the SREP in that the development will:</p> <ul style="list-style-type: none"> • Maintain a high quality and ecologically sustainable urban environment on the site; • Ensure a healthy, sustainable environment by effectively managing all environmental impacts associated with the development; • Contribute to the vibrancy of the CBD through the provision of improved tourist and educational facilities with active publicly accessible spaces at ground level; • Will not impede public access to the foreshore; and • Maintains a high quality urban environment and will not detract from long distance views and vistas that may be available from the surrounding public domain to and from the harbour.
Draft Environment SEPP	The Draft SEPP consolidates a number of existing SEPPs relating to the protection of the natural environment and waterways. The proposed development is for alterations and additions to an existing building only and the existing use of the site will continue. Construction impacts of the works will be appropriately managed as discussed at Section 6.18 below. The relevant individual SEPPs have been addressed above where relevant.
Local Planning Instruments and Controls	
Sydney Local Environmental Plan 2012	Zone
	<p>The proposed works relate to an existing 'information and education facility' (museum) which is a permissible use with development consent in the B8 Metropolitan Centre zone.</p> <p>The objectives of the zone include 'to recognise and provide for the pre-eminent role of business, office, retail, entertainment and tourist premises in Australia's participation in the global economy' and 'to permit a diversity of compatible land uses characteristic of Sydney's global status and that serve the workforce, visitors and wider community'. The proposal will support and strengthen the role of the CBD as an entertainment and tourist destination, and is therefore consistent with the objectives of the zone.</p>
	Clause 4.3 – Height of Buildings
	The site has a maximum building height control of RL 46. The proposed works will not increase the overall height of the building (the Crystal Hall

Instrument/Strategy	Comments
	extension will be up to RL 33) and will continue to comply with this control.
	<p>Clause 4.4 – Floor Space Ratio</p> <p>The site has a maximum FSR of 5:1 with a site area of 10,858m². The proposal will see a decrease to the total GFA of the Museum from approximately 25,940m² to 24,670m², equating to a maximum FSR of 2.27:1. Therefore, the proposal complies with the maximum FSR standard.</p>
	<p>Clause 5.10 – Heritage Conservation</p> <p>The site is identified as a State Heritage Item and is within proximity to a number of other heritage items and conservation areas. An assessment of the proposal's heritage impact is included at Section 6.6 and the Heritage Impact Statement included at Appendix D.</p>
	<p>Clause 6.21 – Design Excellence</p> <p>Clause 6.21 requires development to achieve design excellence, having regard to a range of considerations identified at provision (4) of the clause. These matters are addressed at Section 6.2 below.</p> <p>A competitive design process would ordinarily be required on the basis that the proposal triggers the requirements for a development control plan to be prepared under clause 7.20 (refer below). However, it is considered that a design competition in accordance with the City of Sydney's Competitive Design Policy is unnecessary and unreasonable in the circumstances and as such a waiver request has been prepared in accordance with Clause 6.21(6) (refer to Appendix R).</p>
	<p>Clause 7.0-7.12 – Car Parking</p> <p>Division 1 of the LEP establishes a maximum number of car parking spaces allowed for certain development types. The proposed development does not seek any additional parking and therefore complies with these controls.</p>
	<p>Clause 7.14 – Acid Sulfate Soils</p> <p>The development is on land identified as Class 5 acid sulfate soils and excavation works are not proposed below 5m AHD. As such, any potential acid sulfate soils are not likely to be disturbed.</p>
	<p>Clause 7.20 – Development requiring preparation of a development control plan</p> <p>Any development in excess of 55m or on a site greater than 1,500m² in Central Sydney requires the preparation of a Development Control Plan. The site is within Central Sydney and has an area greater than 1,500m², however the proposal seeks a waiver of the requirement for the preparation of a development control plan or staged DA in accordance with the discretion afforded to the consent authority under subclause (3) on the grounds that the preparation of a DCP / Staged DA would be unreasonable and unnecessary in the circumstances. Refer to Appendix R.</p>
Sydney Development Control Plan 2012	<p>Whilst DCPs do not apply to SSD under Clause 11 of the SEPP (State and Regional Development), the proposal is consistent with the principles of the DCP's City East Locality Statement in that it:</p> <ul style="list-style-type: none"> • Responds to and complements heritage items, including significant streetscapes; • Preserves view corridors to the Kings Cross skyline; • Maintains the asymmetrical built form in the streetscape of William Street with taller buildings along the north side and lower buildings on the south; and • Promotes William Street as a pedestrian orientated boulevard.

6.2 Design Excellence

The Australian Museum is committed to buildings that not only meet their specific educational and tourism requirements but are well designed, well resolved and appropriate to the site and its important heritage fabric.

Clause 6.21 of the Sydney LEP 2013 requires that all new development in Central Sydney exhibits 'design excellence' and criteria are prescribed in the clause that must be met for design excellence to be achieved. The site is located within Central Sydney and as such must satisfy the design excellence criteria under this clause. Table 7 demonstrates how this criterion is achieved.

It is noted that works under this SSDA constitute an independent stage of the overall AM Masterplan and that a waiver request for the requirement to undertake a design competition has been submitted due to the nature of the works. If the Museum proceeds with the planned Phase 2 works in the future, this would be subject of a separate application in accordance with the relevant design excellence processes at the time, including a design excellence competition if required.

