URBIS

TARONGA ZOO UPPER AUSTRALIA PRECINCT

ENVIRONMENTAL IMPACT STATEMENT

PREPARED FOR

TARONGA CONSERVATION SOCIETY AUSTRALIA

24 JULY 2020

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Sarah Horsfield
Consultant	Brigitte Bradley
Project Code	P0004764
Report Number	Final

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SIGNED DECLARATION

SUBMISSION OF ENVIRONMENTAL IMPACT STATEMENT

Environmental Assessment prepared by:

Names:	Sarah Horsfield	Brigitte Bradley
Qualifications:	Bachelor of Town Planning (UNSW) Master of Environmental Law (USYD)	Bachelor of Planning (UNSW)
Company:	Urbis Pty Ltd Level 8, 123 Pitt Street Sydney NSW 2000	
In respect of:	SSD-10456	

Applicant and Land Details:

Applicant:	Taronga Conservation Society Australia
Land details:	Taronga Zoo, Bradleys Head Road, Mosman
Legal description:	Lot 22 in DP 843294
Project Summary:	Redevelopment of the Taronga Zoo Upper Australia Precinct including demolition and excavation works and new exhibit design and layouts.

We certify that the content of the Environmental Impact Statement, to the best of our knowledge, has been prepared:

- In accordance with the Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*;
- Contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which that statement relates; and
- The information contained in this statement is neither false nor misleading.

Name/Position:	Sarah Horsfield, Director	Brigitte Bradley, Consultant
Signature:		
Date:	24/07/2020	24/07/2020

GLOSSARY AND ABBREVIATIONS

Reference	Description
ACHAR	Aboriginal Cultural Heritage Assessment Report
BAM	Biodiversity Assessment Method
BC Act	*Biodiversity Conservation Act 2016*
BC Reg	*Biodiversity Conservation Regulation 2017*
BDAR	Biodiversity Development Assessment Report
CEMP	Construction Environmental Management Plan
CMP	Construction Management Plan
CTMP	Construction Traffic Environmental Plan
DCP	Development Control Plan
DPIE	NSW Department of Planning, Industry and Environment
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EIS	Environmental Impact Statement
EPA	NSW Environment Protection Authority
LEP	Local Environmental Plan
PBP	Planning for Bushfire Protection
PCT	Plant Community Type
POM	Plan of Management
PSI	Preliminary Site Investigation
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
Site	Taronga Zoo, Lot 22 on DP843294
SRD SEPP	*State Environmental Planning Policy (State and Regional Development) 2009*

Reference	Description
SSD	State Significant Development
SSDA	State Significant Development Application
TIA	Traffic Impact Assessment
WMP	Waste Management Plan
WSUD	Water Sensitive Urban Design

EXECUTIVE SUMMARY

The Environmental Impact Statement (**EIS**) has been prepared on behalf of the Proponent, Taronga Conservation Society Australia (**TCSA**) in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulations* 2000. This EIS supports a State Significant Development Application (**SSDA**) for the redevelopment of the Upper Australia Precinct (**subject site**) of Taronga Zoo, Sydney.

The SSDA seeks consent for the redevelopment of an animal exhibit known as the 'Upper Australia Precinct' which will complete the entire Australian precinct, including key attractions such as the nocturnal house, avian wetlands and commercial Koala Encounters venue.

This EIS has been prepared to support the SSDA and responds to the relevant matters listed within the Secretary's Environmental Assessment Requirements (**SEARs**) issued on 22 May 2020. This document should be read in conjunction with the supporting documents provided at **Appendix A** to **Appendix Z**.

The EIS describes the site and proposed development, provides relevant background information, and assesses the development against relevant legislation, environmental planning instruments, and planning policies, and the SEARs issued.

THE SITE

Taronga Zoo is located at Bradleys Head Road, Mosman and is situated in the Mosman Local Government area (LGA). The site is bounded by Bradleys Head Road to the east, Athol Wharf Road and Sydney Harbour to the south, Little Sirius Cove to the west and Whiting Beach Road to the north. Taronga Zoo is legally described as Lot 22 on DP843294 and is Crown Land managed by the TCSA (the Zoological Park Board).

Taronga Zoo has evolved over time from a Zoo that simply provides the traditional visitor experience of viewing animals in exhibits, to a Zoo that focusses on wildlife conservation, animal welfare and providing a range of visitor learning experiences. Taronga Zoo is one of Australia's most popular attractions, and together with Taronga Western Plains Zoo hosts more than 1.5 million visitors annually and contributes an estimated $249 million per annum to the NSW economy. Taronga Zoo is a significant tourism attractor to the Mosman area and plays an important role in Mosman LGA, providing employment opportunities and contributing to the local economy.

The Upper Australia Precinct is surrounded on three sides by existing zoo facilities and adjoins Bradleys Head Road near the northern main zoo entrance. Adjoining the subject site, to the south, is the Australia Habitat Phase 1 and Taronga Wildlife Retreat which is completed and was open until the current COVID-19 pandemic forced its temporary closure. On the opposite side of Bradleys Head Road to the east of the site is Sydney Harbour National Park. The nearest residential areas to the proposed site are approximately 200 metres to the north on Bradleys Head Road and Whiting Beach Road. These areas are separated from the project site by the National Park and the zoo's car parking, forecourt and main entrance building.

The current Precinct contains existing exhibits and infrastructure for Australian animals. The existing facilities largely comprise open air exhibits, animal enclosures, pathways, landscaping and associated infrastructure/servicing areas. Existing uses and facilities in the Upper Australia Precinct area include:

- Avian Wetlands;
- Wild Ropes Course;
- Nocturnal House;
- Macropod Walk-through;
- Koala Encounters venue; and
- Platypus House.

THE PROPOSAL

The SSDA seeks consent for the redevelopment of an animal exhibit known as the 'Upper Australia Precinct', which will complete the entire Australian precinct, including key attractions such as the Nocturnal House, Macropod walk and the commercial Koala Encounters venue. The Upper Australia Precinct is one of the pillars of Taronga's Centenary Capital Plan and will be a major tourist destination for international tourists to view Australian wildlife. The renewal of this area of the zoo will enhance the native landscape strategy of the existing precinct and greater communicate the connection of wildlife and the environment. The proposal aims to enhance the guest experience and presentation of Taronga Zoo with a focus to improve the welfare of animals.

The proposed works will completely refurbish the existing Upper Australia Precinct, including a new exhibit design and layouts. This will include demolition of existing structures and some excavation works, while still remaining sympathetic to the design intent of the original 1970s exhibits. The Upper Australia Precinct will display critically endangered Australian animals that form part of Taronga's wildlife conservation and education programs and upgrade "*star*" attractions including kangaroo, koala, platypus, wombat and emu exhibits. The proposal will incorporate three main exhibits:

- The existing Nocturnal House building will be reconfigured to improve functionality and accessibility as well as creating an immersive experience for guests with new exhibit design in a simulated night-time setting. The completion of Nocturnal House will provide Taronga Zoo with an innovative space to display nocturnal Australian animals.
- A new Koala Encounter and public koala canopy walk will be constructed to provide guests with a more naturalistic experience with koalas. An elevated walkway and tree house located 3-4 metres above the ground will be constructed within existing trees, the area will be supplemented with additional trees to create a forest. This will be located in the same vicinity as existing koala facility along Bradley's Head Road and provide a new space for educational koala talks within the Precinct.
- Macropod walkthrough will be extended to replace the existing wetland area. The topography is to be retained and the exhibit will be heavily landscaped to enhance the presentation and welfare of the various macropod/kangaroos that will be housed in this large open range exhibit.

Additional works proposed as part of the Upper Australia Precinct redevelopment will include the following:

- Creation of a new western pavilion;
- Upgrades to back of house facilities for animal care;
- Additional toilets and amenities for staff and visitors;
- Other supporting infrastructure and walkways; and
- Modifications to the existing Wild Ropes Course including removal and reinstatement of poles necessary to accommodate the design and the construction of a new entrance.

PROJECT NEED AND TIMING

The majority of the existing infrastructure in the Upper Australia Precinct is over 30 years old and is identified for renewal and revitalisation as part of the zoo's strategic plan to improve facilities and enhance guest experiences. The intention of the development is to improve exhibit enclosures for the welfare of animals and enhance the Australian Animal Precinct to provide domestic and international guests with a more immersive and unique wildlife experience.

The Upper Australia Precinct project has been fast-tracked by TCSA as a key priority for Taronga Zoo as a result of the unforeseen COVID-19 pandemic, which has significantly impacted Zoo visitation and revenue in 2020. Zoo visitation and revenue suffered dramatically over the summer peak period due to the devastating bushfires and now as a result of COVID-19, Taronga Zoo was closed for a portion of the year and is now facing low visiting numbers to meet social distancing requirements. It is therefore seen as an advantageous time to undertake construction works which are usually disruptive to Zoo visitors and Taronga Wildlife Retreat guests and ensure that project can delivered in time for the return of future domestic and international visitors to the Zoo, NSW and Australia.

The project will deliver genuine economic benefits in these challenging times, with the intention to provide approximately 800 jobs including design, project management and construction over the 18-month design development and construction period.

This project is fully funded and 'shovel ready' for commencement of construction. Additional 'early works' are currently under assessment by Mosman Council to take advantage of an absence of guests to complete more disruptive works, including the demolition of Platypus House. Further details of these separate works are outlined in **Section 3.9.1** of this report.

The completion of the Upper Australia Precinct will position Taronga Zoo as a continued global leader in the presentation and welfare of Australian animals. Now more than ever, it is critical that the project is delivered in time for when the economy does bounce back, and international tourists start returning to Taronga, Sydney and Australia.

PROJECT VISION

The Upper Australia Precinct will represent the iconic landscapes and animals of the Australian bush. Redevelopment of the area will enable TCSA to continue its key conservation messaging and vision of securing a shared future for wildlife and people. By drawing on the Australian landscape and its animals, the Upper Australia project presents a unique opportunity to communicate Taronga's vision through landscape and architectural design. The Upper Australia precinct design is intended to immerse guests in the landscape and educate them about Australian wildlife. The design will be underpinned by Ecologically Sustainable Design (**ESD**) principles which will be reflected in the landscape and built form elements.

PLANNING FRAMEWORK

Pursuant to Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011* (**SRD SEPP**) development on the Taronga Zoo site with a capital investment value (**CIV**) of more than $10 million is identified as a State Significant Development (**SSD**). As the proposed development has an estimated capital investment value of $16,475,913, the proposal will be classified as SSD (refer to QS costing provided at **Appendix B**).

This EIS considers the relevant regulatory framework applicable to the site and the proposal and contains an assessment of the proposal against the relevant legislation in detail. The proposal is consistent with the requirements of all relevant State Environmental Planning Policies (**SEPPs**). The site is zoned SP1 Zoological Gardens under the *Mosman Local Environmental Plan* 2012 (**MLEP 2012**). The proposal is permissible with consent and meets the objectives of the land use zone.

STAKEHOLDER CONSULTATION

Community and stakeholder engagement has been undertaken by TCSA, Urbis and the SSDA project team in preparation of the SSDA. This includes direct engagement and consultation with:

- Adjoining landowners and occupants
- Government, agency and utility stakeholders listed within the SEARs

Whilst community consultation was undertaken during the preparation of the EIS, no comments on the design were received by the general public prior to lodgement of the EIS. Further, comments back from the relevant stakeholders did not request any changes to the overall design of the Precinct.

ASSESSMENT

The key issues for all components of the project identified in the SEARs have been assessed in detail, with specialist reports underpinning the key findings and recommendations identified in the Impact Assessment in **Section 7**. It has been demonstrated that for each of the likely impacts identified in the assessment of the key issues will either be positive or can be appropriately mitigated. In many cases, the environmental management controls and operational protocols inherent to operation of the Zoo adequately manage and/or mitigate the potential impacts. The proposal represents a positive development outcome for the site and surrounding area for the following reasons:

The proposal is consistent with state and local strategic planning policies:

The proposal has been designed to be consistent with the relevant goals and strategies contained in:

- NSW Premier and State Priorities
- Greater Sydney Region Plan
- Zoo 2000 – 'The View to the Future' Master Plan
- Taronga Zoo Centenary Master Plan 2015
- Mosman Development Control Plan 2012
- North District Plan 2018
- Mosman Local Strategic Planning Statement 2020

The proposal satisfies the applicable local and state development controls:

The proposal satisfies the objectives of all relevant planning controls and achieves a high level of planning policy compliance including the relevant controls of *State Environmental Planning Policy (State and Regional Development)* 2011, *Sydney Regional Environmental Plan (Sydney Harbour Catchment)* 2005 and *Mosman Local Environmental Plan* 2012.

The design positively responds to the site conditions:

- The proposed works will not have any adverse heritage impacts and will facilitate the continued use of the Upper Australia Precinct for its originally intended purpose of showcasing Australian native animals. Further, the retention of any heritage fabric needs to be balanced with the need for Taronga Zoo to meet contemporary animal welfare and visitor experience expectations. The proposal for an immersive exhibit is consistent with zoo best practice and the mitigation measures proposed, including archival recording are appropriate and proportional to the degree of any impact.
- The works will not have any significant detrimental impact on the scenic, visual and natural bushland setting of Sydney Harbour with all built form remaining within the existing tree canopy of the Zoo.
- The minimum number of trees possible have been removed to accommodate the new exhibits and wherever possible the exhibit has been designed around the existing landscaping. Further, none of the trees to be removed are listed on the Section 170 Register or identified to be of high retention value.

The proposal provides a superior development outcome for the site:

The redevelopment of the Upper Australia Precinct will result in the completion of Taronga Zoo's Australia Precinct which includes the Australia Habitat and Taronga Wildlife Retreat. The finalisation of the Australian Precinct is major focus of TCSA's Centenary Master Plan and is a key attraction for international visitors to the Zoo. The proposal will improve the standard of animal care on site and provide improved opportunities for visitor interactions within exhibit spaces.

The proposal is highly suitable for the site:

The proposal continues the permitted use of the site as a *Zoological Garden* and will allow for the redevelopment of an existing animal precinct, which is permissible with consent and consistent with the SP1 Special Activities (Zoological Gardens) Zone objectives. Further, there are no significant environmental constraints that would limit the proposal from being developed at the site.

The proposal is in the public's best interest:

This application will facilitate a new and improved animal exhibit at the Zoo that the public will be able to enjoy.

The proposal will have minimal environmental impacts upon nearby residential as the proposed construction works will be located away from residential land. Subject to the various mitigation measures recommended by the specialist consultants, the proposal does not have any unreasonable impacts on adjoining properties or the public domain in terms of views, traffic, acoustic impacts during construction and ongoing operation.

CONCLUSION

The Upper Australia Precinct is fully funded and ‘shovel ready’ for commencement of construction early next year to take the opportunity for construction whilst visitor numbers to the Zoo are restricted due to the COVID-19 pandemic. The project will deliver genuine economic benefits in these challenging times, particularly in creating full-time jobs during construction, and will sustain direct and indirect jobs during its ongoing operation. Given the site is suitable for the development and the proposal is in the public interest, this application should be subject to a fast tracked approval by the Minister or his delegates.

SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

A request was made to the Minister for the Secretary's Environmental Assessment Requirements (**SEARs**), pursuant to Clause 3, Schedule 2 of the *Environmental Planning and Assessment Regulation* 2000 and the SEARs was received on 22 May 2020. The SEARs are addressed within this report and included in full at **Appendix A**.

Table 1 below provides a summary of the SEARs and identifies the section of the report where the relevant requirement is addressed and/or the appendix reference for the technical consultant's report associated with that requirement.

Table 1 – Summary of SEARs

Requirement	Location in EIS
General Requirements The environmental impact statement (EIS) must be prepared in accordance with and meet the minimum requirements of clauses 6 and 7 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (the Regulation).	The Environmental Impact Statement (**EIS**) has been prepared in accordance with, and meet the minimum requirements of clauses 6 and 7 of Schedule 2 the *Environmental Planning and Assessment Regulation 2000* (**the Regulation**).
Environmental Risk Assessment Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development. Where relevant, the assessment of key issues below, and any other significant issues identified in the risk assessment, must include: ▪ adequate baseline data; ▪ consideration of the potential cumulative impacts due to other developments in the vicinity (completed, underway or proposed); and ▪ measures to avoid, minimise and if necessary, offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment.	Environmental Risk Assessment is addressed in **Section 8** of this EIS.
Capital Investment Value The EIS must also be accompanied by a report from a qualified quantity surveyor providing: ▪ a detailed calculation of the capital investment value (CIV) (as defined in clause 3 of the Regulation) of the proposal, including details of all assumptions and components from which the CIV calculation is derived. The report shall be prepared on company letterhead and indicate applicable GST component of the CIV;	Quantity Surveyors Cost Assessment is enclosed at **Appendix B**.