Table 7 Assessment against design excellence provisions

Consideration	Comment
(a) whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved	<p>Hames Sharley and Neeson Murcutt Architects are both award winning architectural firms with track records of delivering high quality buildings in Sydney. Both practices also have extensive past experience working on the Australian Museum and have partnered to ensure the best possible outcome for the next stage of its evolution. Neeson Murcutt Architects, in particular, will have an ongoing role in the Crystal Hall works due to their previous work on this component of the Museum.</p> <p>The selection of materials and detailing for the proposed Crystal Hall extension is consistent with the existing, award winning, design and therefore the proposal will continue the high standard of architectural design. This is the only significant external component of the design.</p>
(b) whether the form and external appearance of the proposed development will improve the quality and amenity of the public domain	The form and external appearance of the proposed development will improve the quality and amenity of the public domain. The proposed addition is situated in a highly visible location and has been designed to integrate with the existing Crystal Hall and its response to the overall built form of the Museum. Furthermore, the proposed ground level landscaping and new Biodiversity Garden will activate and improve the quality of the surrounding public domain.
(c) whether the proposed development detrimentally impacts on view corridors	The proposed development will not detrimentally impact on view corridors as discussed at Section 6.9 below.
(d) how the proposed development addresses the following matters:	The land is suitable for the development as it is only proposed to undertake alterations and additions to the existing Museum, and does not seek to alter the existing use of the site.
(i) the suitability of the land for development,	N/A - the proposal does not seek to alter the existing use of the site.
(ii) the existing and proposed uses and use mix,	
(iii) any heritage issues and streetscape constraints,	The proposal will not result in any undue heritage impacts. In particular, it is noted that the proposed addition has been designed to recognise and positively respond to the existing adjacent heritage buildings. Refer to Section 6.6 below.
(iv) the location of any tower proposed, having regard to the need to achieve an acceptable relationship with other towers (existing or proposed) on the same site or on neighbouring sites in terms of separation, setbacks, amenity and urban form	N/A – no tower is proposed.
(v) the bulk, massing and modulation of buildings	The proposal is suitable as it seeks to extend the existing Crystal Hall in accordance with the AM Masterplan. It is noted that the development across the site will remain compliant with the maximum FSR and height controls. Refer to Section 6.1 and Section 6.3 above for additional information.
(vi) street frontage heights	N/A – the proposal does not seek to change the street frontage height.

Consideration	Comment
(vii) environmental impacts, such as sustainable design, overshadowing and solar access, visual and acoustic privacy, noise, wind and reflectivity	The proposal achieves sustainable design without detrimentally affecting neighbouring sites or causing any significant environmental impacts. These matters are addressed throughout Section 6.0 of this EIS.
(viii) the achievement of the principles of ecologically sustainable development	The development has been designed to achieve the principles of ecologically sustainable development. Refer to Section 6.16 below.
(ix) pedestrian, cycle, vehicular and service access and circulation requirements, including the permeability of any pedestrian network	The development will improve pedestrian access to the Museum and significantly enhance permeability and the flow of pedestrians within the Museum. The proposal does not seek to increase car parking in accordance with the Museum's alternative transport strategy and a new bus bay is proposed to improve access for groups.
(x) the impact on, and any proposed improvements to, the public domain	The development improves the public domain and streetscape by introducing a new Biodiversity Garden within the undercroft of the Crystal Hall and incorporating a dedicated bus bay for group visitors. Refer to Section 6.2 below.
(xi) the impact on any special character area	The development is consistent with the desired future character of William Street as described in Section 6.1 below.
(xii) achieving appropriate interfaces at ground level between the building and the public domain	The interface between the building and public domain will be improved through the introduction of a new Biodiversity Garden, providing a new landscaped address for the Museum and gathering outdoor area for visitors. Section 6.2 below.
(xiii) excellence and integration of landscape design	The proposal will enhance the landscaping along the William Street frontage of the site and give prominence to the Crystal Hall entrance from College Street. Refer to Section 6.4 below.

6.3 Built Form and Urban Design

The proposed alterations and additions to the built form are the result of an extensive design analysis process undertaken collaboratively between Hames Sharley and the architects of the original Crystal Hall, Neeson Murcutt Architects. A Design Statement and Architectural Design Package is included at **Appendix E** which details the architectural approach to the proposal.

The proposed extension to the Crystal Hall maintains a consistent scale and utilises similar materials to ensure appropriate integration with the existing, award-winning, building. The extension of the Crystal Hall respects the important heritage features of the Parkes Farmer Wing to the rear, including retaining visibility to the sandstone walls through the use of glazed façades and maintaining the light-weight character of the structure. Overall, the external works to the Museum are relatively minor and the streetscape will retain generally the same appearance.

The internal works have been designed to improve circulation and create dramatic and flexible exhibition spaces to accommodate blockbuster exhibitions. The proposed alterations will remove components of the Still Addition which will open up the atrium, considered to be the heart of the Museum, and reveal parts of the building that have previously been covered up (refer to **Figure 19**).

The proposed works will not increase the existing height of the buildings comprising the Museum and will result in an overall reduction to the FSR through the conversion of previous areas of GFA to areas of non-GFA.

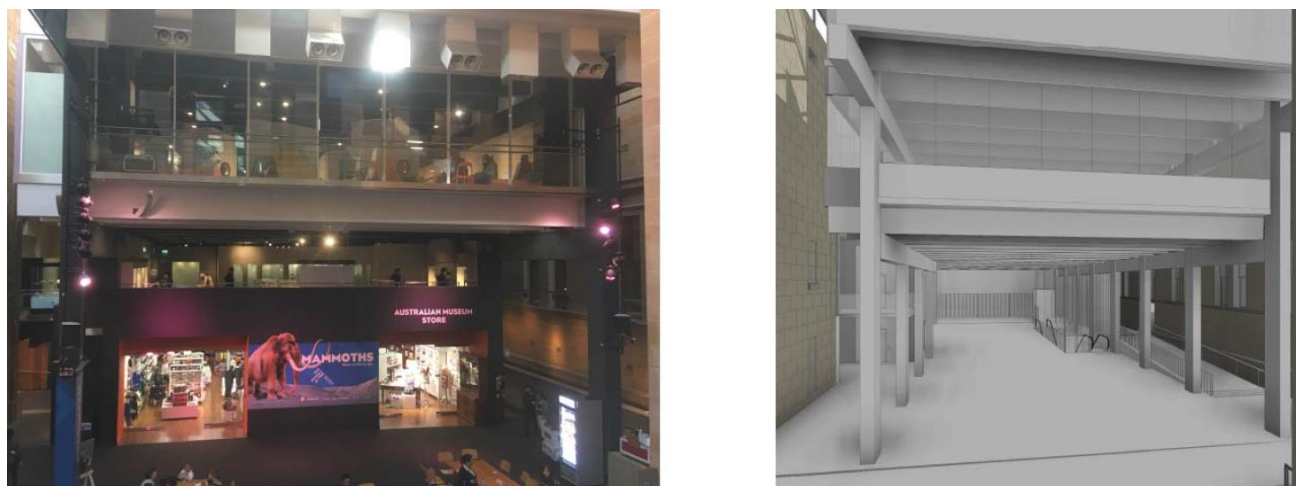


Figure 19 Existing and proposed atrium

Source: Hames Sharley

6.4 Landscape Design

Sue Barnsley Design has prepared Landscape Plans and an accompanying Design Statement (**Appendix P**) for the proposed landscaping works along William Street.

The landscape design, including the new Biodiversity Garden, will improve the surrounding public domain and provide a new outdoor area for the Museum to use for education and passive recreation. The Biodiversity Garden forms the group entrance to the Museum and transports visitors from the busy public domain of William Street into a pleasant landscaped setting, centred around a stone lined pond and native planting. The design of the Crystal Hall extension minimises the extent of the structure beneath the floor level at the eastern end to maximise the amount of solar access available to the Biodiversity Garden.

The proposal includes new street trees to replace trees currently in the William Street reserve which are required to be removed for the purposes of the new bus bay. The proposed new planting has been arranged to provide as much continuous canopy cover as possible and will be planted in accordance with the City of Sydney's Guidelines.

An extract of the proposed landscape design as viewed from William Street is shown at **Figure 20**.



Figure 20 Northern elevation landscaping

Source: Sue Barnsley Design

6.5 Tree Removal

An Arboricultural Impact Assessment Report has been prepared by Earthscape Horticultural Services (**Appendix S**) to assess the impact of the development on eight trees located within or immediately adjacent to the site.

To accommodate the proposed development, it is proposed to remove two existing trees within the William Street road reserve and one tree within the site (including three moderate category and two low category rated trees) to accommodate the proposed bus bay and associated infrastructure. The report concludes that a minimum of two new trees, capable of attaining a height of at least 10m at maturity, should be planted within the William Street road reserve in order to compensate for loss of amenity resulting from the removal of the trees. The proposed Landscape Plans (**Appendix P**) includes the planting of two new trees within the William Street road reserve at either end of the bus parking bay to comply with this recommendation.

The remainder of the trees within the site are to be retained and protected during the construction process. The retention of these trees will contribute to the landscape elements of the site by allowing components of the current curtilage to be transferred to the new proposal and thereby maintaining elements of a continuous landscape throughout the development process. Methodology to ensure the long-term protection of these trees are included within the assessment report.

Accordingly, the removal of trees is considered appropriate given their proposed replacement as part of the landscape strategy, and in context of the broader community benefits delivered by the site's redevelopment.

6.6 Heritage and Archaeological Impacts

Orwell and Peter Phillips prepared a Conservation Management Plan (CMP) for the Museum in 2015 to guide the ongoing management of the Museum's significant heritage fabric. It establishes a set of guidelines and policies relating to the cultural and physical heritage significance of the site that should be considered in the design of any works to the Museum and implemented as part of its ongoing use and maintenance program.

A Heritage Impact Statement (**Appendix D**) has been prepared by Orwell and Peter Phillips to assess the potential impacts of the specific works of this application against the CMP policies and other applicable legislation and guidelines. The report finds that although the proposal will result in some loss of fabric and alteration to spaces that have been assessed as being of medium significance, the majority of the works affect fabric and spaces previously assessed as being of low significance or intrusive. It is also noted that some of the works proposed to the Still Addition will enhance the building by allowing greater appreciation of the internal facades of the Lewis, Barnett and Vernon Wings surrounding the atrium.

The report determines that the overall heritage impact of the proposal is 'neutral to minor positive' and suggests that careful detailing of the new work, including the matching of original finishes where appropriate, will mitigate many of the minor negative impacts. Orwell and Peter Phillips recommend the following mitigation measures in relation to the works:

- *The appointment of a suitably qualified and experienced heritage consultant throughout the documentation and construction period, with authority to review and advise on documents and work in progress;*
- *The requirement to secure suitable sources of replacement stone as soon as possible;*
- *The use of skilled and experienced heritage tradespeople for work on or in the vicinity of elements of exceptional, high or medium significance; and*
- *A requirement for the completed project to be signed off by the appointed heritage consultant as having been completed in accordance with good conservation practise.*

The report also concludes that the proposal will not cause any adverse impacts in relation to the surrounding heritage items and conservation areas identified in **Section 3.2** above.

6.7 Archaeology (Aboriginal and European)

As noted in the Heritage Impact Statement prepared by Orwell and Peter Phillips, the proposed extent of excavation works required is minimal and all areas affected by the proposed works fall within zones that are either basements with no archaeological potential, or low to nil archaeological potential in the case of the relocated external stairs and

extension to Crystal Hall. Notwithstanding, an Aboriginal Cultural Heritage Assessment Report is currently being prepared and will be submitted to the Department once completed.

6.8 Crime and Public Safety

The proposed design maintains the safe and accessible character of the Museum and surrounding public domain. It provides:

- A layout and configuration that facilitates passive surveillance of the surrounding public domain in the immediate vicinity of the site and landscaped areas outside the Museum;
- Appropriate lighting to improve the safety of the public domain;
- Clear boundaries between public and private spaces in the form of material change and access control measures;
- Territorial reinforcement via secure access control, thereby restricting the possibility of visitors accessing staff only areas;
- On-site security staff providing surveillance into the night and an extensive security system commensurate with the use of the site as a Museum; and
- Access for people with disabilities by the provision of at-grade accessible paths of travel throughout the public areas of the building.

6.9 Visual Impact

A Visual Impact Assessment is included within the Architectural Design Package at **Appendix E** and key images are extracted at **Figure 21** below. The key views of the site which will be affected by the development are from the north west (Hyde Park), north (Cook and Phillip Park) and north east (William Street public domain).

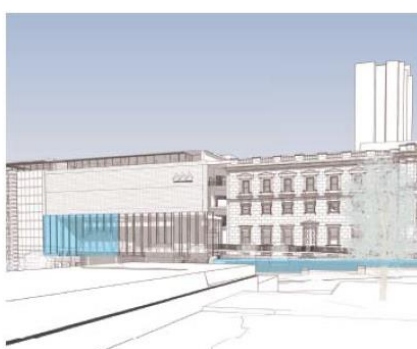
The development includes largely internal alterations and the scale of the proposed Crystal Hall extension in relation to the surrounding built form is minor and does not block any district views. The development will retain a clear distinction between old and new through the continued separation of built elements and a more complementary relationship between the Crystal Hall and Parkes Farmer Building will be achieved through the use of a warmer tone of wall cladding and reflective soffit to mirror the new landscaping.