Requirement	Location in EIS
▪ an estimate of jobs that will be created during the construction and operational phases of the proposed development; and ▪ certification that the information provided is accurate at the date of preparation.	
Key issues: The EIS must address they key issues set out in points (1) to (18) below:	
1. Statutory and Strategic Context Address all relevant Environmental Planning Instruments, plans, policies and guidelines, including (but not limited to) those outlined in Appendix A.	Statutory and Strategic Context is addressed in **Sections 4** and **5** of the EIS, which includes assessment of Permissibility and development standards.
2. Built Form, Urban Design and Visual Impacts ▪ The EIS must address the height, bulk and scale of the proposed development within the context of the locality. The EIS must also address design quality with specific consideration of the use of colours, materials, finishes, landscaping and public domain. ▪ The EIS should consider the visual impact of the proposed development from Sydney Harbour as well as other vantage points on land such as Curraghbeena Point and Cremorne Point (as relevant).	Refer to **Section 7.1** of this EIS and the Design and Landscape Report prepared by Lahznimmo enclosed in **Appendix F.**
3. Heritage ▪ A Statement of Heritage Impact (SOHI) prepared by a suitably qualified heritage consultant in accordance with the guidelines in the NSW Heritage Manual. The SOHI is to address the impacts of the proposal on the heritage significance of the site and adjacent areas and is to identify the following: o All heritage items (state and local) within the vicinity of the site including built heritage, landscapes and archaeology, detailed mapping of these items, and assessment of why the items and site(s) are of heritage significance. o Compliance with the relevant Conservation Management Plan o Compliance with the Taronga Zoo Conservation Strategy, prepared by GML, dated 2002. o The impacts of the proposal on heritage item(s) including visual impacts, required BCA and DDA works, new fixtures, fittings and finishes, any modified services. o The attempts to avoid and/or mitigate the impact on the heritage significance or cultural heritage values of the site and the surrounding heritage items. Justification for any changes to the heritage fabric or landscape elements including any options analysis. If the SOHI identifies impact on potential historical archaeology, an historical archaeological assessment should be prepared by a suitably qualified archaeologist in accordance with the guidelines Archaeological Assessment (1996) and Assessing Significance for	Heritage impacts are discussed in **Section 7.2** of this EIS. Refer to Statement of Heritage Impact prepared by Urbis enclosed in **Appendix G.** Refer to Historical Archaeological Assessment has been prepared by Urbis enclosed in **Appendix H.** Refer to Interim Aboriginal Cultural Heritage Assessment Report prepared by Urbis enclosed in **Appendix I.**

Requirement	Location in EIS
Historical Archaeological Sites and Relics (2009). 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 archaeological 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 or salvage program. ▪ Address Aboriginal cultural heritage impacts of the proposal, including: o identify and describe the Aboriginal cultural heritage values that exist across the whole area that would be affected by the development and document these in an Aboriginal Cultural Heritage Assessment Report (ACHAR). This may include the need for 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 (OEH 2010), and guided by the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011). o 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. o Impacts on Aboriginal cultural heritage values are to be assessed and documented in the ACHAR. The ACHAR must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. 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. Note that due diligence is not an appropriate assessment, an ACHAR is required.	
4. Traffic, Parking and Access ▪ Detailed assessment of the existing and future key intersections providing access to the site, supported by appropriate modelling and analysis to include: o Whiting Beach Rd at Prince Albert St. o Whiting Beach Rd at Bradleys Head Rd. ▪ Measures to mitigate impacts of the proposed development on the capacity and operation of existing and future traffic, public transport, pedestrian and bicycle networks, including any required upgrades. ▪ Preparation of a Green Travel Plan (GTP) in consultation with TfNSW. ▪ Details of existing and proposed vehicle access arrangements, including parking, pedestrian safety management, loading dock and	Refer to **Section 7.3** of this EIS and the Traffic Impact Assessment prepared by GTA Consultants enclosed in **Appendix J.**

Requirement	Location in EIS
servicing management with consideration of precinct wide shared loading docks and/or remote or off-site loading zone hub facilities, ensuring all servicing and loading occurs on-site and does not rely on kerbside controls. ▪ An assessment of pedestrian and cyclist safety with consideration of the relationship with design, access and operation of the development. ▪ The preparation of a preliminary Construction Pedestrian and Traffic Management Plan (CPTMP) to demonstrate the proposed management of the impact in relation to construction traffic addressing the following: o Assessment of cumulative impacts associated with other construction activities (if any). o An assessment of road safety at key intersection and critical locations subject to heavy vehicle construction traffic movements and high pedestrian activity o Details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process. o Details of anticipated peak hour and daily construction vehicle movements to and from the site. o Details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle. o Details of temporary cycling and pedestrian arrangement during construction. o Measures to mitigate the impacts of construction activities on other road users ▪ The parking and traffic impacts of the proposed development should take into account the impacts associated with the construction of the proposed exhibit and associated facilities. This should include the potential overlap of other construction projects being undertaken at the zoo at the same time, if applicable.	
5. Noise ▪ Identify and provide a quantitative assessment of the noise generating sources and activities during operation together with designs for feasible and reasonable noise impact avoidance and mitigation. ▪ Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land, including the scheduling of intra-day 'respite periods' from noise-generating construction activities that may impact on adjoining properties. ▪ Construction impacts should include an assessment of on-site and off-site traffic noise impacts and vibration impacts. ▪ Noise and vibration impacts must be assessed in accordance with the relevant guidelines identified in Attachment A.	Refer to **Section 7.4** of this EIS and the Acoustic Assessment prepared by Marshall Day Acoustics enclosed in **Appendix K.**

Requirement	Location in EIS
6. Ecologically Sustainable Development (ESD) The EIS shall: ▪ Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Regulation) will be incorporated in the design, construction and ongoing operation of the development. ▪ Demonstrate how the proposed development responds to sustainable building principles and best practice, and improves environmental performance through energy efficient design, technology and opportunities for renewable energy. ▪ Provide an integrated water management plan that considers water, wastewater and stormwater, including an assessment of water demand, alternative water supply, proposed end uses of potable and non-potable water, water sensitive urban design and water conservation measures.	Refer to **Section 7.5** of this EIS and the ESD report prepared by Edge Environment Consulting enclosed in **Appendix L.**
7. Building Code of Australia ▪ Prepare a BCA and access report demonstrating compliance with the Building Code of Australia.	BCA and Access compliance is discuss in **Section 7.5** of this EIS Refer to the Deemed-to-Satisfy provisions of the BCA prepared by by Matt Shuter & Associates enclosed in **Appendix M.** Refer to the accessibility statement prepared by Matt Shuter & Associates enclosed in **Appendix N:**
8. Water, Drainage and Stormwater ▪ Prepare a Stormwater and Drainage Assessment to assess the impacts of the proposal on surface and groundwater hydrology and quality including the waters of Sydney Harbour and Little Sirius Cove. ▪ Identify appropriate water quality management measures focussing on the management of the impacts from the proposed works. ▪ Prepare a Water Management Plan. This should include stormwater and wastewater management, including any re-use and disposal requirements, details of any proposed alternative water supply, proposed end uses of potable and non-potable water, demonstration of water sensitive urban design and any water conservation measur ▪ The EIS shall also provide details of the proposed effluent collection, treatment and disposal related to the operation of the exhibit, and any associated implications for the sewerage treatments systems at the site and the Environmental Protection Licence No.1677.	Refer to **Section 7.7** of this EIS and the Stormwater, Flooding & Utility Impact Assessment prepared by Warren Smith and Partners enclosed in **Appendix O.**

Requirement	Location in EIS
9. Water and Soils ▪ Prepare a stormwater management report demonstrating how stormwater would be appropriately managed in accordance with Council requirements. ▪ Provide an assessment of impacts of surface water and groundwater, including any impacts on acid sulfate soils, background conditions for any water resource likely to be affected, and impacts on hydrology. ▪ Provide a water quality assessment report to address the impacts on water pollution. ▪ Provide consideration of water sensitive urban design measures. ▪ Assess flooding impacts in accordance with the Floodplain Development Manual. ▪ Assess the risks arising from the disturbance and excavation of land and disposal of soil, including disturbance to acid sulfate soils in accordance with the relevant guidelines identified in Attachment A.	Refer to **Section 7.8** of this EIS, the Stormwater, Flooding & Utility Impact Assessment prepared by Warren Smith and Partners (**Appendix O**) and the Geotechnical Investigation prepared by Douglas Partners (**Appendix P**)
10. Social & Economic impacts ▪ The EIS must include an assessment of the social and economic impacts of the development, including consideration of any increase in demand for community infrastructure and services.	Refer to **Section 0** of this EIS.
11. Waste Management ▪ Prepare a Waste Management Plan to identify, quantity and classify the likely waste streams to be generated during construction and operation of the development and describe the measures to be implemented to minimise, manage, reuse, recycle and safely dispose of this waste with reference to relevant policies and guidelines. ▪ Identifying appropriate servicing arrangements (including but not limited to, waste management, loading zones and mechanical plant) for the site.	Refer to **Section 7.10** of this EIS**,** the Operational Waste Management Plan prepared by TSCA (**Appendix R**) and the Construction Management Plan prepared by RPS (**Appendix S**)**.**
12. Utilities ▪ Detail the existing infrastructure on site and identify possible impacts on any such infrastructure from the proposal. ▪ Detail measures to mitigate the impacts of the proposal on any infrastructure items, including proposed relocation/augmentation. ▪ Provide details of water supply, consideration of water sensitive urban design and water conservation measures.	Refer to **Section 7.11** of this EIS and the Building Services Infrastructure Report prepared by ADP Consulting enclosed in **Appendix T.**

Requirement	Location in EIS
13. Construction Impacts ▪ Address potential construction impacts during the demolition, site preparation and construction phases of the development, including, traffic, access, noise and vibration, air quality, erosion and sediment control, water quality, waste management and transportation of waste, management and disposal of hazardous materials (including asbestos and lead-based paint), management and disposal of concrete waste and rinse water, and other cumulative environmental impacts. This shall include consideration of potential construction impacts on adjacent exhibits and visitors to the zoo. ▪ Air quality impacts must be assessed in accordance with the relevant guidelines identified in Attachment A ▪ Contamination must be assessed in accordance with the relevant guidelines identified in Attachment A.	Refer to **Section 7.12** of this EIS and the Construction Management Plan prepared by RPS (**Appendix S),** the preliminary Construction Pedestrian and Traffic Management Plan prepared by GTA Consultants (**Appendix J**), the Stormwater, Flooding & Utility Impact Assessment prepared by Warren Smith and Partners (**Appendix O**) and Contamination Report prepared by Douglas Partners (**Appendix Q**).
14. Biodiversity ▪ Assess any biodiversity impacts associated with the proposal in accordance with the requirements of the Biodiversity Conservation Act 2016, including the preparation of a Biodiversity Development Assessment Report, where required.	Refer to **Section 7.13** of this EIS and the Biodiversity Development Assessment Report prepared by Narla Environmental enclosed in **Appendix U.**
15. Landscaping and tree removal ▪ The EIS must include a landscaping plan that: o Assesses the arboricultural significance of trees potentially affected by the proposal. o Clearly identifies the trees to be retained, removed or protected. o Nominates landscaping themes and planting species. o Considers proposals to mitigate adverse project impacts and in particular canopy loss.	Refer to **Section 7.14** of this EIS and the Arboricultural Report prepared by Sydney Arbor Trees enclosed in **Appendix V**.
16. Bushfire and Safety ▪ Demonstrate compliance with the relevant provisions of Planning for Bushfire Protection (PBP) 2006 and detail any bushfire management and/or mitigation measures. ▪ Prepare an assessment on the emergency planning and management measures required to facilitate an emergency services response and the other obligations imposed by clause 43 of the Work Health and Safety Regulation 2000.	Refer to **Section 7.15 of** this EIS and the Bushfire Assessment prepared by Australian Bushfire Assessment Consultants enclosed in **Appendix W.**

Requirement	Location in EIS
17. Staging ▪ Provide an outline of any proposed staging of the works, if proposed.	Refer to **Section 7.16** of this EIS.
18. Developer contributions ▪ Outline the scope of developer contributions required.	Refer to **Section 7.17** of this EIS.
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Regulation. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following: • High quality files of maps and figures of the subject site and proposal • A clear and concise summary • Architectural drawings (to a usable scale at A3) • Architectural design statement • Landscape drawings (to a usable scale at A3) • Landscape design statement • Site survey plan, showing existing levels, location and height of existing and adjacent structures/buildings • Site analysis plan • Shadow diagrams • ESD statement • Geotechnical and structural report • Contamination assessment • Schedule of materials and finishes • Cost estimate/QS report.	The identified relevant plans, architectural drawings, diagrams and documentations are attached at **Appendix A** to **Appendix Z.**
Consultation During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, local community groups and affected landowners. In particular, you must consult with: • Mosman Council • Environment Protection Authority • Transport for NSW • NSW Environment, Energy and Science Group • Heritage Council of NSW • NSW Rural Fire Service • NSW Department of Primary Industries; and • NSW Aboriginal Land Council. The EIS must describe the consultation process and the issues raised and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	Consultation is discussed in **Section 6** of this EIS and the Engagement and Communication Outcomes Report prepared by Urbis enclosed in **Appendix X**.

1. INTRODUCTION

1.1. PROJECT OVERVIEW

This EIS has been prepared by Urbis on behalf of the Taronga Conservation Society Australia (**TCSA**) and in support of an application for Stage Significant Development Application (**SSDA**) (application number SSD-10456) for the Upper Australia Precinct at Taronga Zoo (see **Figure 1**).

Figure 1 – Locality Map

Source: Urbis

The SSDA seeks consent for the redevelopment of the Upper Australia Precinct. The proposed works will upgrade existing exhibits on the site including Nocturnal House, avian wetlands and the commercial Koala Encounters venue. The Upper Australia Precinct will display critically endangered Australian animals that form part of Taronga's wildlife conservation and education programs and upgrade "*star*" attractions including kangaroo, koala, platypus, wombat and emu exhibits.

The proposed development has an estimated capital investment value of $16,475,913 (refer to **Appendix B**). Accordingly, the proposal is classified as a State Significant Development (**SSD**) pursuant to Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011* (**SRD SEPP**).

The Minister (or his delegate) is the consent authority for the proposal in accordance with section 4.5 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**). Accordingly, this DA is being lodged with the DPIE as an SSDA seeking development consent for the redevelopment of the Upper Australia Precinct.

This EIS responds to the relevant matters listed within the SEARs issued on 22 May 2020 (refer to **Appendix A**).

1.2. OVERVIEW OF TARONGA CONSERVATION SOCIETY AUSTRALIA

The Zoological Parks Board Act 1973 (**Zoological Act**) is the Act that governs Taronga and Taronga Western Plains Zoos. A corporation named the "Zoological Parks Board of New South Wales" (**the Board)** is constituted under the Zoological Parks Board Act. The Board may also be called the Taronga Conservation Society Australia and the use of that name has the same effect for all purposes as the use of its corporate name.

Under Clause 5(2)(b) of the Zoological Act the Board shall, for the purposes of any Act, be deemed to be a statutory body representing the Crown.

Taronga Conservation Society Australia has a formal mandate, as defined in Section 15 of the Zoological Parks Board Act 1973, to:

> *(a) carry out research and breeding programs for the preservation of endangered species;*
>
> *(b) carry out research programs for the conservation and management of other species;*
>
> *(c) conduct public education and awareness programs about species conservation and management; and*
>
> *(d) display animals for educational, cultural and recreational purposes.*

The Upper Australia Precinct clearly meets these objectives, as it will display animals for educational, cultural and recreational purposes.

The zoo's animal management activities will ensure the Australian animal collection, its presentation and its care, are consistent with their overall animal strategy, conservation and education strategy and zoo vision.