No significant view corridors from surrounding buildings or public places have been identified that would be impacted by the proposal. Rooftop solar panels are located in positions where they will not be visible from the surrounding public domain.

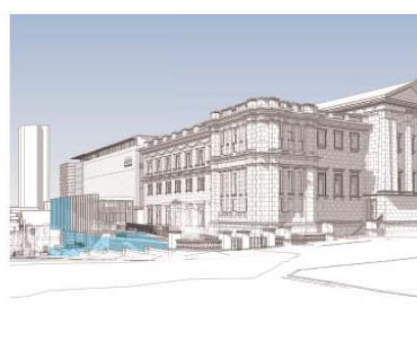
Further, as identified in **Section 6.6** above, the heritage assessment concludes that the impact of the proposed extension is acceptable.



William Street



Cook and Phillip Park



Hyde Park

Figure 21 Visual impact analysis

Source: Hames Sharley

6.10 Overshadowing

Winter solstice shadow diagrams are provided within the Architectural Design Package at **Appendix E**. The proposal will not result in any significant shadow impacts as the Crystal Hall extension is located to the north of the site and its shadow will largely fall on the existing Museum building in the morning and over the loading dock area in the afternoon (refer to 3pm shadow diagram at **Figure 22**). No shadow from the proposed development will fall within the surrounding public domain or adjacent sites.

As noted above, the Crystal Hall extension has been designed to maximise the amount of solar access available to the Biodiversity Garden.



Figure 22 Extract of shadow diagram

Source: Hames Sharley + Neeson Murcutt Architects

6.11 Reflectivity

Arup has undertaken a review of the proposed Crystal Hall extension in terms of its potential solar glare effect. **Section 3.2.7** of the City of Sydney's DCP 2012 has been used as guidance to inform the assessment parameters, including limiting the specular reflectivity of façade materials to 20%.

A report on the findings of the study is included at **Appendix T** which concludes that the development will perform well in terms of solar reflectivity and will not cause adverse solar glare to pedestrians or motorists in the surrounding area.

6.12 Visitor Access and Queuing

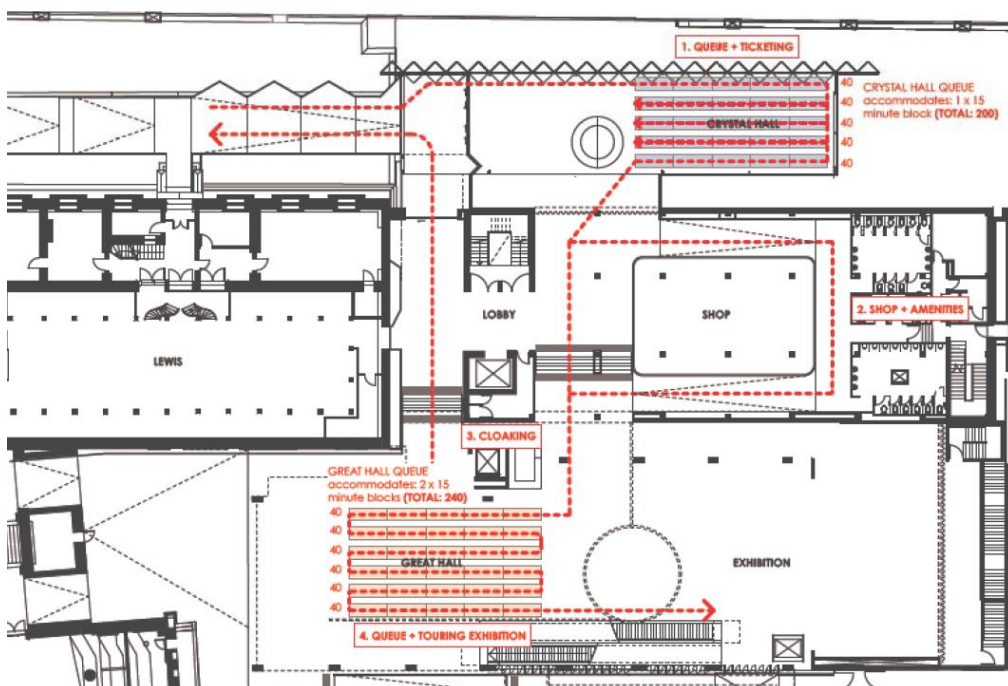
The Australian Museum has undertaken visitor projections for a blockbuster exhibition which reflects the expected peak visitor numbers for the Museum. It is anticipated that there will be a total of 911,000 visitors to the Museum over the course of the 205 day exhibition period with a peak flow of up to 9 entries per minute (based on optimistic visitor projections). This results in visitor numbers of 541 people at peak time and 340 people off-peak.

The general public will access the Museum through the extended Crystal Hall which has been designed to accommodate a total of 200 people for queuing and ticketing in blocks of 120 people per 15 minutes. From here, visitors move through the lobby and into the Great Hall where further queuing space is provided for entry into the main exhibition space. The Great Hall queue has capacity to accommodate two blocks of 120 people (240 people in

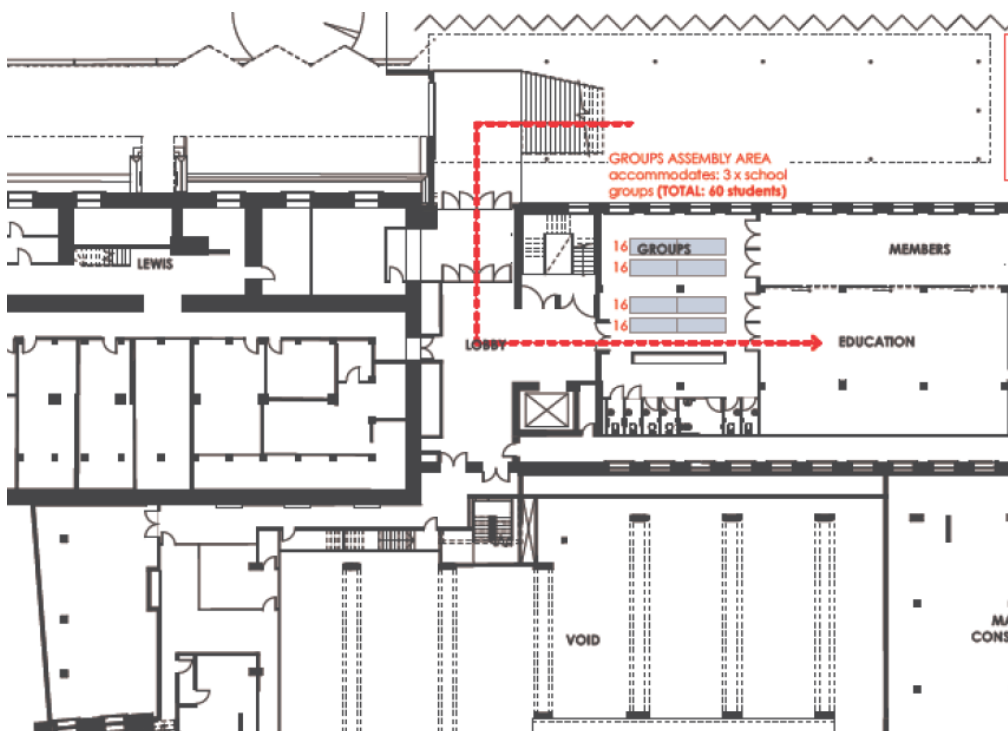
total). Based on the projected visitor numbers, Neeson Murcutt Architects have calculated that the Crystal Hall exceeds the space required for queuing and that the Great Hall meets the requirements.

Group entry to the Museum is provided at a separate entrance via the Biodiversity Garden and realigned stair leading to the Lower Ground Level of the Museum. Provision has been made for the assembly of three groups of approximately 20 students distributed across the outdoor Biodiversity Garden, lobby and education room.

Illustrations of the proposed queuing arrangements and calculations for the general public and groups are extracted at **Figure 23** below.



Proposed public access via the Crystal Hall



Proposed group access via the Biodiversity Garden

Figure 23 Proposed visitor access and queuing

Source: Neeson Murcutt Architects

As outlined in the response to the SDRP comments at **Table 5**, it is not possible to create a single point of entry for both the general public and groups due to the immovability of the Palaeontology area. However, under future stages of the AM Masterplan, when the Palaeontology area may be able to be relocated, there is an aspiration to develop a single point of entry via the Lower Ground Floor by removing the existing Crystal Hall ramp and William Street stairs to create a sunny forecourt along William Street (refer to **Figure 24**). Under this scenario, the Crystal Hall would become a sheltered 'portico' and so the extension to the Crystal Hall would still be of benefit to the Museum.

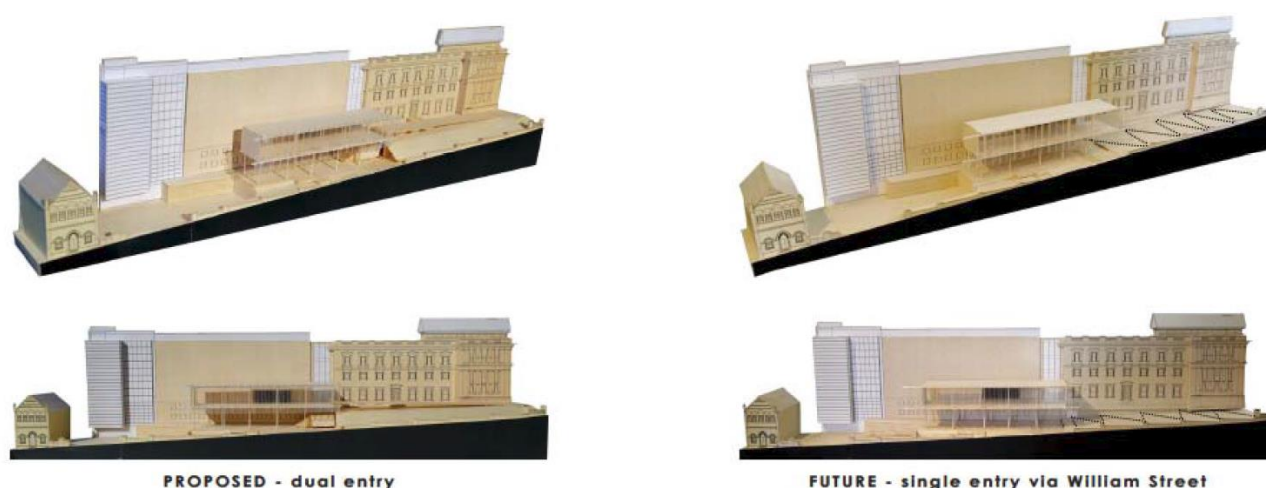


Figure 24 Visitor entry long term option

Source: Neeson Murcutt Architects

6.13 Transport and Parking

A Transport and Accessibility Impact Assessment has been undertaken by Taylor Thomson Whitting (TTW) and is included at **Appendix F**. The key findings of the report are outlined below.

6.13.1 Drop Off and Pick Up Facilities

A new bus bay is proposed along William Street to improve access to the site for groups and reduce pedestrian congestion along College and William Streets. The provision of a new bus bay will be in addition to the existing bus bay on College Street which is often occupied by users related to the Sydney Grammar School which limits the ability for busses associated with the Museum to safely access the site.

A number of options were investigated by TTW to determine the optimal location for the new bus bay which are detailed in the Bus Drop Off Review at **Appendix F**. The William Street option was selected as the preferred option because:

- Its location within proximity to the proposed new group access will reduce queuing of groups on the public footpath;
- The path between the proposed bus bay and group entrance is relatively accessible and avoids steep inclines; and
- It provides a direct path of travel to the entrance without having to cross heavily trafficked roads.

A Coach Management Plan has also been prepared by TTW in consultation with Transport for NSW and City of Sydney Council (**Appendix U**) to ensure bus pick up and drop offs are managed in an efficient and safe manner during peak periods. The objectives of the plan include:

- Reducing queuing of buses during peak periods;
- Preventing impacts to traffic flow and pedestrian movements;
- Formalising bus movements and increasing efficiency of group movements into and out of the Museum; and
- Improving the traffic conditions around the Museum.