1.3. STRUCTURE OF THE EIS

The EIS provides the following sections:

- **Section 2:** describes the site and provides a description of the proposed development.
- **Section 3:** details the strategic context including the planning policies and guidelines relevant to the site and the proposal.
- **Section 4:** provides a detailed assessment of the State, regional and local strategic planning policies and the development contributions framework.
- **Section 5:** details the community and stakeholder engagement undertaken by the applicant as part of the preparation of this EIS.
- **Section 6:** provides a comprehensive assessment of the existing environment, potential impacts, and mitigation measures for each of the key criteria in the SEARs.
- **Section 7:** provides an assessment of the proposal against the matters of consideration listed in Section 4.15 of the EP&A Act 1979.
- **Section 8:** lists the recommendations and mitigation measures based on the technical studies undertaken as part of this application.
- **Section 9:** provides concluding statements and a recommendation for determination of the application.

This EIS should be read in conjunction with the supporting information and plans appended to and accompanying this report.

1.4. PROJECT OBJECTIVES

The proposal has a number of key issues and drivers which need to be addressed. Project objectives include:

- Develop world class and immersive animal exhibits that provides for enhanced visitor experience.
- Maintain a high standard of animal welfare and care.
- Ensure DDA compliant site access for all throughout new exhibit areas.
- Revitalise the Upper Australia Precinct and continue to use it for its original purpose for the exhibition of animals native to Australia.
- Showcase native Australian landscapes in an unobtrusive way and through working with the existing mature landscaping and topography as much as possible to ensure that the character of the place is retained and that the existing landscaping is respected.
- Integrate the culture of Aboriginal Australians and their connections to wildlife, landscape and conservation and the ability to inform local and international visitors to the site of this element of Australian culture.
- Consult and engage with multiple stakeholders.
- Address operational issues to ensure ongoing viability of the zoo.
- Mitigate any potential construction issues during the development.
- Utilise existing services where possible.
- Ensure visitor and staff safety during construction and operation.

1.5. ANALYSIS OF FEASIBLE ALTERNATIVES

TSCA identified three project alternatives which were considered in respect to the identified need for the updated Upper Australia Precinct. Each of these options is listed and discussed in the following table.

Table 2 – Project Alternatives

Option	Assessment
Do Nothing	If this project does not proceed, the Taronga Zoo Master Plan's vision for the entire Australian Precinct will not be achieved. Further, the Upper Australian Precinct will remain as an outdated attraction, with a number of safety and operation issues unresolved for animals and staff.
Alternative Location	The proposed location forms part of the overall Australia Precinct of the Zoo. The animals in the Upper Australian Precinct are key attractions for both domestic and international visitors to the Zoo and must be located in a highly accessible location close to the main entrance.
Alternative Design	As part of the planning for the Upper Australia Precinct, consideration was given to retaining the existing buildings such as Platypus House and Nocturnal House. Refurbishment of Platypus House posed numerous constraints as buildings the building was 'purpose built' but no longer meets

Option	Assessment
	safety standards for animal care. A separate Local DA has been lodged with Mosman Council for the demolition of Platypus House as part of an 'early works' package. Retaining the current Nocturnal House structure in its current form would also negatively impact on the Precinct's ability to meet current accessibility and safety standards for visitors and staff.
The Proposal (preferred option)	The proposal as outlined in this SSD report. It is considered that the redevelopment of the existing exhibits and surrounding areas presents as the most strategically viable of all the options. The proposal will result in: ▪ New purpose-built facilities which will provide modern enclosures, which allow for functional, best-practice and safer day-to-day operations and management. ▪ Innovative animal and visitor experiences and interactions. ▪ Improved visitor access, including satisfying BCA and access requirements. ▪ Retention of significant vegetation. ▪ Ongoing viability of Taronga Zoo.

2. SITE ANALYSIS

2.1. SITE AND SURROUNDING CONTEXT

Taronga Zoo is located at Bradleys Head Road, Mosman and is situated in the Mosman Local Government area (**LGA**). The site is bounded by Bradleys Head Road to the east, Athol Wharf Road and Sydney Harbour to the south, Little Sirius Cove to the west and Whiting Beach Road to the north.

Taronga Zoo is legally described as Lot 22 on DP843294 and is Crown Land managed by the TCSA (**the Zoological Park Board**).

The zoo is largely divided into geographical sections under the Zoo 2000 'The View to the Future' Master Plan. Animals from the same region are grouped together and the design of the environment in these areas is intended to simulate the native environment of the animals where possible. The Australian Precinct is the closest geographical zone to the Zoo entrance.

Taronga Zoo has been subject to numerous upgrade and redevelopment schemes over time, to stay compliant with contemporary regulations, meet contemporary animal welfare and visitor experience expectations.

2.2. UPPER AUSTRALIA PRECINCT

The Upper Australia Precinct is located at the north-eastern corner of the Taronga Zoo site as shown in **Figure 2**. It comprises an area of approximately 7,900sqm.

The existing facilities largely comprise of existing animal exhibits and enclosures, some buildings (Platypus House and Nocturnal House), pathways and boardwalks, landscaped gardens and the Wild Ropes Course. A curved, sandstone retaining wall approximately 2.5 metres high and 40 metres long is located along the northern and eastern boundary of the Precinct adjacent to the Zoo entrance plaza.

Figure 2 – Location of Upper Australia Precinct within Taronga Zoo in red

Source: Urbis

The Upper Australia Precinct (subject site) is surrounded on three sides by existing zoo facilities and adjoins Bradleys Head Road near the northern main zoo entrance. Adjoining the subject site, to the south, is the Australia Habitat and Taronga Wildlife retreat development which is completed and was open until COVID-19 forced its temporary closure. Further to the east, on the opposite side of Bradleys Head Road is Sydney Harbour National Park.

The nearest residential areas to the proposal site are approximately 200 metres to the north on Bradleys Head Road and Whiting Beach Road. These areas are separated from the project site by Sydney Harbour National Park and the Zoo's car parking, forecourt and main entrance building.

The existing facilities largely comprise open air exhibits, pathways, landscaping and associated infrastructure/servicing areas.

Existing uses and facilities in the Upper Australia Precinct area include:

- Avian wetland (1970s construction).
- Wild Ropes Course (recent construction).
- Nocturnal House (outer walls from original Baboon Pitt and fitout variously 1970s/recent)
- Macropod walk-through (1995 – note: to be removed under Early Works DA)
- Koala experience (recent construction – note: to be removed under Early Works DA)
- Platypus House (1970s construction – note: to be removed under Early Works DA).

Figure 3 – Upper Australia Precinct site photos

Picture 1 Macropod Walkthrough

Picture 2 Commercial Koalas Encounter

Picture 3 Avian Wetlands

Picture 4 Nocturnal House entrance

2.3. HERITAGE

The Zoo was constructed on the current site between 1913-1916, with the official opening date Saturday October 7 1916. Taronga Zoo has been modified extensively over time, reflecting social and cultural changes on approaches to animals in captivity. Many of the exhibits in the Upper Australia Precinct were established in the late 1960s and early 1970s. The wetlands ponds were developed in the early 1970s and have been significantly altered over the years, with the implementation of the Ropes Course preventing access to the wooden walkway. The native landscaping surrounding the Australian sections was undertaken as part of the overall Zoo masterplan in the early 1970s.

The site is listed as Item I34 on the Mosman Local Environmental Plan 2012. The item is identified as the '"Rainforest Aviary", "Elephant House", bus shelter and office, floral clock and upper and lower entrance gates' (see **Figure 4**). None of these items are located within the Upper Australia Precinct.

Figure 4 – Mosman Local Environmental Plan 2012 – Heritage Map

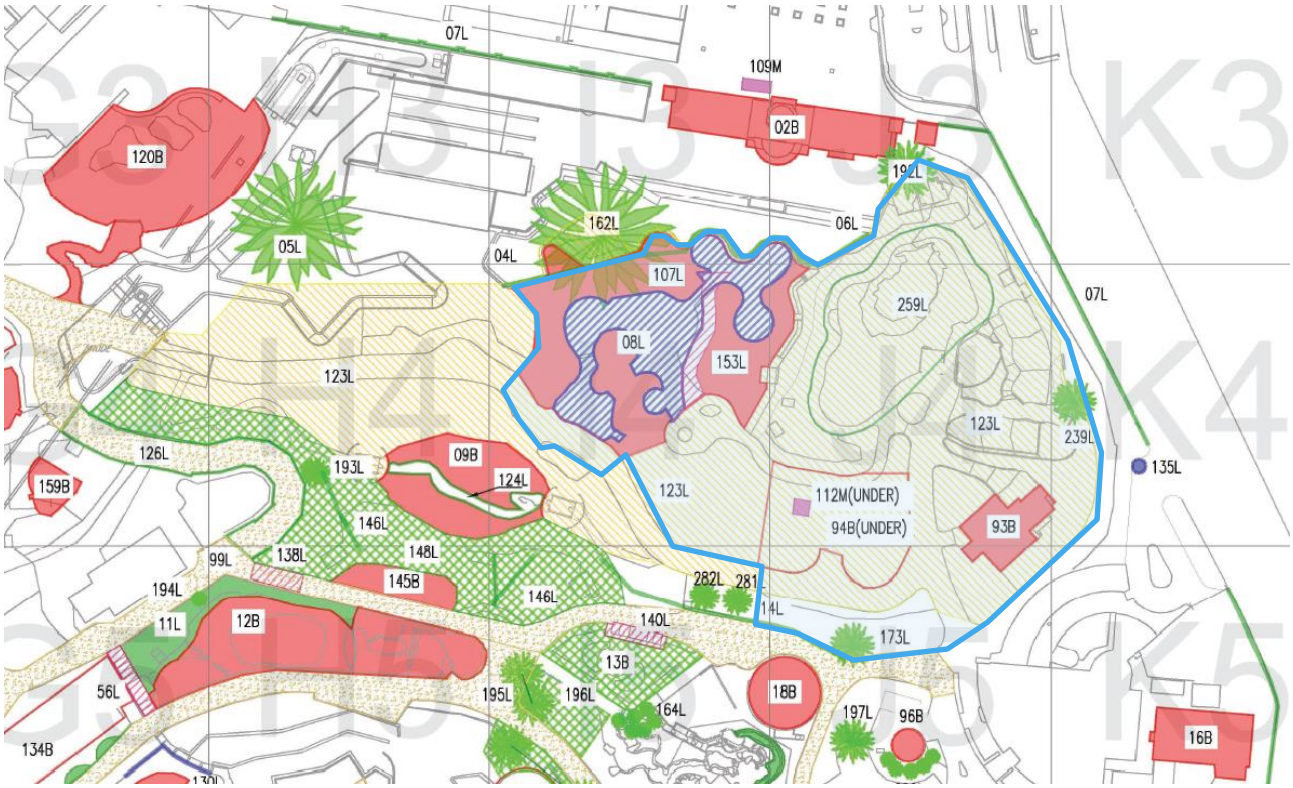
Source: Mosman Local Environmental Plan 2012, HER_003

Multiple items within and surrounding the proposed exhibit are identified as having heritage significance under the Zoological Parks Board (ZPB) Section 170 Heritage and Conservation Register but are not listed within Mosman Local Environmental Plan 2012 (MLEP 2012). These items are identified in **Figure 5** and include:

- 06L - Sandstone retaining wall
- 07L - East Sandstone perimeter wall
- 08L - Stonework and rock benches at Waterbird Lake
- 93B - Platypus House
- 94B - Nocturnal House

- 99L - Early Path Layout
- 107L - Australian Wetlands – ponds on three levels.
- 112M - Sandstone birdbath, inside Nocturnal House.
- 123L - Australian Sections 1 and 2 landscaping, including greybrown brick paths, gutters, raised brick edges, brush fencing.
- 135L - Gate pier
- 153L – Bridge
- 192L - Lophostemon confertus (Brush Box)
- 239L - Lophostemon confertus (Brush Box)
- 259L - Grey Gum and Brush Box, E. punctata and Lophostemon remnants within and around Macropod enclosure.

Figure 5 – Section 170 heritage items within the Upper Australia Precinct - Subject site approximately outlined blue



Source: TCSA

2.4. TOPOGRAPHY

The site comprises an overall gentle slope with a generally shallow thickness soil profile (characteristically of sand and gravel filling) typically less than 1.5 metres deep, overlying low and medium strength sandstone bedrock. The existing environment has been reworked over the years and a typical profile appears to be with shallow depth of soil with fragments and potentially large sandstone boulders or floaters which may not be in their original position or in a flat lying orientation.

The site does not contain any areas of geological significance, such as caves, cliffs or crevices.

There are no natural watercourses located within the Upper Australia Precinct; however, a series of man-made wetlands exist within the Precinct forming part of the Avian Wetlands exhibit.

2.5. FLORA AND FAUNA

A Biodiversity Development Assessment Report (**BDAR**) has been prepared by Narla Environmental (**Appendix U**). Vegetation within the Upper Australia Precinct is largely comprised of planted vegetation that is subject to landscaping, regular maintenance and has been historically cleared for the purpose of creating suitable animal enclosures and wetlands.

Vegetation within the Upper Australia Precinct consists of a mixture of remnant and planted locally indigenous and non-locally indigenous native species, with low levels of weed infestation. No native Plant Community types (**PCTs**) were historically mapped within the Upper Australia Precinct but the following PCT was historically mapped within the Zoo grounds adjacent to the Precinct:

- PCT 1778 - Smooth-barked Apple - Coast Banksia / Cheese Tree open forest on sandstone slopes on the foreshores of the drowned river valleys of Sydney

A total of 21 threatened fauna specified and 3 threatened flora species were identified by DPIE's *Biodiversity Assessment Method Calculator* as potential species within the Upper Australian Precinct. Only one of the flora species (Neilsen Park She-Oak) was surveyed within the site with none of the species located during the site inspection by Narla Environmental.

2.6. TRAFFIC, PARKING AND ACCESS

2.6.1. Existing Road Network

Bradleys Head Road functions as a local collector road and is aligned in a north-south direction linking the area with Military Road and Spit Junction in the heart of Mosman. At the entrance of the zoo, it is a two-way road configured with a two-lane, nine-metre wide carriageway, including a right turn lane to access the Taronga Zoo multistorey and at-grade car parks. Kerbside parking is permitted north of the site entrance and angled parking spaces are marked south of entrance.

Whiting Beach Road is a local road and near the site is aligned in an east-west direction. It is a two-way road configured with a two-lane, eight-metre wide carriageway. Whiting Beach Road provides staff and delivery access to Taronga Zoo car parking and the back-of-house area of the zoo via the northern access. Unrestricted kerbside parking is permitted on the northern side of the road.

2.6.2. Parking

The site currently accommodates 846 car parking spaces within the multistorey car park on site and an overflow parking area on site. Bus bays are also located on site for school excursions and other large groups that arrive by coach.

2.6.3. Public and Active Transport

The Zoo is well serviced by local public and active transport services and is accessible by bus and ferry. Bus stops are located at the main entrance off Bradleys Head Road and the Taronga Zoo ferry wharf is located at southern entrance of the Zoo. All services are available at least every 30 minutes during peak hours.

Based on available information and historical data from the zoo, approximately 60 per cent of zoo visitors travel to and from the zoo by ferry or bus, with the remaining 40 per cent using private vehicles.

The nearest cycle route in vicinity of the site runs along the Bradleys Head Road-Athol Wharf Road.

2.7. SERVICES

The site currently contains and is connected to all necessary services including electricity, water, drainage and sewage. Required, relocation, upgrades and augmentation of these services and infrastructure will occur as required subject to detailed design and construction.