6.13.2 Parking

No off-street parking is proposed as part of this development in accordance with its existing Green Travel Plan for the Museum which encourages alternative modes of transport. The Museum does not currently provide off-street parking on the site as it is located in a highly accessible location and the incidence of private vehicles as a travel mode is low.

The Museum will retain its discounted parking located within the Hilton Hotel on Pitt Street and there are also numerous private car parks located nearby which can be used by those driving to the Museum.

The proposal will require two existing on-street metred parking spaces to be removed to accommodate the proposed bus bay which is considered acceptable as it aligns with the City of Sydney's policies to reduce vehicle trips within the CBD and will assist pedestrian and traffic flow around the site. Overall, the benefits of providing the new bus bay outweigh the loss of the two on-street parking spaces.

The Museum currently contains end of trip facilities (showers and change rooms) and bicycle parking for staff and visitors. The existing facilities accommodate the existing demand and are not proposed to be modified as part of this development.

6.13.3 Traffic Generation

Traffic surveys were undertaken in June/July 2016 during a period of high visitor numbers to the Museum and a growth factor of 2% has been applied to estimate the traffic conditions in 2018 which is considered to be a conservative projection.

Based on the projected visitor numbers to the Museum, the development is estimated to result in an additional 6 daily trips and 1 peak vehicle trip post development. The surrounding intersections are currently operating at a 'good' or 'satisfactory' level during peak times and therefore the study concludes that the development will not result in a significant increase in visitor, staff or service vehicle trips and traffic movements around the site will continue to operate at an acceptable level.

6.14 Contamination

A contamination study is currently being prepared and will be submitted to the Department prior to public exhibition.

6.15 Biodiversity and the Natural Environment

The proposal relates to a historically cleared site in a highly urbanised setting which does not facilitate the movement of threatened species. Accordingly, the proposal will not cause any significant impacts on biodiversity or the natural environment as recognised by the Department of Planning and Environment and the Office of Environment and Heritage in their granting of a waiver for the preparation of a Biodiversity Development Assessment Report (BDAR) on 1 August 2018 (refer to **Appendix O**).

6.16 Ecologically Sustainable Development

The principles of ESD have informed the design of the proposed development. Importantly, the design meets ESD principles satisfying the needs of the current generation without compromising the ability of future generations to meet their own needs.

A Section J Report has been prepared by Arup (**Appendix V**) to demonstrate how the proposed Crystal Hall extension will meet the Section J Deemed-to-Satisfy provisions of the National Construction Code. Arup has also prepared an ESD Statement (**Appendix H**) outlining the ESD commitments for the project, including being guided by a 5 Star Greenstar equivalence and target of diverting 60% of construction and demolition waste from landfill.

The ongoing operation of the Museum will also seek to achieve the vision and goals of the Environmental Sustainability Action Plan, including:

Goal 1: Understand the Australian Museum's use of energy, water and waste generation and take action to meet and, where possible, exceed targets determined by the Government; and

Goal 2: To lead by example with the promotion and demonstration of environmental sustainability values.

These documents demonstrate that the proposal will achieve the environmental targets set out by the relevant legislation and, in this regard, will achieve an appropriate level of sustainability.

6.17 Building Code Compliance

The following reports confirm that the proposed development is capable of achieving compliance with the requirements of the Building Code of Australia (BCA) and other relevant codes and standards:

- BCA Report prepared by Steve Watson & Partners (**Appendix J**);
- Section J Report prepared by Arup (**Appendix V**);
- Access Report prepared by Access Associates Sydney (**Appendix W**); and
- Fire Safety Report prepared by Arup (**Appendix X**).

6.18 Construction Impacts

Preliminary Construction Management and Waste Management Plans have been prepared by the Australian Museum (refer to Appendix L and M respectively) which detail the site construction and management principles for the proposed development and initiatives to minimise construction waste. The CMP details management principles which seek to manage the impact of construction activities in terms of air quality, noise, waste management, hazards, contamination, safety, and security. Comprehensive Construction and Waste Management Plans will be prepared prior to the commencement of construction.

A Preliminary Construction Pedestrian Traffic Management Plan (CPTMP) has been prepared by TTW (**Appendix N**) to address the management of local traffic and construction vehicles related to the project. This document outlines the framework within which a detailed CPTMP can be developed prior to commencement of works.

6.18.1 Noise and Vibration

A Noise and Vibration Assessment has been prepared by EMM Consulting (**Appendix G**) to assess the potential noise and vibration impacts associated with the construction and operation of the proposed development.

The construction period for the project is anticipated to be up to 60 weeks, including 6-8 weeks for the internal demolitions works. The proposed construction hours are:

- Monday to Friday 7am to 6pm;
- Saturday 8am to 1pm; and
- No construction work on Sundays or public holidays.

The site is surrounded by a number of sensitive acoustic receivers, including residential, educational, commercial and outdoor passive recreation areas. Unattended noise monitoring was undertaken at the most sensitive residential receiver (corner of William Street and Boomerang Place) between 29 August and 11 September 2018.

Based on the testing, EMM Consulting conclude that construction noise levels are likely to be above the noise management levels at some locations during the proposed construction activity. This is typical of construction projects and is largely a function of proximity to sensitive receivers and the fact that construction is noise intensive, particularly in the early stages. Notwithstanding, the noise predictions contained within the report represent conservative estimates and can be mitigated through the development of a Construction Noise and Vibration Management Plan. Recommendations have also been provided regarding work practices to be considered to minimise construction noise and vibration from the project in Chapter 8.

6.19 Contributions

The relevant contributions plan for the site is the *Central Sydney Development Contributions Plan 2013*. Section 2.2(c) of the plan identifies circumstances in which exemptions from a levy under section 7.11 (formerly Section 94A) of the EP&A Act may be considered by the consent authority which includes not-for-profit development.

The Australian Museum is a not-for-profit public institution which relies on government grants, donations, and community funding to provide new facilities and exhibitions for the public at large. The current use of the site and the proposed improvements are of an inherently public nature, providing educational, cultural and economic benefits to the community (refer to **Section 9.1** below). Accordingly, an exemption from the payment of a section 7.11 contribution is warranted for the proposed works.