3. DEVELOPMENT PROPOSAL

3.1. PROPOSED DEVELOPMENT SUMMARY

This proposal seeks to redevelop the Upper Australia Precinct which will upgrade existing exhibits on site including Nocturnal House, avian wetlands and the commercial Koala Encounters venue. The Upper Australia Precinct will continue to display critically endangered Australian animals that form part of Taronga's wildlife conservation, public education and awareness programs. Specifically, the SSDA seeks consent for:

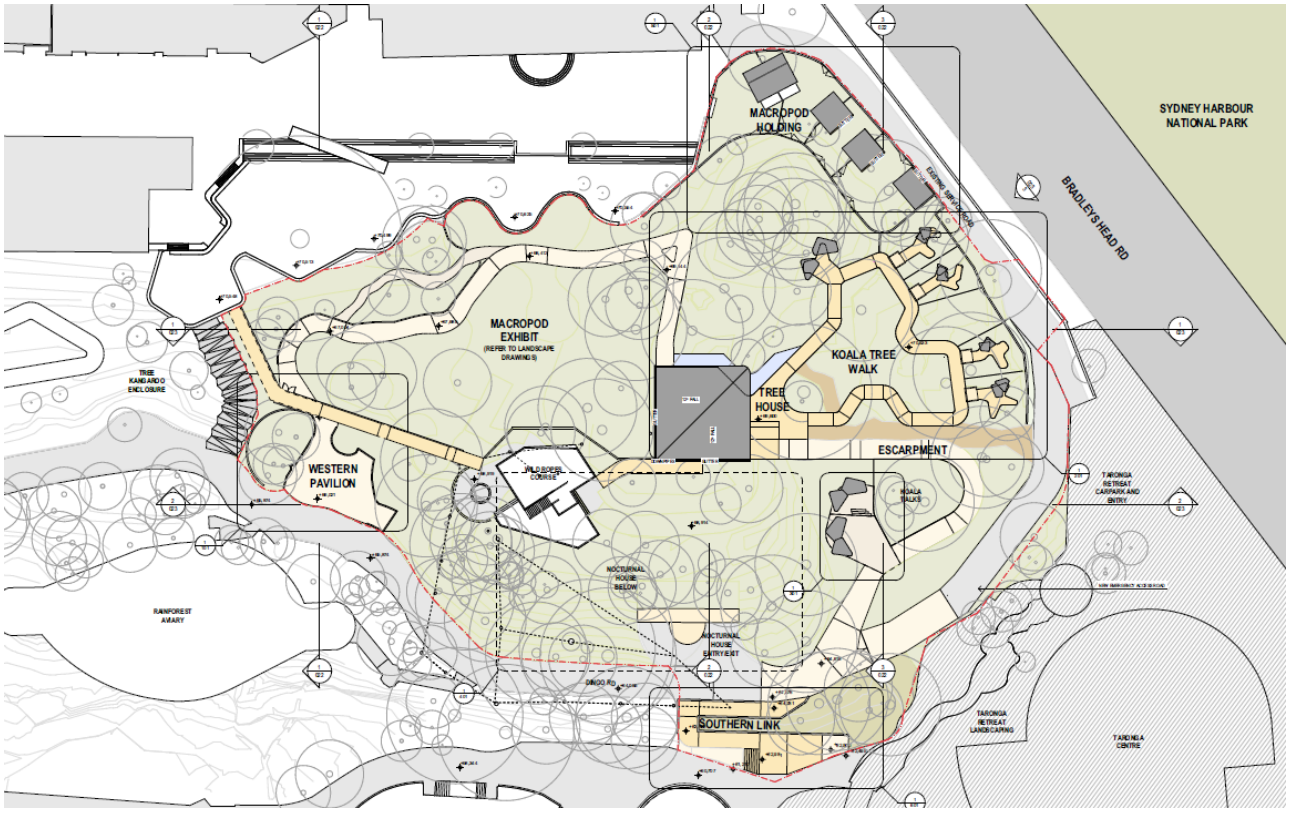
- Demolition of Avian Wetland Ponds and partial demolition of Nocturnal House and the Ropes Course.
- Construction of three main exhibits:
  - The existing Nocturnal House building will be retained and undergo a major refurbishment to create an immersive experience for guests, including new exhibit design and layout, and reconfiguration of the southern entrance to provide a separate entrance and exit point improving the overall accessibility of the subterranean building for visitors and staff. The refurbishment of Nocturnal House will provide Taronga Zoo with a more innovative and immersive space to display nocturnal Australian animals.
  - A Koala Treehouse and tree walk will be constructed to provide guests with a more naturalistic experience to experience koalas at their natural sitting height and will permit relatively close access for photographs, while providing koala containment and avoiding physical interaction between guests and koalas. An elevated walkway located approximately 3-4 metres above the ground will be constructed within existing trees, the area will be supplemented with additional trees to create a forest. This will be located in the same vicinity as the existing koala facility along Bradley's Head Road. The Treehouse itself will allow a shaded space to sit and rest along with commercial opportunities and bathroom facilities. A key function for the Treehouse is to contain the ticketing for Koala Encounters along with a small ‘gift shop’. Internal zoo access to the Ropes Course will also be provided from this building.
  - The current Macropod walkthrough will be extended to include the existing wetland area on the northern perimeter of the precinct. The topography is to be retained and the exhibit will be heavily landscaped to enhance the presentation and welfare of the various quintessential Australian animals, such as kangaroos, wallabies and emus that will be housed in this large open range exhibit.
- Creation of a new Western pavilion which will provide the formal entrance to the Precinct and will be visible from the main entrance of the Zoo to guide visitors into the Upper Australia Precinct.
- Creation of the Escarpment Walk and Southern Link to provide an accessible path of travel from the Treehouse to Nocturnal House and Dingo Road, allowing guests to continue on to the lower part of the zoo. The large ramped walkway will descend the steep site providing a path which showcases the koala exhibit from multiple vantage points. Shaded seating is provided to the west of this exhibit for guests to gather during the scheduled exhibit koala talks by keepers.
- Upgrades to back of house facilities for animal care.
- Additional toilets and amenities for staff and visitors.
- Other supporting infrastructure and walkways including a new fence is proposed within the site boundary along Bradleys Head Road to improve acoustic and visual privacy to animals.
- Excavation works including cut and fill along the western boundary of the Avian Wetlands Ponds and the southern boundary of the Precinct.
- Augmentation and extension of existing electrical, mechanical, hydraulic, stormwater and dry fire systems.
- Landscaping works including the removal of 37 trees.

It is also proposed to provide emergency access to the precinct in the location of the Platypus House which is to be demolished as part of a separate Local Crown DA outlined in **Section 3.8**.

During the demolition and construction works, animals will be moved to other exhibits within the Zoo. Animals usually located within Nocturnal House and the Avian Wetlands are currently in the process of being moved with Koalas. This is scheduled to occur in late October 2020.

The proposed demolition, development and landscaping works are illustrated within the Architectural Plans and Report prepared by Lahznimmo and Spackman Mossop Michaels enclosed in **Appendix B.**

Figure 6 – Proposed Site Plan



Source: Lahznimmo

3.2. DESIGN PRINCIPLES

An Architecture and Landscape Design Statement has been prepared by Lahznimmo and Spackman Mossop Michaels (**Appendix B**). The new Upper Australia Precinct will occupy an area of 7,900sqm with a focus on building upon Taronga's contribution to conservation, science, education and enhancing visitor experiences.

The visitor experience in the upgraded Precinct will be focused around education, inviting visitors to engage with the landscape and animals. Some key strategies to achieve this are:

- To create an experience where the barriers between the animal and the visitor are removed or the perception of barrierless viewing is achieved, whilst still ensuring the welfare of animals;
- To develop world class, iconic and immersive animal exhibits that provides for meaningful animal and human connection; and
- Integrate cultural and interpretive messaging into the exhibits and landscaping to educate visitors and improve the overall connection to country and land.

3.3. MATERIALS AND FINISHES

Materials and finishes have been chosen to reflect the Australia landscape and the journey of visitors. While materials vary across the precinct there is a focus on Australia hardwood, steel and natural materials which can withstand the elements reflecting the ESD principles of the development.

Western Pavilion

The pavilion will consist of a large sculptural built element to provide a visual landmark to the entry and provide an area for the interpretive storytelling for the Upper Australia precinct. This placemaking element will be a mix of natural recycled hardwood and anodised aluminium complementary to the surrounding landscape. A new Ropes Course bridge of hardwood will span above a steel mesh containment fence at the southwestern edge of the Macropod exhibit.

Macropod Exhibit

There is to be minimal built form within the macropod exhibit aside from pathways and occasional bench seating. The existing Ropes Course building borders the south of the exhibit with the new Ropes Course access bridge to the west. The bridge is to sit within the natural environment and be of recycled hardwood timbers. Existing wetland pond edging will be retained where possible to reduce the overall excavation of the Precinct.

Treehouse Viewing Deck

The Treehouse will be predominantly a hardwood timber deck open on three sides with a high timber roof above. The design intent is to present the structure as a shaded deck rather than as a building, emulating a 'treehouse' in the forest. Clear polycarbonate roof sheeting above with open structural timber framing will allow maximum natural light onto the Treehouse. The main materials are to be Australian hardwood timbers with both natural and charred finish.

Koala Exhibit

The Koala walk will be of steel structure with natural Australian Hardwood decking and steel balustrade. Intermittent roof structures of steel and colour anodised aluminium provide sun and rain shelter in select locations and folded corten steel partitions frame the entries to the koala encounter bays. Folded corten steel also provides koala containment fencing at ground level. Steel and coloured anodised aluminium shade structures line the eastern edge of the viewing platform whilst exposed aggregate concrete paths provide an accessible and natural circulation path.

Nocturnal House

The proposed new entry looks to expand the existing entry through removal of existing concrete walls/roof and insertion of new keeper storage access that will provide separation between entry and exit points, allowing for a circular one-way guest movement. The new entry will be built into the landscape as the existing building is, with the finished built form being re-buried where possible to be concealed within the landscape.

3.4. OPERATIONAL DETAILS AND JOBS

The Upper Australia Precinct will operate within the existing operational hours of Taronga Zoo. The seasonal hours remain as 9.30am to 4.30 pm from June 1 until August 31 and 9.30 am until 5pm from 1 September to 31 May.

The proposal seeks to redevelop existing zoo facilities and exhibits and will employ approximately 12 full time staff with additional casual staff. The proposal is anticipated to generate approximately 800 jobs including design, project management and construction over the 18-month design development and construction period.

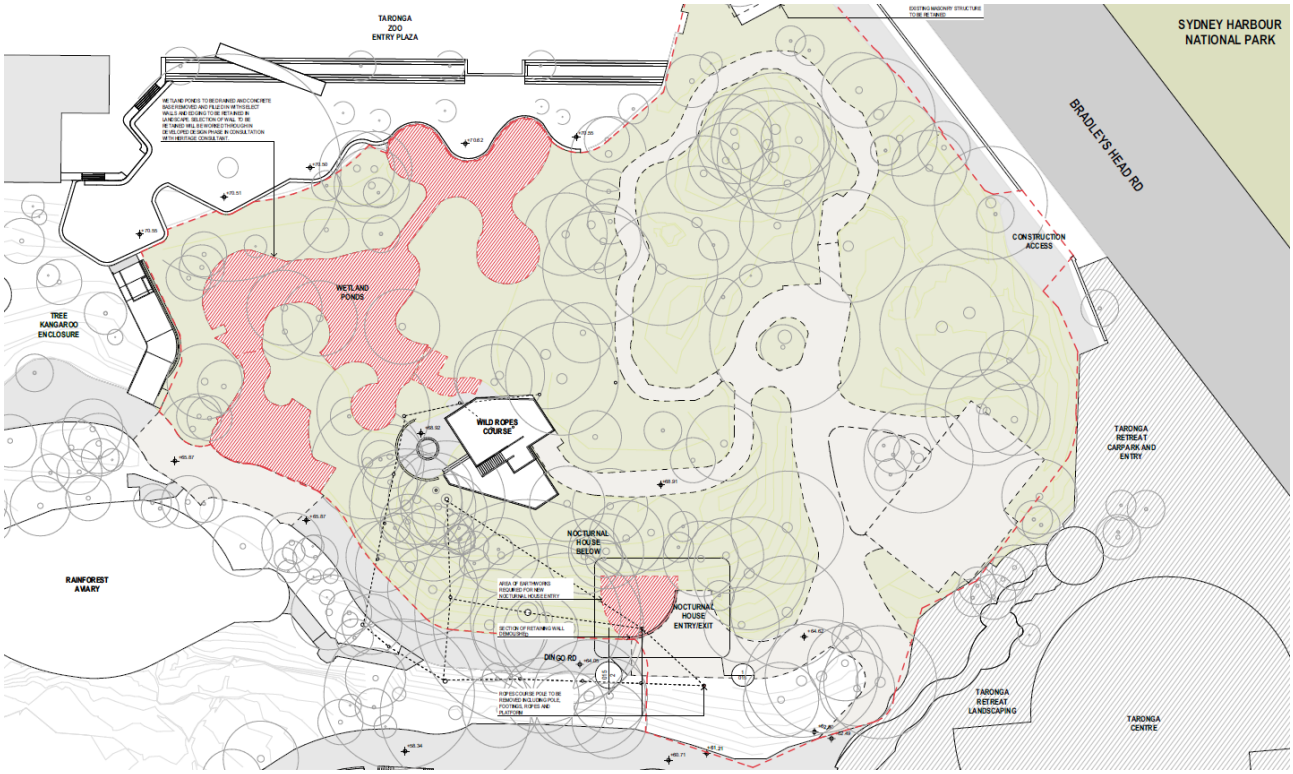
3.5. DEMOLITION AND EXCAVATION

3.5.1. Avian Wetlands

The current Avian Wetlands are to be demolished to form an extension of the existing Macropod walkthrough (see **Figure 7**). The ponds will be drained before the concrete base is removed and filled in. Select walls and edging will be retained for landscaping purposes. Detailed design of the approach will be undertaken in consultation with the heritage consultant.

Excavation is proposed along the western boundary of the wetlands to create a new walkway with all non-contaminated fill to be reused on site.

Figure 7 – Demolition Plan



Source: Lahznimmo

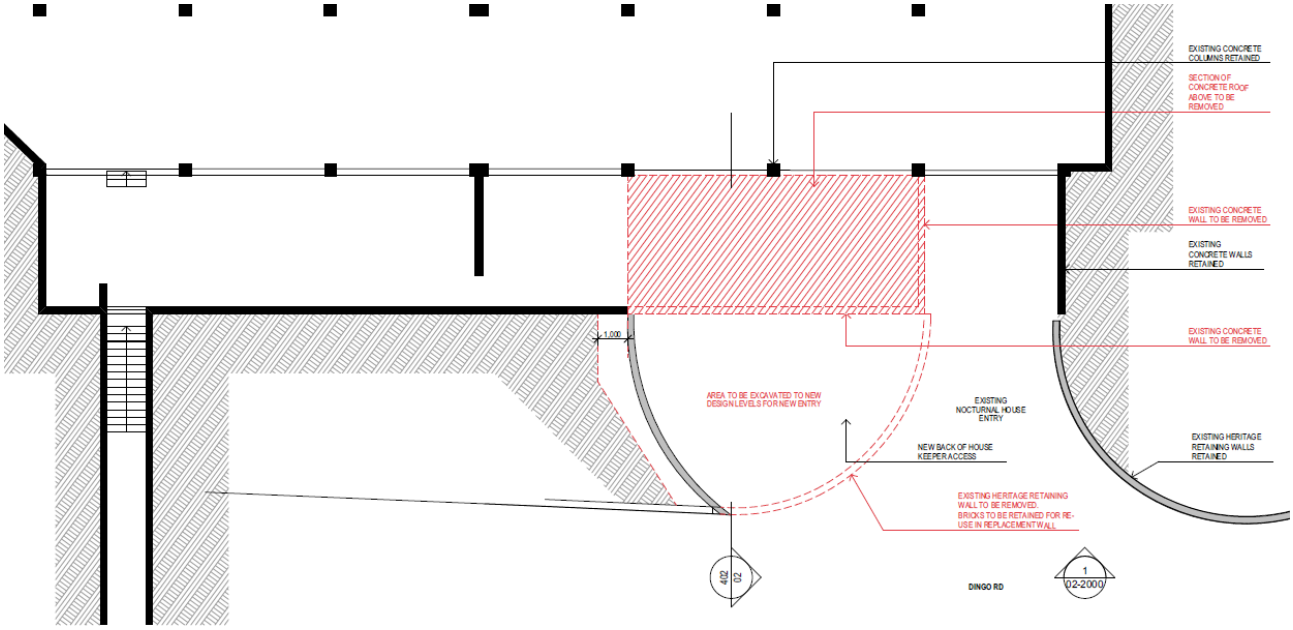
3.5.2. Southern Link and Pathways

Minor excavation works are proposed on Dingo Road adjacent to the southern Nocturnal House entrance to construct the new southern link stairs and ramps along the southern boundary of the Precinct. All cut and fill will be retained. Conversion of footpaths within the Precinct to boardwalks, will require spot excavations for pylons within the Australian wildlife enclosure (123L) where a boardwalk will be installed to minimise surface footprint of the development.