7.0 Environmental Risk Assessment

The Environmental Risk Assessment (ERA) establishes a residual risk by reviewing the significance of environmental impacts and the ability to manage those impacts. The ERA for the proposed Museum alterations and additions has been adapted from Australian Standard AS4369.1999 Risk Management and Environmental Risk Tools.

In accordance with the SEARs, the ERA addresses the following significant risk issues:

- The adequacy of baseline data;
- The potential cumulative impacts arising from other developments in the vicinity of the site; and
- Measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

Figure 25 indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

- The receiving environment;
- The level of understanding of the type and extent of impacts; and
- The likely community response to the environmental consequence of the project;

The manageability of environmental impact is assigned a value between 1 and 5 based on:

- The complexity of mitigation measures;
- The known level of performance of the safeguards proposed; and
- The opportunity for adaptive management.

The sum of the values assigned provides an indicative ranking of potential residual impacts after the mitigation measures are implemented.

Significance of impact	Manageability of impact				
	5 Complex	4 Substantial	3 Elementary	2 Standard	1 Simple
1 – Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 – Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 – Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 – High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 – Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

Figure 25 Risk Assessment Matrix

Risk Assessment						
Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Traffic and Parking	O	<ul style="list-style-type: none"> Increased traffic on local roads Increased parking on local roads Loss of on-street parking due to bus bay 	<ul style="list-style-type: none"> The existing and proposed parking arrangements, including the proposed bus bay, and access to public transport have been assessed by Taylor Thomson Whitting in the Transport and Accessibility Impact Assessment (Appendix F). Actively encourage active transport strategy. Implementation of the Coach Management Plan developed for the site. 	3	2	5 Low / medium
Heritage	C / O	<ul style="list-style-type: none"> Impact on heritage fabric of Museum Impact on surrounding heritage items / conservation areas Impact on archaeological heritage (Aboriginal and general) 	<ul style="list-style-type: none"> Orwell and Peter Phillips has assessed the potential heritage impacts of the proposal and recommended a number of mitigation measures to be implemented during the design and construction process (Appendix D). The development has the potential to impact on heritage values, relating to nearby heritage listings, as well as Aboriginal and historical archaeology. However, the potential impacts can be addressed through careful detailed design of the proposed development, consideration of surrounding heritage items, and application of archaeological investigation and mitigation techniques. 	4	2	6 Medium
Visual Impact	O	<ul style="list-style-type: none"> Visual impact of additional development 	<ul style="list-style-type: none"> Visual impacts arising from the form and scale of the proposed Crystal Hall extension has been mitigated through careful consideration of its design and the involvement of the original Crystal Hall architects in the project. 	3	2	5 Low / medium
Reflectivity	O	<ul style="list-style-type: none"> Adverse glare impacts caused by the Crystal Hall extension 	<ul style="list-style-type: none"> Arup has assessed the likely glare impacts of the development based on the proposed materials and location of works. Based on this assessment it is unlikely that the development will cause adverse solar reflectivity impacts. 	1	1	2 Low
Biodiversity	C	<ul style="list-style-type: none"> Loss of biodiversity 	<ul style="list-style-type: none"> Given the developed nature of the site and current and historical uses, there are not likely to be any impacts on any threatened species, populations or ecological communities or their habitats. 	1	1	2 Low
Construction noise and impacts	C	<ul style="list-style-type: none"> Increase in noise levels during construction activities Increase in noise levels of operations Construction related traffic congestion 	<ul style="list-style-type: none"> Adoption of a construction management plan to minimise and manage noise and vibration emissions from the site. Construction traffic management measures to be identified through the preparation of a Construction Traffic Management Plan (CTMP) for each stage of the development. 	3	1	4 Low / medium

8.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are outlined in **Table 8** below. These measures have been derived from the previous assessment in **Section 6.0** and those detailed in appended consultants' reports.

Table 8 Mitigation Measures

Mitigation Measures
<p>Construction Impacts</p> <ul style="list-style-type: none"> Implement the recommendations of the Preliminary Construction Management Plan prepared by the Australian Museum dated October 2018. Prepare a detailed Construction Management Plan and Construction Traffic Management Plan prior to commencement of works. During construction works, undertake the recommended tree protection measures included at Section 10 of the Arboricultural Impact Assessment Report dated September 2018.
<p>Noise and Vibration</p> <ul style="list-style-type: none"> Implement the recommendations of the Construction Noise and Vibration Strategy dated October 2018, prepared by EMM, including: <ul style="list-style-type: none"> external works to be restricted to ICNG standard hours and daytime OOH only; loading of rubble into trucks is to occur within a dedicated area at the loading dock. Consideration of localised screening or acoustic 'tent' where practical; consideration of loading internal rubble into 'skips' that are loaded onto trucks in lieu of utilising a loader or excavator and dumped into trucks at loading dock. Skip bin to be located within a dedicated area with perimeter acoustic screening; consideration of temporary acoustic barriers (eg. Echobarrier or eq.) on scaffolding for 'Crystal Hall'; access from 'heart' and internal works to loading dock incorporate self-closing door, air lock or acrylic curtains (min. 3mm thick) to control breakout noise; idle plant and equipment to be switched off when not in active use; minimise the number of plant items operating concurrently, particularly when in close proximity to surrounding receivers; minimise the need for vehicle reversing by arranging for one-way site traffic routes. If this is unachievable, install reversing "quackers" rather than "beepers"; and noise and vibration monitoring will be adopted as a management strategy if complaints are received during the construction period. Adoption of general noise & vibration management practices (AS 2436-2010). Preparation of a Construction Noise and Vibration Management Plan prior to works commencing.
<p>Heritage/Archaeology</p> <ul style="list-style-type: none"> Implement the recommendations of the Heritage Impact Statement prepared by Orwell and Peter Phillips, dated August 2018, including: <ul style="list-style-type: none"> Appointing a suitably qualified and experienced heritage consultant throughout the documentation and construction period, with authority to review and advise on documents and work in progress. Secure suitable sources of replacement stone for the development as soon as possible. Ensure the use of skilled and experienced heritage tradespeople for work on or in the vicinity of elements of exceptional, high or medium heritage significance. Require the completed project to be signed off by the appointed heritage consultant as having been completed in accordance with good conservation practice.
<p>Sustainability</p> <ul style="list-style-type: none"> Ensure the works comply with Section J1 and J2 of the BCA 2016. Where practical, ensure the development meets the targets of the Ecologically Sustainable Development Statement prepared for the project, dated August 2018. Prepare a detailed Waste Management Plan prior to the commencement of works.
<p>Design Excellence</p> <ul style="list-style-type: none"> Continue to consult with Neeson Murcutt Architect in the preparation of design and construction documentation for works relating to the Crystal Hall