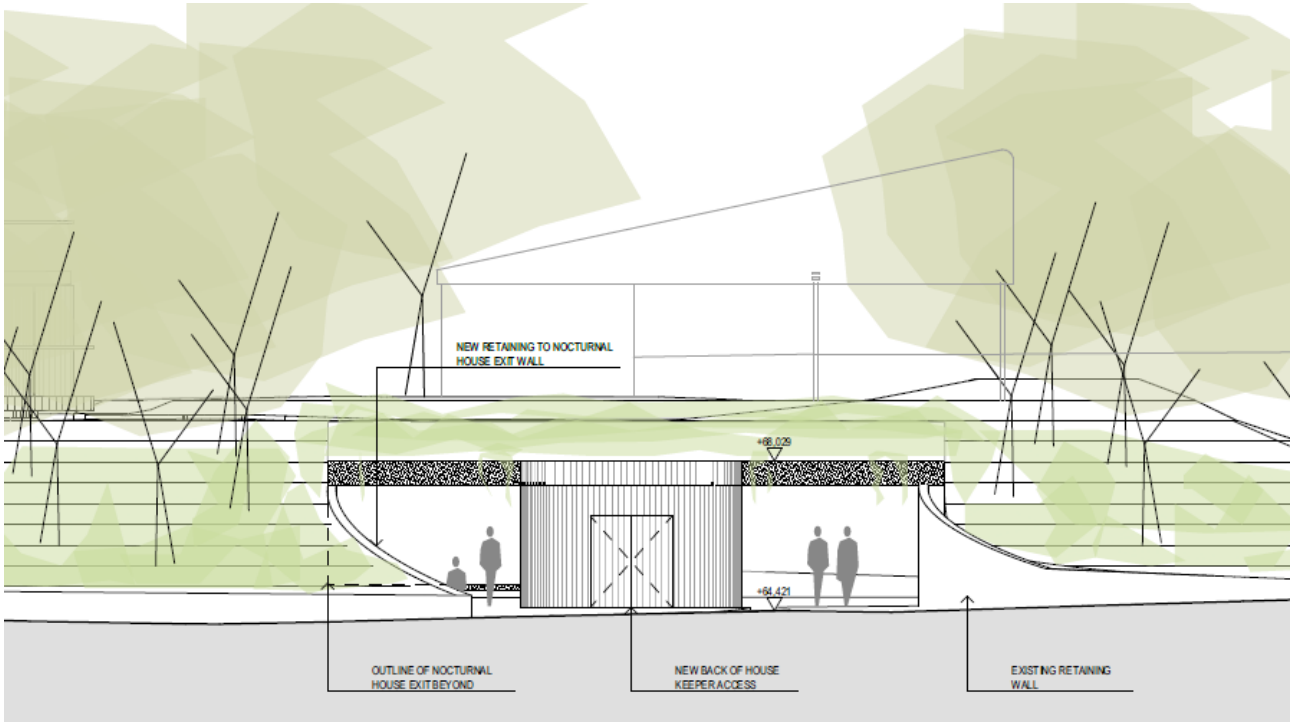
3.5.3. Nocturnal House and Ropes Course

A section of the retaining wall adjacent to the southern entrance of Nocturnal House is to be removed to provide adequate egress for staff and visitors (see **Figure 8**). Separate entrances for visitors and staff will be constructed with direct access for staff to back of house facilities from the southern entrance. Some of the existing Wild Ropes Course poles will also be removed and reinstated in new locations to improve accessibility for emergency vehicles along Dingo Road.

Figure 8 - Proposed external alterations to Nocturnal House



Picture 5 Proposed Demolition Plan



Picture 6 Proposed southern entrance

Source: Lahznimmo

3.6. LANDSCAPE AND PLANTING

Existing planting on site will be complemented with additional native planting elements which reflects the Australian character of the precinct. Plants that will not impact on the continued care and conservation of animals have been prioritised.

Figure 9 – Landscape Zone Plan

Source: Spackman Mossop Michaels

Landscaping across the Precinct has been split into six zones (see **Figure 9**) described below:

Zone 1 (Paperbark Gully) – The predominant trees in this area are Paperbark and Sydney Red Gum. The vegetation is supplemented by low lying ferns and grasses. The hard landscaping in this area includes exposed aggregate concrete and decomposed granite. Opportunities are to be sought in this area as part of detailed design development for the incorporation of salvaged bricks/pavers to reintroduce the historic, characteristic materiality of the area. Stone retaining walls are proposed throughout this section as well as the remnants of the wetlands ponds.

Zone 2 (Dry Rainforest Gully) – The predominant tree in this area is the Paperbark which will be supplemented by low lying ferns and turf. The surfaces will constitute decomposed granite and new stone retaining walls. The natural sandstone animal rock shelter are appropriate in the context.

Zone 3 (Upper Gully) – This area features Paper and Sydney Red Gum as well as Australian Fan Palms. A mixture of low lying grasses and bushes supplement the trees. The surfaces will constitute decomposed granite and new stone retaining walls. The natural sandstone animal rock shelter are appropriate in the context.

Zone 4 (Hilltop Woodland) – The predominant trees in this area are Grey Gum and Sydney Red Gum. A mixture of low lying grasses and bushes supplement the trees. The existing exhibit will largely be retained in this area. However, the existing 1990s pathway is to be removed and replaced with new plantings. The area will feature sandstone animal rock shelters.

Zone 5 (Gondwana Link) – This area is characterised by Sydney Red Gum trees as well as a variety of small flowering plants. This area will feature recycled bricks salvaged from the removal of the 1970s pathways (subject to detailed design). In addition it will include exposed aggregate concrete and decomposed granite consistent with the other zones.

Zone 6 (Existing Landscape Over Nocturnal House) – The existing landscaping in this area was implemented in the 1970s when the Nocturnal House was created by installing a roof over the remnants of the original Monkey Pit. This landscaping has heritage significance and its retention is therefore encouraged from a heritage perspective.

3.7. TREE REMOVAL

The minimum number of trees possible have been removed to accommodate the new exhibits and wherever possible the exhibit has been designed around the existing landscaping. A total of thirty-seven (37) trees will be removed to facilitate the redevelopment of the Upper Australia Precinct. None of the trees to be removed are listed on the Section 170 Register or identified to have a high retention value.

3.8. ACCESS

3.8.1. Pedestrian Access

Pedestrian access from Taronga Zoo will remain unchanged as a result of the proposal. The primary zoo entry is located to the north of the proposed exhibits.

Access has been considered with regard to providing compliant access throughout the new exhibits. Access within the exhibit areas and back-of-house has been considered to ensure safe egress for staff and visitors. The proposal aims to rationalise the existing pedestrian pathways to provide increased levels of access from the Precinct to Dingo Road and the lower part of the zoo.

A review of the proposed plans has been undertaken by Matt Shuter and Associated (refer to **Appendix N**) which confirms that the design of the exhibits, both built form and circulation pathways can comply with the requirements, subject to detailed design.

It is noted, that Taronga Zoo as a whole is consistent with the following guidelines:

- Planning Guidelines for Walking and Cycling;
- Sydney‘s Cycling Future 2013; and
- Sydney‘s Walking Future 2013.

3.8.2. Vehicular Access and Parking

Public vehicle access and parking will remain unchanged as a result of the proposal.

Access to construction vehicles will be via a temporary access point on Bradleys Head Road which will be constructed adjacent to the Upper Australia Precinct. The access point will be created in the wall as part of the Early Works package to allow the appropriately sized vehicles to access the site.

Vehicles will be required to use the bus turning circle at Taronga Zoo Wharf before returning up Bradleys Head Road and accessing the site on their left. Secondary access is also available via the Whiting Beach Road zoo access, although its use will be limited.

3.9. SEPARATE PROJECT WORKS

Separate to this application, TCSA is undertaking the following associated works.

3.9.1. Early works Local Crown DA

To ensure a majority of the most disruptive works can occur while there are no visitors to the zoo, an early works development application (**Local DA**) has been lodged with Mosman Council on behalf of the Crown for the following works:

- Site Establishment;
- Demolition of Platypus House; (Section 170 Register Item 93B);
- Removal of section of the perimeter wall in preparation for construction and will be reinstalled;
- Demolition of Bridge (Section 170 Register Item 153L);
- Removal Brick walls and pathways (Section 170 Register Item 123L); and
- Partial demolition of the Ropes Course.

As the proposed works are considered preliminary to the SSDA, some impacts including construction management will be assessed cumulatively.

3.9.2. Separate exempt works

Separate to the SSDA and Local Crown DA, TCSA will be undertaking the following associated works:

- Demolition of structures used for the exhibition, conservation and care of animals, which do not have any heritage significance, are in accordance with the conservation policy outlined in the Taronga Zoo Conservation Strategy; and
- Animal relocations to temporary facilities and/or off-site removal to other facilities. The temporary enclosures will house some of the animal species during the construction of the exhibits.

These works are to be undertaken as exempt development as per Schedule 2 of MLEP 2012, as the works have a capital investment value of less than $1 million.

4. STRATEGIC CONTEXT

The strategic planning policies and design guidelines identified in the SEARs that need to be addressed include:

- Premier's Priorities
- Greater Sydney Region Plan: A Metropolis of Three Cities
- Zoo 2000 – 'The View To The Future' Master Plan
- Taronga Zoo Centenary Master Plan 2015
- Mosman Development Control Plan 2012
- Our Greater Sydney 2056: North District Plan 2018
- Mosman Local Strategic Planning Statement 2020

The proposal is consistent with the following planning strategies, district plans and adopted management plans as detailed below.

4.1. NSW PREMIER AND STATE PRIORITIES

The NSW Premier has identified strategic priorities to address important issues affecting the people of NSW. The proposed refurbishment of the Upper Australia Precinct is consistent with a key Premier priority to maintain a strong economy via the creation of 800 jobs including design, project management and construction over the 18-month design development and construction period and will ensure that when zoo visitation returns to normal, TCSA maintains its international reputation as a world class zoo, with immersive and educational animal exhibits.

4.2. GREATER SYDNEY REGION PLAN

The Greater Sydney Region Plan, *A Metropolis of Three Cities* (**Region Plan**), outlines the future vision for Sydney, providing a strategy to manage the city's change and growth over the coming 15 years. The Plan responds to Sydney's needs as a growing global city, establishes broad spatial principles for land use change, and sets out a framework to facilitate growth through coordination of planning and infrastructure delivery.

The Upper Australia proposal will improve and enhance the existing zoo facilities and is generally consistent with the various objectives of the Greater Sydney Region Plan. In particular, the project will:

- modernise an important attraction within Taronga Zoo, strengthening Sydney's tourism sector;
- Strengthen Sydney's competitive economy by providing economic benefits and contributing to job creation; and
- contribute to the protection of Sydney Harbour and its foreshore through sensitive design and landscaping.

4.3. ZOO 2000 – 'THE VIEW TO THE FUTURE' MASTER PLAN

A Master Plan for Taronga Zoo Was prepared and adopted in 2002 by the Minister for Planning. The Master Plan comprises the following suite of documents:

- Zoo 2000 'The View to the Future' – December 1999;
- Taronga Zoo Master Plan Urban Design Principles and Visual Analysis (UDAS Guidelines) – May 2001; and
- Taronga Zoo Conservation Strategy – July 2002.

The proposal is consistent with the above documents as discussed in the table below:

Masterplan Component	Response
Zoo 2000 'The View to the Future' – December 1999	The project aims to ensure that Australian animals form a central focus of the Zoo's visitor experience in line with the Master Plan. The exhibit will remain within existing areas of the Zoo previously identified for exhibition space, notably within the "Australian Forest and Wetlands" zoo geographic precinct. The overall design provides better opportunities through the new exhibits to experience and learn about wildlife immersed in the Zoo's landscape. The refurbishment of Nocturnal House is identified in the master plan to "provide better conditions for the animals, more dramatic habitats, and a more compelling story". The overall redesign will provide an immersive experience for visitors aligning with the Master Plan vision.
Taronga Zoo Master Plan Urban Design Principles and Visual Analysis (UDAS Guidelines) – May 2001	The Upper Australia Precinct will support the ongoing operation of the suite as a Zoological Park. The scheme will improve pedestrian and emergency circulation access within the Precinct without impacting on animal safety. It will conserve significant vegetation and other natural features. The project will not materially impact on the present view of 'green vegetation' from the harbour as illustrated in the photomontage contained with the package of Architectural drawings in **Appendix B**. The proposed built form scale and appearance is compatible with the characteristics of the zoo and will not be readily visible when viewed from the Harbour as it remains below the existing tree canopy. Built elements of the exhibits and publicly accessible buildings are designed to connect with the rest of the Australian Precinct with active interfaces to public pathways. External finishes will be selected to reflect the Australian landscape and will adopt natural colours of the vegetation and landforms of the Zoo. ESD measures will be incorporated as further discussed in **Section 7.5**.
Taronga Zoo Conservation Strategy – July 2002	The development proposal for the Upper Australian Precinct is generally consistent with the policies relating to conservation, cultural landscape values, adaptive reuse, access and interpretation contained within the 2002 Conservation Strategy for Taronga Zoo. Notably the proposal: ▪ provides for the continues use of the site as a Zoological Garden, with this precinct housing Australian animals; ▪ preserve the unique topography of the site; ▪ retains significant trees;

Masterplan Component	Response
	▪ does not impact on significant views within and from the site; and ▪ promotes the evolution of enclosure design with the exhibits improving animal conditions in accordance with best-practice. In accordance with the Conservation Strategy a Heritage Impact Statement has been prepared by Urbis for the proposal and is included at **Appendix G** and discussed further in **Section 7.2**.

The proposed Upper Australia Precinct upgrade will provide improved and enhanced facilities that will draw heavily on the zoo's ability to create positive connections between wildlife and people by providing direct access to wildlife.

4.4. TARONGA ZOO CENTENARY MASTER PLAN 2015

The Taronga Zoo Centenary Master Plan 2015 and the 2016-2020 Strategic Plan has been developed to document and communicate the Zoo's key priorities while building on the foundation of the 2001 Master Plan Zoo 2000 – The View to the Future' and the now superseded 2010-2015 Strategic Plan.

The Strategic Plan framework includes the Zoo's values and is supported by organisational commitments to conservation, animal welfare, guest experience, sustainability and work health and safety. In conjunction with the Strategic Plan, the Taronga Zoo Centenary Master Plan and Visitor Experience Program establishes objectives and goals to revitalise the zoo over the next 10 years. The program, announced by the NSW Government in March 2015, includes $150 million of Taronga funded and government co-funded projects to transform visit experiences and create vital animal habitats.

The enhanced Australian Habitat was identified to be delivered in two phases, with the first phase including the Australian Habitat and Taronga Wildlife Retreat, which was completed in 2019. The proposed redevelopment of Upper Australia Precinct forms part of the second phase of revitalisation for Australian animals at Taronga Zoo.

4.5. NORTH DISTRICT PLAN 2018

The *North District Plan* (**District Plan**) builds off the directions and objectives set by the Region Plan tailoring them to the district. The District Plan was finalised in conjunction with the Region Plan in March 2018. The GSC envisaged that the District "*will have quicker and easier access to a wider range of jobs, housing types and activities. The vision will improve the District's lifestyle and environmental assets*."

Tourism is a major contributor to the local economy, with domestic and international tourists visiting its coast and Harbour beaches, national parks, and iconic sites including Taronga Zoo. The District Plan identifies the need to support the continued growth of targeted industry sectors.

The proposed redevelopment of the Upper Australia Precinct aligns with the District Plan by:

- Supporting the growth of an internationally recognised tourism destination.
- Providing upgraded facilities to meet changing needs of visitors and contribute to the ongoing operation of a historically significant facility.
- Providing continued job opportunities within the District.

4.6. MOSMAN LOCAL STRATEGIC PLANNING STATEMENT 2020

The *Mosman Local Strategic Planning Statement* (**LSPS**) identifies Council's 20-year vision for land use planning in Mosman, setting out 14 planning priorities to achieve the Council's vision for Mosman, along with associated actions and the means for monitoring and reporting on the delivery of the actions.

The LSPS acknowledges Taronga Zoo as a 'significant tourism' attractor to Mosman and as a source of local employment. It is noted that key outcomes of the LSPS in relation to Taronga Zoo are to support the existing tourism function of the zoo and protect the scenic qualities of the foreshore site.

Through its public programs, the Zoo will continue to offer a broad range of educational and cultural programs that contribute to the culture of Mosman. The presence of the zoo provides a unique combination of recreational, cultural, tourism and amenity benefits to the LGA.