Mitigation Measures

- Involve the SDRP in the design process of future components of the Masterplan if these stages proceed.
-

Parking and Access

- Apply to the City of Sydney Traffic Committee for changes to parking restrictions along the William Street frontage to accommodate the proposed bus bay.
 - Prepare an Access Management Strategy to ensure the safe and efficient movement of groups between the bus bay and the Museum
-

Landscaping

- Replace the three trees proposed to be removed to accommodate the bus bay in accordance with the Arboricultural Impact Assessment Report dated September 2018. This includes the planting of two new London Plane trees within the public domain which are capable of attaining a height of at least 10m at maturity.
-

9.0 Justification of the Proposal

In general, investment in major projects can only be justified if the benefits of doing so exceed the costs. Such an assessment must consider all costs and benefits, and not simply those that can be easily quantified. As a result, the EP&A Act specifies that such a justification must be made having regard to biophysical, economic and social considerations and the principles of ecologically sustainable development. This means that the decision on whether a project can proceed or not needs to be made in the full knowledge of its effects, both positive and negative, whether those impacts can be quantified or not.

The proposed development involves alterations and additions to the Australian Museum. The assessment must therefore focus on the identification and appraisal of the effects of the proposed change over the site's existing condition. Various components of the biophysical, social and economic environments have been examined in this EIS and are summarised below.

9.1 Social and Economic

The environmental impact assessment of the proposed development has demonstrated that the development will have an overall positive social and economic impact. The proposed works involve improvements to a significant piece of social infrastructure and will improve the Museum's ability to carry out its important educational and cultural role. Specifically, the development will provide a new 'search and discover' educational space for students and will provide a new exhibition space which will allow the Museum to host the world's most sought after displays.

The development will strengthen the Museum's financial independence by increasing its visitor capacity and upgrading ancillary income generating uses such as the café and shop. In addition, the proposal will provide direct employment during the construction phase and increase the number of permanent operational staff.

9.2 Biophysical

Section 6.15 above provides an assessment of the biophysical impacts of the proposal and demonstrates that the proposed development will not result in any significant adverse environmental impacts that cannot be appropriately addressed through standard conditions of consent or the mitigation measures included at **Section 8.0**.

9.3 Ecologically Sustainable Development

In addition to the ESD principles outlined for the development at **Section 6.16**, the following section analyses the project against the four principles of ecologically sustainable development in accordance with the EP&A Regulations.

Precautionary Principle

The precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle requires careful evaluation of potential environmental impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment.

This EIS has not identified any serious threat of irreversible damage to the environment and therefore the precautionary principle is not strictly relevant to the proposal. It is noted, however, that a conservative approach has been applied to all specialist studies supporting the application.

Intergenerational Equity

Inter-generational equity is concerned with ensuring that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The proposal has been designed to benefit both the existing and future generations by:

- Improving one of Sydney's most important cultural and educational institutions and enhancing its ability to attract world class exhibitions into the future;
- Protecting the site's important heritage fabric for the enjoyment of future generations;

- Enhancing Sydney's attractiveness as a tourist destination and supporting the visitor economy;
- Improving the sustainability of the Museum's funding through the creation of new income streams;
- Facilitating construction jobs and ongoing employment creation; and
- Implementing safeguards and management measures to protect environmental values and increasing the environmental performance of the Museum.

The proposal has integrated short and long-term social, financial and environmental considerations so that any foreseeable impacts are not left to be addressed by future generations. Issues with potential long term implications such as waste disposal would be avoided and/or minimised through construction planning and the application of safeguards and management measures described in this EIS and the appended technical reports.

Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration. The proposal would not have any significant effect on the biological diversity and ecological integrity of the study area.

Improved valuation, pricing and incentive mechanisms

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a proposal, including air, water, land and living things. Mitigation measures for avoiding, reusing, recycling and managing waste during construction and operation would be implemented to ensure resources are used responsibly in the first instance.

Additional measures will be implemented to ensure no environmental resources in the locality are adversely impacted during the construction or operational phases.

10.0 Conclusion

The Environmental Impact Statement (EIS) has been prepared to consider the environmental, social and economic impacts of the proposed Australian Museum alterations and additions. The EIS has addressed the issues outlined in the SEARs (**Appendix C**) and accords with Schedule 2 of the EP&A Regulation with regards to consideration of relevant environmental planning instruments, built form, social and environmental impacts.

This report provides an assessment and justification for the development, consistent with the relevant local and State environmental plans and policies. The environmental assessment provided in **Section 6** demonstrates that the proposed development will have minimal environmental impacts on the existing building and upon the surrounding neighbourhood and any impacts can be managed through the proposed mitigation measures listed at **Section 7** and appropriate conditions of consent.

Having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified for the following reasons:

- The works will provide a flexible exhibition space to allow the Museum to host blockbuster events, including the upcoming *Tutankhamun* exhibition;
- The development will provide a new education space for children;
- The day to day operations of the Museum will be improved by enhancing visitor experience and wayfinding;
- The proposed Crystal Hall addition is integrated with the surrounding built form of the Museum;
- The proposed landscaping provides a high level of pedestrian amenity and permeability at ground level with high quality public domain and landscaping treatments referencing the site's Aboriginal Heritage;
- The alterations and additions have been designed to respond to and protect the Museum's significant heritage fabric; and
- The development will help achieve the objectives of the Museum's 'NEW Vision' for 2027, including attracting increased visitor levels to the world class facility and the generation of new income streams to support the Museum's ongoing expenditure.

Given the merits described above it is requested that the application be approved.