In particular, the project will:

- Provide improved facilities to meet community needs, and foster a culturally rich, creative and socially connected Mosman community
- Protect, conserve and enhance Mosman's urban tree canopy, landform, waterways and bushland setting.
- Protect, conserve and enhance the natural, visual, environmental and heritage qualities of Mosman's foreshore scenic area, and significant views to and from foreshore slopes.
- Upgrades zoo facilities, which provides a unique combination of recreational, cultural, tourism and amenity benefits to Mosman LGA.
- Provides opportunities for local employment during construction.

5. STATUTORY CONTEXT

Various legislative and statutory planning instruments require consideration in the assessment of the proposal. In accordance with the SEARs, this EIS considers the following applicable to the proposal:

- *Environmental Planning and Assessment Act* 1979
- *Exhibited Animals Protection Act* 1986
- *State Environmental Planning Policy (State & Regional Development)* 2011
- *State Environmental Planning Policy (Infrastructure)* 2007
- *State Environmental Planning Policy No.55 – Remediation of Land*
- *State Environmental Planning Policy No 64 – Advertising and Signage*
- *State Environmental Planning Policy (Vegetation in Non-Rural Areas)* 2017
- *State Environmental Planning Policy (Coastal Management)* 2018
- *Sydney Regional Environmental Plan (Sydney Harbour Catchment)* 2005
- *Draft State Environmental Planning Policy (Environment)*
- *Mosman Local Environmental Plan* 2012

The permissibility of the proposed development and the application of the relevant statutory planning instruments that apply to the site and the proposed development are addressed in detail below.

5.1. ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Development consent for the proposed exhibits is required under Part 4 of the *Environmental Planning and Assessment Act* 1979 (**EP&A Act**). Pursuant to Clause 5 of Schedule 2 of the *State Environmental Planning Policy (State and Regional Development)* 2011 (**SRD SEPP**) development that has a capital investment value of more than $10 million on land identified as being within Taronga Zoo is declared to be State Significant Development (**SSD**) for the purposes of Section 89C of the EP&A Act.

The proposed development has a CIV of approximately $16 million and therefore meets the threshold for SSD. Refer to **Appendix A** for the QS Report.

As the proposed development constitutes SSD the Minister for Planning (or delegate) will be the consent authority. An EIS that meets the requirements set out in Schedule 2 of the *Environmental Planning & Assessment Regulation* 2000 is required to support the State Significant Development Application (**SSDA**) for the development of the Zoo. This EIS satisfies this requirement.

5.2. BIODIVERSITY CONSERVATION ACT 2016

The *Biodiversity Conservation Act 2016* (BC Act) aims to maintain a healthy, productive and resilient environment in accordance with Ecologically Sensitive Development (**ESD**) principles, including an assessment framework for determining the likely impacts of development on biodiversity and threatened species and a consistent methodology for calculating measure to off-set those impacts.

Accordingly, SEARs have been issued by the NSW Department of Planning, Industry and Environment for the preparation of a Biodiversity Development Assessment Report (**BDAR**), which has been submitted by the Applicant at **Appendix U**. Further discussion of biodiversity impacts is provided at **Section 7.13** of this EIS.

5.3. EXHIBITED ANIMALS PROTECTION ACT 1986

The Exhibited Animals Protection Act 1986 identifies the need for approvals to be given for the Zoo to exhibit animals, with certain animals requiring specific permits. The Exhibited Animals Protection Act 1986 will ensure the safety and well-being of animals through the design and approval of animal enclosures.

TSCA sees animal welfare as being of paramount importance. Enclosure designs will exceed the minimum specified standards by a considerable margin. The proposed exhibit designs seek to deliver high quality environments contributing to animal welfare.

A separate application to the NSW Department of Primary Industry will be required to be made for approval of the proposal which seeks to construct and alter animal enclosures and facilities.

5.4. STATE ENVIRONMENTAL PLANNING POLICY (STATE & REGIONAL DEVELOPMENT) 2011

State Environmental Planning Policy (State and Regional Development) 2011 (**SEPP SRD**) was gazetted on 1 October 2011, identifying various types of development and particular sites upon which certain development is defined as SSD).

Schedule 2 of the SRD SEPP lists specific sites that where development has a capital investment value of more than $10 million; works on those sites are state significant. Clause 2 of Schedule 2 identifies Taronga Zoo as a specific site. As the proposal has a CIV greater than $10 million, it is assessed as an SSD.

The Taronga Conservation Society Australia is a statutory body representing the Crown pursuant to clause 5(2)(b) of the *Zoological Parks Board Act 1973* (**Zoological Act**), therefore the Minister for Planning (or his delegate) is the determining authority for the SSD.

5.5. STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007

State Environmental Planning Policy (Infrastructure) 2007 (**ISEPP**) came into force in December 2007 and aims to facilitate the effective delivery of infrastructure across the State. The ISEPP identifies matters for consideration in the assessment of development adjacent particular types of infrastructure development, including all new development that generates large amounts of traffic in a local area.

The provisions of this SEPP are generally not applicable with the exception of Clause 104 and developments listed under Schedule 3 which require referral to the Roads and Maritime Services (**RMS**). Tourist facilities and recreational facilities with 50 or more car parking spaces with access to a classified road require referral to the RMS. The site is accessed via Bradleys Head Road which is classified as a regional road under the Roads Act 1993. No additional car parking is proposed as part of this proposal as the works sought are part of the redevelopment of an existing animal precinct of the Zoo. The proposal therefore does not trigger referral to the RMS.

5.6. STATE ENVIRONMENTAL PLANNING POLICY NO.55 – REMEDIATION OF LAND

State Environmental Planning Policy No.55 – Remediation of Land (**SEPP 55**) requires the consent authority to take into consideration contamination and remediation of land in determining development applications. The authority must be satisfied that land that is contaminated is suitable for the proposed use or will be suitable following remediation of the land.

Land Contamination

The potential for contamination on the site is generally considered to be low, due to the continued use of the site as a Zoo for over 100 years. A preliminary site investigation (contamination) report has been prepared by Douglas Partners Pty Ltd is enclosed in **Appendix Q**. This report confirms no significant soil contamination was found in the analysed samples and the site should be suitable for the proposed development. Further details on soils is included in **Section 7.8** of this report.

Groundwater

There are no water bodies or water courses present on site. Groundwater was identified from one borehole at 0.7 metres depth but the geotechnical investigation concluded the water seeped through from the adjacent man made wetland is expected to be at significant depth below the surface within the bedrock at the site and flows in a southerly direction towards the Harbour.

Acid Sulfate Soils

The site is not mapped as occurring on acid sulfate soils nor mapped as having risk/ probability of exhibiting occurrence of acid sulfate soils. There is a small area of land within the 1500m buffer of the site that is mapped as having a low probability of occurrence of acid sulfate soil risk

5.7. STATE ENVIRONMENTAL PLANNING POLICY NO 64 - ADVERTISING AND SIGNAGE

State Environmental Planning Policy 64 – Advertising and Signage (**SEPP 64**) applies to all signage, which can be displayed with or without development consent under an environmental planning instrument and is visible from any public place or public reserve. This proposal does not include any additional signage on site which needs to be assessed under SEPP 64.

5.8. STATE ENVIRONMENTAL PLANNING POLICY (VEGETATION IN NON-RURAL AREAS) 2017

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 aims to protect the biodiversity values of trees and other vegetation in non-rural areas and to preserve the amenity of non-rural areas through the preservation of vegetation.

An Arborist Report has been prepared by Sydney Arbor Trees and is enclosed in **Appendix V**. An assessment of the impacts of tree removal within the Upper Australia Precinct is included in **Section 7.14** of this report.

5.9. STATE ENVIRONMENTAL PLANNING POLICY (COASTAL MANAGEMENT) 2018

State Environmental Planning Policy (Coastal Management) 2018 (**Coastal SEPP**) aims to ensure that future coastal development is appropriate and sensitive to coastal environments, public access to beaches and foreshore areas is protected and enhanced.

The SEPP categorises land into a variety of coastal management areas. The site is categorised as "Coastal Use Area**".** The relevant controls relating to Coastal Use Areas are not relevant to the site as Clause 14(3) states the controls do not apply to land within the Foreshores and Waterways Area within the meaning of *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* (**SHREP 2005**).

5.10. SYDNEY REGIONAL ENVIRONMENTAL PLAN (SYDNEY HARBOUR CATCHMENT) 2005

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 (**SHREP 2005**) provides planning principles for development within the Sydney Harbour catchment. Taronga Zoo falls within the Sydney Harbour Catchment area. This planning instrument is supplemented by the *Sydney Harbour Foreshores and Waterways Area Development Control Plan* 2005 which provides the detailed design guidelines.

The site is located within the foreshore and waterways area of SREP 2005 and is identified as a "Strategic Foreshore Site". The relevant provisions of SREP 2005 are addressed in the following table:

Table 3 – SREP Compliance table

Clause	Proposal
Clause 13: Planning Principles relating to the Sydney Harbour Catchment	The proposal is consistent with the planning principles relating to the Sydney Harbour Catchment Authority as it will not have any significant adverse impacts on the Sydney Harbour Catchment. Scenic and visual qualities of the Sydney Harbour catchment area will be maintained and protected as the proposed works will replace an existing exhibit, will remain below the existing tree canopy and will not be visible from the Harbour.
Clause 14: Planning Principles relating to	Scenic and visual qualities of the Sydney Harbour catchment area will be maintained and protected as the proposed works replace an existing exhibit and will remain below the existing tree canopy.

Clause	Proposal
the Foreshores and Waterway area	
Clause 15: Planning Principles relating to Heritage Conservation	The site does not have any heritage listing under SHREP 2005. The proposed development facilitates the continued use of the Upper Australia Precinct for its originally intended purpose of showcasing Australian native animals. Any heritage impacts on 170 Register Items can be appropriately managed through the mitigation measures and construction methodologies set out in the Statement of Heritage Impact prepared by Urbis enclosed in **Appendix G**.
Clause 21: Biodiversity, ecological and environmental protection	Appropriate stormwater quality and quantity control measures have been incorporated into the design to ensure there are no adverse environmental impacts. Stormwater generated from the development will be collected for re-use throughout the entire zoo site. Any overflow of stormwater from the Zoo's stormwater drainage system is subject to stormwater treatment to remove gross pollutants before it discharges to Sydney Harbour. This includes stormwater pollution control pits to capture sediment and gross pollutants and remove oil from stormwater runoff. Further details are included in the Stormwater, Flooding & Utility Impact Assessment, prepared by Warren Smith and Partners enclosed in **Appendix O**.
Clause 25: Foreshore & Waterways Scenic Quality Maintenance, protection and enhancement of views	To maintain the scenic quality of the foreshores and waterways, the development is: ▪ Designed to integrate with the surrounds through appropriate architectural form, scale and colour. ▪ Sited and designed to minimise filling and excavation to natural ground level to respect the slope of the land and minimise land disturbance. ▪ Designed to be below the overall tree canopy to minimise the visual impacts when viewed in the context of the surrounding foreshore areas. ▪ Not likely to impact on existing view corridors to other key features of Sydney Harbour due to the low scale of development.
Clause 29: Consultation required for certain development applications	Development listed in Schedule 2 of the SHREP 2005 (demolition) is required to be referred to the Foreshores and Waterways Planning and Development Advisory Committee (**Foreshore Committee**) prior to determination. The proposal is not considered to have any adverse visual, scenic or environmental impacts on Sydney Harbour and its foreshore. The design of the proposal has been carefully considered to blend the facility with the surrounding landscape. This will ensure that the proposed works are recessive in nature and maintains the sensitive amenity of the foreshore locality.
Clause 41: Requirements for Master Plans for Strategic Foreshore sites	Development consent must not be granted for development on the site, being a strategic foreshore site unless there is a master plan for the site and consideration has been made to this master plan. The Taronga Zoo has an approved master plan "Zoo 2000 – The view to the future", which provides a basis

Clause	Proposal
	for the continuing process of renovation, refurbishment and redevelopment of the site. The proposed works are to replace an existing exhibit space and meets the vision of the Master Plan.
Clause 57 & 58: Development affecting matters of Aboriginal and non-Aboriginal heritage significance **Clause 59:** Development in the vicinity of a heritage item	These provisions do not apply as the site of the facilities is not identified as a heritage item in respect to Aboriginal and non-Aboriginal significance under the Heritage Map and Schedule 4 of SHREP 2005. However, the site is listed as and contains items of heritage significance under other environmental planning instruments and studies. Accordingly, an assessment is respect to heritage impacts is addressed separately in the EIS in **Section 7.2.**
Clause 63: Matters for consideration for wetland protection areas	The western and southern boundaries of the site are identified as a "wetlands protection area". The proposed works are limited to the Upper Australia Precinct which is not within close proximity to the wetlands area. Notwithstanding, measures to preserve the quality of the wetlands will be achieved by: ▪ Implementation of appropriate stormwater quantity and quality control measures during the construction and operational phases; and ▪ Implementation soil and erosion control measures during construction.

In summary, the proposal is consistent with the planning principles and relevant provisions of SREP 2005.

SRD SEPP excludes the application of development control plans to SSD projects under Clause 11 but an overall consideration to the Sydney Harbour Foreshores and Waterways Area Development Control Plan 2005 is provided in **Appendix Y** which addresses ecological impacts on Sydney Harbour, the landscape character of the foreshore and design guidelines for land-based developments. The assessment concludes that the relevant provisions and guidelines will be met.

5.11. DRAFT STATE ENVIRONMENTAL PLANNING POLICY (ENVIRONMENT)

The Explanation of Intended Effect for the *Draft State Environmental Planning Policy (Environment)* (**Draft Environment SEPP)** was exhibited from the 31 October 2017 until the 31 January 2018. The draft SEPP proposes revisions to current SEPPs to remove unnecessary or outdated policy and locate provisions in the most appropriate level of the planning system. The new SEPP will repeal and replace seven current SEPPs including *State Environmental Planning Policy No. 19 – Bushland in Urban Areas* and *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*.

The SEPP will deliver a new policy instrument that is consistent with the Standard Instrument Local Environmental Plan Order 2006 and contains a single set of planning provisions for catchments waterways bushland and protected areas. Further comment on compliance with the Draft SEPP (Environment) can be provided once detailed provisions are released by DPIE.

5.12. MOSMAN LOCAL ENVIRONMENTAL PLAN 2012

Mosman Local Environmental Plan 2012 (**Mosman LEP**) is the primary environmental planning instrument applying to the site and the proposed development. The relevant MLEP 2012 provisions applicable to the SSD are reviewed in the **Table 4** below. The proposal is consistent with the relevant objectives and provisions of MLEP 2012.

Table 4 – Mosman LEP Compliance Table

Provision	Comment
Aims of MLEP 2012	The proposed works reflects the various aims of the MLEP 2012 by: ▪ Enhancing an existing recreational and tourist facility for local and international visitors; ▪ Adopting a design that will preserve the natural, visual, environmental and heritage qualities of Mosman and Sydney Harbour including items of European and Aboriginal heritage items on the site; ▪ Maintains views from public streets and private properties towards Sydney Harbour; and ▪ Advocating the importance of ecological sustainability through the overall design of the proposed exhibit and adopting sustainable building materials and construction methods.
Zoning and Land Use (Clause 2.3)	The site is zoned 'SP1 Special Activities' under MLEP 2012 and is identified on the zoning map as "Zoological Gardens". The only uses permitted on the site with development consent is for the purpose shown on the Land Zoning Map including any development that is ordinarily incidental or ancillary to development for that purpose. The proposed redevelopment of an animal exhibit is permitted with development consent and is consistent with the SP1 zone objectives in that it will ▪ preserve the special use of the site as the dominant purpose; ▪ protect the natural characteristics of the site; and ▪ minimises any adverse impacts on surrounding land.
Building Height (Clause 4.3)	No maximum building height applies to the site.
Floor Space Ratio (Clause 4.4)	No maximum floor space ratio applies to the site.
Preservation of Trees (Clause 5.9)	The zoo is planted with a range of exotic and indigenous species and the proposed scheme will require the removal of various trees to accommodate the new exhibit buildings, pathways, fencing and other associated structures. The Tree Protection and Removal Plan enclosed in **Appendix B** highlights any trees and planting to be removed, as well as Tree Protection Zones and replacement trees included as part of the proposal. In summary, the project will involve the removal of 37 low-moderate retention trees but will not lose the overall tree canopy of the site or its bushland setting.
Heritage Conservation (Clause 5.10)	Taronga Zoo site contains several locally listed heritage items, identified as Item I34 being the "Rainforest Aviary", "Elephant House", "bus shelter and office", "floral clock" and "upper and lower entrance gates". None of these items are located within the Upper Australia Precinct. Taronga Zoo and its surrounds also contains a number of archaeological items listed in MLEP 2012 including: ▪ Item A494 "Sites of Curlew and Mia Mia Camps" at Sirius Cove Road on Bushland between Little Sirius Cove and Whiting Beach. This item is

Provision	Comment
	situated on Lot 22 DP 843294 but is located outside of the Zoo's perimeter fence line. ▪ Item A482 "Former Athol Wharf Tram Terminus, including escarpment and retaining walls" on Athol Wharf Road and is described as "Road Reserve adjacent to Taronga Zoo Ferry Wharf". ▪ Item A483 "Site of first wharf serving Taronga Zoo" on Athol Wharf Road and is described as the Taronga Zoo Ferry Wharf. None of these items are located in or directly adjacent to the Upper Australia Precinct site. Notwithstanding, the impact on archaeological items are addressed in **Section 7.2.3** of this report.
Scenic Protection (Clause 6.4)	Pursuant to clause 6.4 of MLEP 2012, the site is identified as a "Scenic Protection Area". Development consent must not be granted to any development on land in a Scenic Protection Area unless the consent authority is satisfied that: ▪ measures will be taken, including in relation to the location and design of the proposed development, to minimise the visual impact of the development to and from Sydney Harbour, and ▪ the development will maintain the existing natural landscape and landform. The proposed works will remain below the existing tree canopy of the precinct and will not be visible from Sydney Harbour or the foreshore. Further, the proposed works will not impact upon existing view corridors. Additionally, Clause 6.4 and Clause 5.9 of the MLEP 2012 require consideration of the preservation and protection of existing natural landscape and landforms, as well as the clearing of vegetation to make way for the new exhibits. The proposal includes the removal of various trees to accommodate the new exhibit. An Arboricultural Report has been prepared by Sydney Arbor Trees and is enclosed in Appendix V, which assesses the impact of the proposed tree removal and highlight tree protection, and vegetation replacement measures. An assessment of the impacts of tree removal within the Upper Australia Precinct is included in **Section 7.14** of this report.

5.13. MOSMAN DEVELOPMENT CONTROL PLAN 2012

Mosman Development Control Plan 2012 (**Mosman DCP**) provides the design guidelines for future developments. SRD SEPP excludes the application of development control plans to SSD projects under Clause 11 but an overall commentary of the project relative to key Mosman DCP guidelines has been included in **Appendix Y**. The assessment concludes that the proposal is consistent with the provisions or will be able to be satisfied through further design development during the detailed planning and design stages. The proposed works reflect the intentions of TCSA to create a world class facility focusing on education and conservation of Australian animals.

6. COMMUNITY AND STAKEHOLDER ENGAGEMENT

Community and stakeholder engagement has been undertaken by Urbis and TSCA in the preparation of the SSDA. This included direct engagement and consultation with:

- Adjoining landowners and occupants
- Government, agency and utility stakeholders listed within the SEARs

The community and stakeholder engagement undertaken has sought to address the requirements of the SEARs and includes:

- High level Engagement and Communication Plan
- Project fact sheet
- Letterbox drop
- Community information session
- Dedicated 1800 number and email feedback channels.

Details of the outcomes of the community and stakeholder engagement is contained in the Engagement and Communication Outcomes Report prepared by Urbis and provided in **Appendix X**.

6.1. COMMUNITY FEEDBACK

At the time of writing the EIS, no feedback has been submitted through the Urbis Engagement enquiry line or email address and no mention of the proposal was detected on social media.

With over 440 individual fact sheets provided to the local catchment for proposal information and feedback requests, it is unusual to have no contact from the local community and stakeholders or attendance at a community information session.

However, given this proposal is minimally invasive to the local community and prior projects have been completed within the Taronga Zoo precinct that were more complex and invasive in nature, it is appropriate to assume the fact sheet provided adequate information regarding the new proposal. The feedback email and phone line will remain open until determination of the SSDA is completed should feedback and/or issues management be requested.

6.2. GOVERNMENT STAKEHOLDER CONSULTATION

Consultation with Mosman Council and DPIE has taken place in advance of the request for SEARs. Further consultation has taken place with some these agencies following the issue of SEARs to ensure that the EIS responds positively to the key assessment matters. TSCA has also been consulting with the Department of Primary Industries in respect of containment of animals.

Notification of the development was also sent via email to the following government agencies:

- Environment Protection Authority
- Transport for NSW
- NSW Environment, Energy and Science Group
- Heritage Council of NSW
- NSW Rural Fire Service
- NSW Department of Primary Industries; and
- NSW Aboriginal Land Council.

In accordance with the Regulations, the EIS will be placed on formal public exhibition once DPIE review the document as being ‘adequate’ for this purpose.

Following this exhibition period, the applicant will respond to any matters raised by notified parties.

7. ENVIRONMENTAL IMPACT ASSESSMENT

This section of the report assesses and responds to the environmental impacts of the proposed DA, in response to the matters for consideration outlined within the SEARs (refer to **Appendix A**).

7.1. BUILT FORM, URBAN DESIGN AND VISUAL IMPACTS

Lahznimmo have provided an Architectural Design Report, enclosed in **Appendix B** that provides background and rationale to the design of the new exhibit which is explained as:

> *"The objective for this exhibit is to showcase native Australian wildlife and landscapes in an unobtrusive manner, whilst conveying an educational message of conservation through minimal intervention. This will be achieved through working with the existing mature landscape and topography along with integration of multi-layered cultural messaging throughout the exhibit.*
>
> *The main exhibit path will snake through various native landscapes, ranging from lush rainforest through to arid woodland and then up into the tree canopy via an elevated boardwalk to view koalas at their natural sitting height in the tree canopy. The Australian journey then winds its way down through the Blue Mountains rock escarpment and then underground into the Nocturnal House; where a complete refurbishment of the existing building will provide state-of-the-art keeper facilities and unique night-time viewing of Australia's nocturnal creatures".*

The design of the proposal is sympathetic to the topography of the site, its bushland setting and Australian theme of the precinct.

7.1.1. Height, bulk and scale

The proposed buildings and structures are designed to sit within the landscape to create an immersive experience for guests. The proposed works sit below a dense tree canopy and new structures will not be visible from Sydney Harbour or from lower down the hill of Taronga Zoo, as illustrated in **Figure 10**.

7.1.2. Visual Impact

Visual impacts have been illustrated by Lahznimmo in the architectural plans enclosed in **Appendix B.**

Sydney Harbour

The Upper Australia Precinct is located on the north-east corner of the zoo and sits within the dense existing tree canopy. **Figure 10** identifies the general location of the precinct as viewed from Sydney Harbour. The visual impact of the proposed works will be obscured from the harbour by the existing mature vegetation, proposed landscaping and will remain below the existing tree canopy.

Figure 10 – General location of Upper Australia Precinct from Sydney Harbour

Source: Lahznimmo

Bradleys Head Road

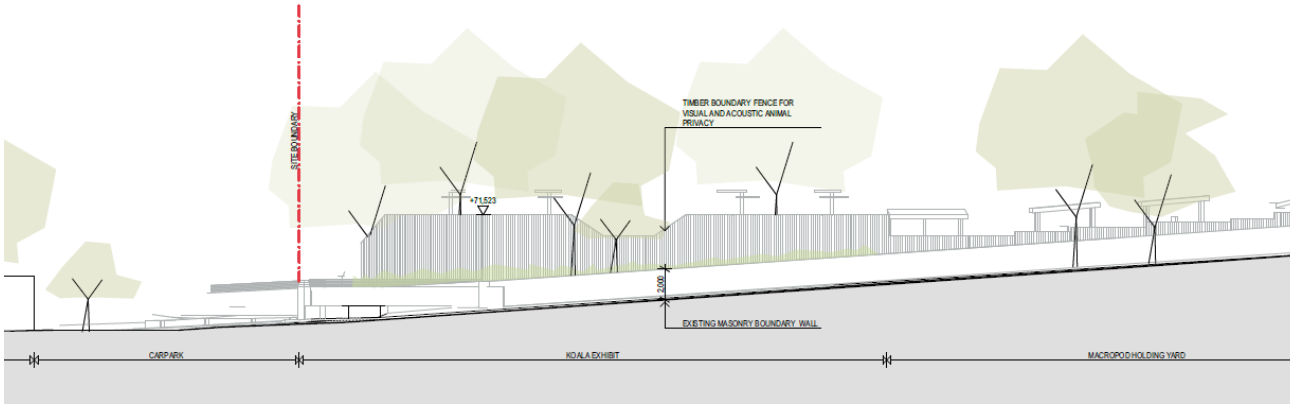
Bradleys Head Road is directly adjacent to the precinct with a heritage masonry wall along the site boundary and back of house facilities for koalas visible within the tree canopy. A new fence is proposed within the site boundary to improve acoustic and visual privacy to animals. **Figure 11** illustrates the overall size of the proposed fence visible from the public domain. The proposed fence sits within the site behind the heritage masonry wall and remains visible within the tree canopy from the street. As illustrated in **Figure 12**, the screen has been designed with a 45 degree angle towards the street to reduce the overall bulk from street view.

In summary, the proposed built form of the Upper Australia Precinct will have a neutral impact on Taronga Zoo's setting and on the visual character of Sydney Harbour more generally. The visual impact of the proposal is entirely acceptable.

Figure 11 – View of Upper Australia Precinct from Bradleys Head Road with new fence outlined in white

Source: Lahznimmo

Figure 12 – East-West site section



Source: Lahznimmo

7.2. HERITAGE

Comprehensive heritage and archaeological studies and management plans apply to Taronga Zoo which has been considered as part of the heritage impact assessment of the proposal. These are the Heritage Council endorsed *Taronga Zoo Conservation Strategy, July 2002* (TZCS); and the *Archaeological Management Plan 2004* (AMP). The following sections address Built Heritage, Archaeological matters and Aboriginal archaeology contained in the SEARs.

7.2.1. Built Heritage

A Statement of Heritage Impact (**Appendix G**) has been prepared by Urbis with the assistance of Jean Rice, Heritage Specialist at Taronga Zoo in accordance with the NSW Heritage Division guidelines 'Assessing Heritage Significance', and 'Statements of Heritage Impact'. There is no Conservation Management Plan relevant to the works. However, the following reports have been considered in the preparation of this document:

- Conservation Strategy, GML, 2002
- Landscape Management Plan, Design 5 Architects, 2006

Taronga Zoo is listed as a heritage items in the SLEP 2102(Item 34). The heritage map depicts the entire zoo as the item, but Schedule 5 qualifies that the listing relates the Rainforest Aviary, Elephant House, bus shelter and office, floral clock and supper and lower entrance gates. None of the elements named in the MLEP 2012 are within the proposed exhibit. Nor will the proposal create any direct or indirect impacts to these elements.

While the proposed works will result in the partial/total loss of some Section 170 Register items, the proposed development is considered to be acceptable from a heritage perspective for the following reasons:

The following aspects of the proposal respect or enhance the heritage significance of the item or conservation area for the following reasons:

- The works will facilitate the continued use of the Upper Australia Precinct for its originally intended purpose of showcasing Australian native animals. Upgrades to animal care and facilities will allow for existing exhibits and animals to be retained on site including koalas, macropods and native animals which reside in the Nocturnal House. While the Wetland Ponds are to be replaced it will allow for a continuation of the existing Macropod Walk and will continue to showcase native flora and fauna.
- The new interior exhibit layout of the Nocturnal House generally follows the existing and the overarching approach will be to retain the existing character of the exhibition spaces which is characterised by Australian native landscape and in a simulated night-time setting. The proposal approach creates and immersive experience with largely open exhibits and opportunities to see back of house areas which is in line with the Zoo's values as an educational facility.
- The overall objective for the landscaping in the Exhibit as set out in the Design Statement prepared by Lahznimmo is to showcase native Australian landscapes in an unobtrusive way and through working with the existing mature landscaping and topography as much as possible to ensure that the character of the place is retained and that the existing landscaping is respected. Excavation is confined to a small area to the east of the Nocturnal House. Further, none of the trees to be removed are listed on the Section 170 Register and none are identified to be of high retention value (refer Aboricultural Assessment Report). A total of 28 of the 37 trees to be removed are of low retention value.

Overall, it is considered that all works are respectful of the significance of the place (in conjunction with the mitigation measures set out below) and the overall revitalisation in accordance with the original design intent enhances many aspects of the Upper Australia Precinct.

The proposal involves the partial/total loss of some items which are identified on the S170 Register. The most notable loss of fabric identified to be of some significance constitutes the removal/infill of the Wetlands Ponds. The proposed Macropod Exhibit to the north west corner of the Precinct is proposed to be constructed over the infilled Wetlands Ponds (item 107L). The wetlands ponds are to be drained and the concrete base will be removed. The wetlands ponds are significant as part of the original design of the Upper Australian Precinct. Some adverse heritage impact must be acknowledged as a result of the infill of these ponds. In order to minimise impacts and ensure some understanding is retained of the development of exhibits in this area, the ponds will be filled in with earth however a small upper portion of the walls surrounding the wetlands ponds will be remain uncovered as a relic to show the original extents of the ponds.

Management Recommendations and Mitigation Measures

The following management recommendations and mitigation measures are recommended to reduce the perceived heritage impacts on the precinct:

- The Heritage Council of NSW is to be notified of the demolition of items listed on the TSCA Section 170 Register.
- The entire section is to be archivally recorded before any works are commenced. Detailed recording of the Wetlands Ponds and the current layout and character of the paths is to be undertaken.
- A Construction Management Plan is to be prepared which outlines the protection of trees to be retained (in accordance with the Arboricultural Impact Assessment Report) and item 06L – the sandstone retaining wall in the vicinity of the Wetlands Ponds (which are to be infilled). If any sections of the Wetlands Ponds are to be removed rather than infilled, removal of fabric by hand is to be employed where any risk exists to proximate items.
- Detailed design development is to include demonstrated consultation with the Heritage Consultant to ensure that the design resolution of the below is sympathetic to the significance of individual items, the Section and the Zoo overall:
  - Selections of walls and edging to be retained and left visible remnant from the Wetlands Ponds.
  - Area for incorporation of salvaged bricks and paving (salvaged from demolition carried out under early works) into new path design.
  - Detailed design of the Nocturnal House entrance and the new alignment of the brick wall to the west of the entrance (bricks to be salvaged).
  - Detailed design of the Nocturnal House exhibits. However, it is appreciated that the design of these is to be driven by best practice for the accommodation and exhibition of animals.
  - Methodology for protection of and item 06L – the sandstone retaining wall in the vicinity of the Wetlands Ponds (which are to be infilled).

7.2.2. Archaeological Assessment

A Historical Archaeological Assessment has been prepared by Urbis to analyse the potential impacts on the historical archaeological (non-Aboriginal) items (**Appendix H**). The standard for assessment, *Assessing Significance for Historical Archaeological Sites and Relics*, was used for the assessment of significance of the site. Historical photographs and plans were also used to assess the significance of the site. A site inspection was undertaken as part of the assessment and a comprehensive historical account of the site previously prepared was reviewed.

This HAA has identified both the archaeological potential and archaeological significance as a means of assessing the potential impacts of the proposal on the non-Indigenous archaeological values of the subject area. Prior to the establishment of the Zoo, the subject area consisted of native bushland, similar to the bushland observed to the east of Bradleys Head Road within Sydney Harbour National Park. The construction of the Zoo has resulted in significant disturbance and clearance of vegetation. It Is considered unlikely that historical archaeological features associated with land uses prior to the Zoo would have survived the early construction of the zoo.

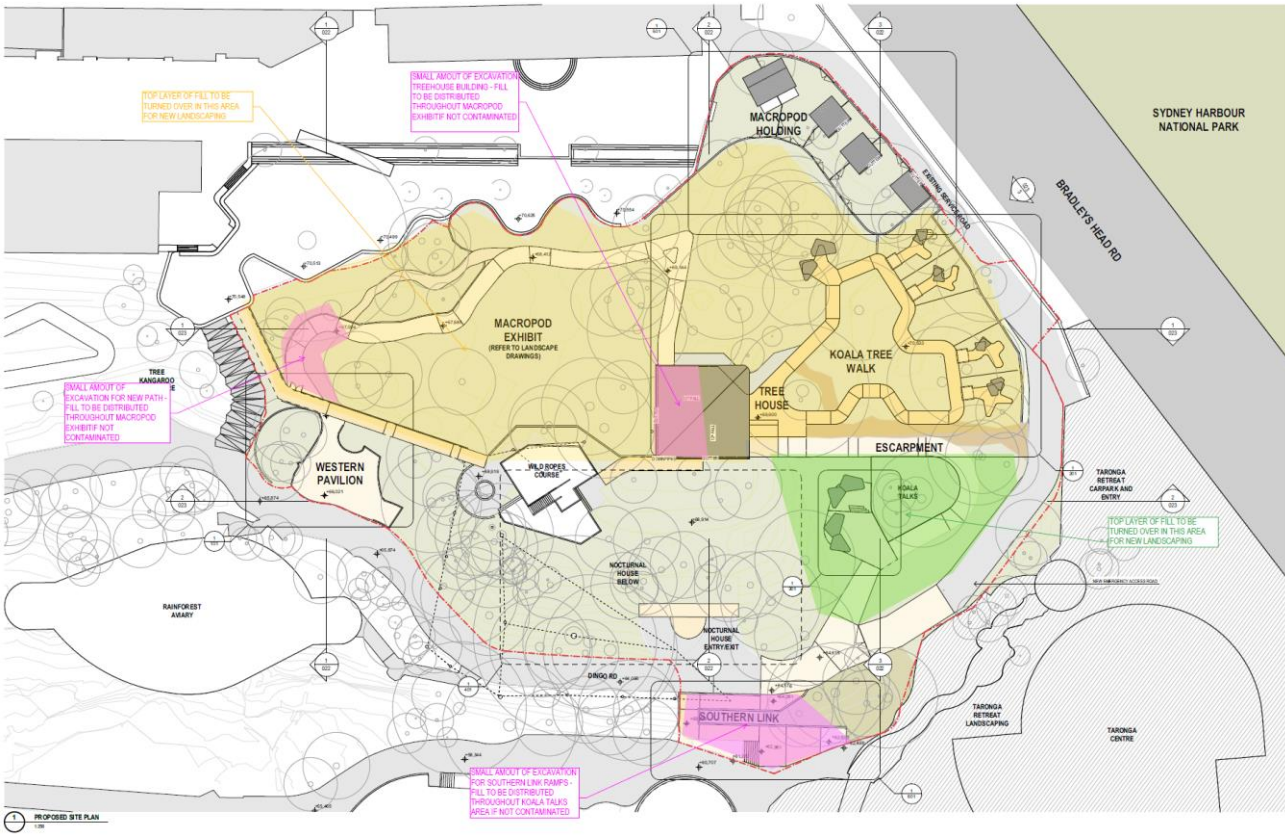
Previous archaeological investigations in the vicinity of the current subject area, with similar land use history or environmental conditions, have identified high levels of disturbance associated with later adaptations of the Zoo, with soil profiles consisting predominantly of imported fill. These investigations exposed a number of historical archaeological remains at varying states of preservation. These findings are consistent with the assertion of the Taronga Zoo AMP that there is high potentiality for the survival of historical archaeological relics across the Taronga Zoo site, including within disturbed profiles.

The proposed excavation works are confined to the northern Wetland Ponds and north-eastern Australian Wildlife enclosure (see **Figure 13**). There is some potential for remnant foundations of the northern Wetland Pond to be impacted by excavations. With the exception of remnant paths, no significant historical archaeological relics have been identified within the subject area. There is some potential for these to be impacted by the proposed spot excavations and insertion of pylons in association with the new boardwalk. Other identified potential archaeological relics, including remnants of the former Baboon Pit, Anteater and Bandstand buildings, are located outside the footprint of the proposed surface disturbance and consequently will not be impacted by the proposal.

Management Recommendations and Mitigation Measures

The archaeology assessment has determined that there is low to moderate potential for archaeological relics to be located within the footprint of the proposed works. It is therefore recommended that an Excavation Permit be obtained in accordance with Section 139 of the Act to monitor the works within the proposed surface disturbance areas. Monitoring should be undertaken by a suitably qualified archaeologist throughout the excavation process in line with the conditions of the issued permit.

Figure 13 – General location of proposed excavation



Source: Lahznimmo

7.2.3. Aboriginal Archaeology

Urbis have prepared an Interim Aboriginal Cultural Heritage Assessment (**Appendix I**). A Full Aboriginal Cultural Heritage Assessment will be completed prior to the determination of the SSDA in response to the requirements of the SEARs.

This ACHA has concluded that there is only a low potential for Aboriginal objects to have survived within the subject area. Consequently, there is highly unlikely that the proposed development will harm Aboriginal objects or archaeological resources and no management measures for avoidance are warranted.

As an additional measure, monitoring of earthworks and excavations is proposed to ensure that the Chance Find Procedure is implemented in the event of identifying any Aboriginal objects or archaeological resource.

7.3. TRAFFIC, PARKING AND ACCESS

A Traffic Impact Assessment (**TIA**) has been prepared by GTA Consultants to assess the anticipated transport implications of the proposal during operational and construction stages.

7.3.1. Parking

The site currently accommodates 846 car parking spaces within the multistorey car park on site and an overflow parking area on site. The results of the parking analysis undertaken by GTA based on date from TCSA indicate that the historical 85th percentile peak parking occupancy was 618 spaces with minimum of

216 available car parking spaces. The number of days which the parking demand exceeded the capacity was in average of five to six days over a one-year period.

Mosman Council's DCP does not specify a car parking rate for zoos or similar uses. Similarly, the RMS *Guide to Traffic Generating Developments* does not specify a parking rate for the proposed uses. The proposed works involve the redevelopment of an existing exhibit of the zoo. Further, the site area for the zoo will not increase to upgrade the exhibits and therefore would not intensify the existing visitation numbers.

The proposed Upper Australia exhibit is not expected to generate any increase in parking demand over the long term. The existing multistorey car park would have sufficient capacity to accommodate the anticipated 85th percentile additional peak parking demand of 93 spaces associated with the temporary increase in parking demand associated with the initial opening weeks visitation surge and when accounting for the guests of the Australia Habitat & Taronga Wildlife Retreat.

Therefore, the proposal will not be required to provide any additional onsite car parking with additional capacity to accommodate a temporary increase in expected parking demand during the initial weeks following the opening of the redeveloped exhibit and as such it is not anticipated that mitigation measures are necessary.

7.3.2. Traffic Generation

The average site peak hour traffic generation of the zoo has historically been approximately 250 and 310 vehicles during the peak period between 1:00pm and 2:00pm on weekdays and weekends, respectively. The temporary increase in traffic generation is then expected to be some 25 to 30 additional vehicles per hour during the site peak hours.

The operation of the key intersections of Bradleys Head Road and Whiting Beach Road have been assessed using the SIDRA model to identify any impacts on traffic generation post-development. Based on the assumption that 80% of additional traffic would use Bradleys Head Road, the Level of Service remains at a Level A LOS and local traffic can operate satisfactorily without any mitigation measures.

Further analysis has been undertaken to assess any temporary changes in traffic generation caused by an initial surge in visitation and the reopening of the Wildlife Retreat. During this time, the additional traffic generation is expected to be some 38 to 43 vehicles per hour during the typical site peak hour. For this temporary period, this equates to less than one additional vehicle per minute. It is expected that the local traffic conditions near the site would not be affected by this temporary increase and as such it is not anticipated that mitigation measures are necessary.

It should be noted that due to the current COVID-19 pandemic, the majority of recent visitors to Taronga Zoo have travelled via private vehicles rather than public transport due to social distancing requirements. It is expected that the local traffic conditions near the site would not be affected by this increase in private vehicles as numbers are far below peak capacity for the Zoo.

7.3.3. Green Travel Plan

A Green Travel Plan is a package of measures aimed at promoting sustainable travel and reducing reliance on the private car for staff and visitors to the zoo.

A Green Travel Plan and Transport Access Guide (**TAG**) have been prepared for previous SSDAs on site including the Taronga Institute of Science and Learning which outlines travel modes for staff and visitors and set targets and measures to increase use of public transport and carpooling for the new facility. The redeveloped Upper Australian exhibit is not expected to increase trips to Taronga Zoo in the long term or have the capability to change travel patterns to and from Taronga Zoo. Furthermore, the proposal will not increase staff numbers at the zoo, with only a 10 per cent increase in visitation expected in the first few weeks after exhibit opening before returning to regular traffic generation.

The TIA recommends that the current TAG and Green Travel Plan are updated to account for any changes once operation and staff numbers are normalised based on a new travel mode and staff residence survey. This survey will allow for TCSA to review the modes of transport into the zoo and adjust strategies and transport initiatives accordingly. In initial discussions with TfNSW, it was confirmed that TfNSW will condition that the detailed GTP should be developed prior to the issue of the Occupation Certificate.

7.3.4. Pedestrian and Cyclist Safety

Pedestrian and cyclist access to the zoo will remain the same as current arrangements during both construction and operation of the Upper Australia exhibit. It is anticipated that proposal may attract some additional walking and cycling trips during the first few weeks after the opening of the redeveloped exhibit. However, the additional trips will not impact on the existing pedestrian and cycling facilities in the area.

The impact of the additional vehicular traffic arising from the development during construction and first few weeks of the exhibit opening would have minimal impact on existing walking and cycling on the surrounding road network.

Similarly, the proposal would generate some additional trips utilising the existing public transport system. It is expected that these trips would be modest and are unlikely to result in any additional capacity stress on current public transport systems in the area.

7.4. NOISE

An Acoustic Assessment has been prepared by Marshall Day Acoustics (**Appendix K**) assessing the potential noise impacts associated with the proposed development. In order to assess background noise levels at the site, MDA has deployed an unattended noise logger within the work site location from 20 May 2020 to 02 June 2020. The noise logger data was processed according to the Noise Policy for Industry (NPfI) for weather corrections. Due to the extensive flora present on the site, the weather elements such as wind are categorised as being a feature of the site. Therefore, we have elevated the wind speed limit to which noise data is usually corrected from 5 m/s to 6 m/s. This corresponds to the guidance in the NPfI regarding weather exposed sites.

The nearest residential premises are located along Bradleys Head Road, with the nearest residences approximately 200 metres from the site at 1 Bradleys Head Road and 2 Whiting Road. Only receivers outside the Taronga Zoo grounds have been considered within this report.

7.4.1. Operational Noise

- Patron Noise
- Mechanical and Services Noise
- Public Address System Noise
- Traffic Noise

As the site is the redevelopment of an existing animal precinct, there is no perceived impacts to surrounding sensitive noise receivers above the day to day operational expectations of the Zoo.

7.4.2. Construction Noise and Vibration

The dominant noise sources for each phase of construction identified in the Acoustic Assessment are outlined below:

- Demolition – Jack hammer, bogie truck, concrete saw/ring saw
- Piling and shoring – Jack hammer, bogie truck, auger piling rig
- Excavation – Jack hammer, 27t excavator, bogie trucks
- Construction (structure) – Tower crane, concrete truck, bogie truck, concrete saw/ring saw, electric winch
- Construction (finishes) – Tower crane, flatbed truck, hydraulic bar cutter

Management Recommendations and Mitigation Measures

To minimise impacts on surrounding noise sensitive receivers, the following recommendations are outlined in the Acoustic Assessment prepared by Marshall Day (**Appendix K**) and the Construction Management Plan prepared by RPS (**Appendix S**):

- Ensure that construction work including general demolition, site preparation, bulk earthworks, construction and construction-related activities is restricted to the stated normal working hours with high noise-generating activities scheduled to be undertaken when background noise, including local road traffic, is high to provide masking to construction noise.

- Inform surrounding neighbours ahead of time of the intended scope of works regarding noise.
- Excavating of rock, and the use of jack-hammers, pile-drivers, vibration rollers/compactors or the like is to occur on weekdays where practicable or at intervals during the day.
- Where practical, earth mounds or screening will be constructed in sensitive locations, to act as acoustical barriers and to minimize noise emissions.
- The Contractor shall monitor noise and vibration objectively of plant and sensitive receptors. The results of these tests shall be recorded on a regular basis.

7.5. ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD)

The *Environmental Planning and Assessment Regulation Act* 1979 (EP&A Act) adopts the definition of ecologically sustainable development (ESD) from section 6(2) of the *Protection of the Environment Administration Act* 1991. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

(a) The precautionary principle
(b) Intergenerational Equity
(c) Conservation of biological diversity and ecological integrity
(d) Improved valuation, pricing and incentive mechanisms

An ESD Report has been prepared by Edge Environment Consulting (**Appendix L**) for the proposed works, in response to SEARs. The report identifies the design initiatives and features of the proposed development that hold the potential to reduce the overall environmental impact.

Sustainability and Ecologically Sustainable Development (ESD) forms a core part of the Zoo operations and is key to their current and future strategic plan. The current strategic plan commits the Zoo as a leader in conservation, protecting wildlife and empowering people to secure a sustainable future for the planet. Key sustainability objectives and initiatives under the current strategy include:

- 90% waste diversion from landfill and 20% reduction in energy use
- Reduction in water use
- Meaningful engagement with the supply chain
- Support for the United Nations Sustainable Development Goal – Particularly Quality Education, Life Below Water, Life on Land, Climate Action, Sustainable Communities and Responsible Consumption
- Retaining carbon neutral status
- Climate change resilience

Specific ESD initiatives to be considered during the design development of the Upper Australia Precinct are outlined below:

- Incorporating low-impact materials, locally sourced materials, and recycled materials into the project's design to reduce overall emissions and improve the overall life cycle of the project
- Prioritising tree retention and cover across the Precinct
- Incorporation of maintenance lessons learnt from existing developments to ensure a more effective and efficient project.
- Using energy efficient fixtures for heating, lighting and sewer lines in the precinct.
- Improved use of natural waterways for better landscape management - more natural systems for irrigation and reduction of hard surfaces

Combining the design initiatives and strategies noted in the ESD Report, the proposal can reduce its environmental impact, providing a suitable sustainability outcome aligning with the strategic plan for the Zoo.

7.6. BUILDING CODE OF AUSTRALIA

An assessment of the proposed works within Nocturnal House relative to the Deemed-to-Satisfy provisions of the BCA has been undertaken by Matt Shuter & Associates and is attached in **Appendix M**. The assessment has found a number of minor non-compliances in relation to the internal layout of Nocturnal House that will be addressed prior to the issue of the Construction Certificate. Overall, additional performance solutions will be required relating to the following:

- Exit Travel Distances will need to be clarified to confirm if egress through animal enclosures is possible
- The provision of alternative exits to be reviewed
- Nocturnal House provides unisex toilet facilities, further details required to ensure visual privacy between stalls.

An assessment of the proposed works relative to the following regulations relating to accessibility has been prepared by Matt Shuter & Associates and is attached in **Appendix N:**

- Part D3 “Access for People with Disabilities”, Clause F2.4 “Accessible Sanitary Facilities” & Clause E3.6 “Passenger Lifts” of the Building Code of Australia (National Construction Code) 2019 – Volume 1 as relevant to the proposal.
- The Guide to the Building Code of Australia - National Construction Code 2019– Volume 1.
- Relevant clauses of AS1428.1-2001/2009 “Design for Access and Mobility – Part 1: General Requirements for Access New Building Works” published by Standards Australia.
- Commonwealth Disability (Access to Premises) Standards 2010

The report finds that the current proposed works do not require significant recommendations or mitigation measures to meet the above regulations.

7.7. WATER, DRAINAGE AND STORMWATER

A Stormwater, Flooding & Utility Impact Assessment has been prepared by Warren Smith and Partners (**Appendix O**) and summaries the design solutions for the stormwater management for the proposal and the impacts on utilities relating to water. Taronga Zoo is serviced by a private stormwater drainage system that includes a treatment plant located at the southern end of the site. Stormwater is collected and recycled for use around the Zoo and any overflow is subject to treatment to comply with water quality requirements prior to discharging to Sydney Harbour. The proposed stormwater system (**Figure 14**) has been designed to ensure that post development discharge flows from the development site are not greater than the pre-existing discharge flows. Stormwater Plans prepared by Warren Smith and Partners are also enclosed in **Appendix O**.

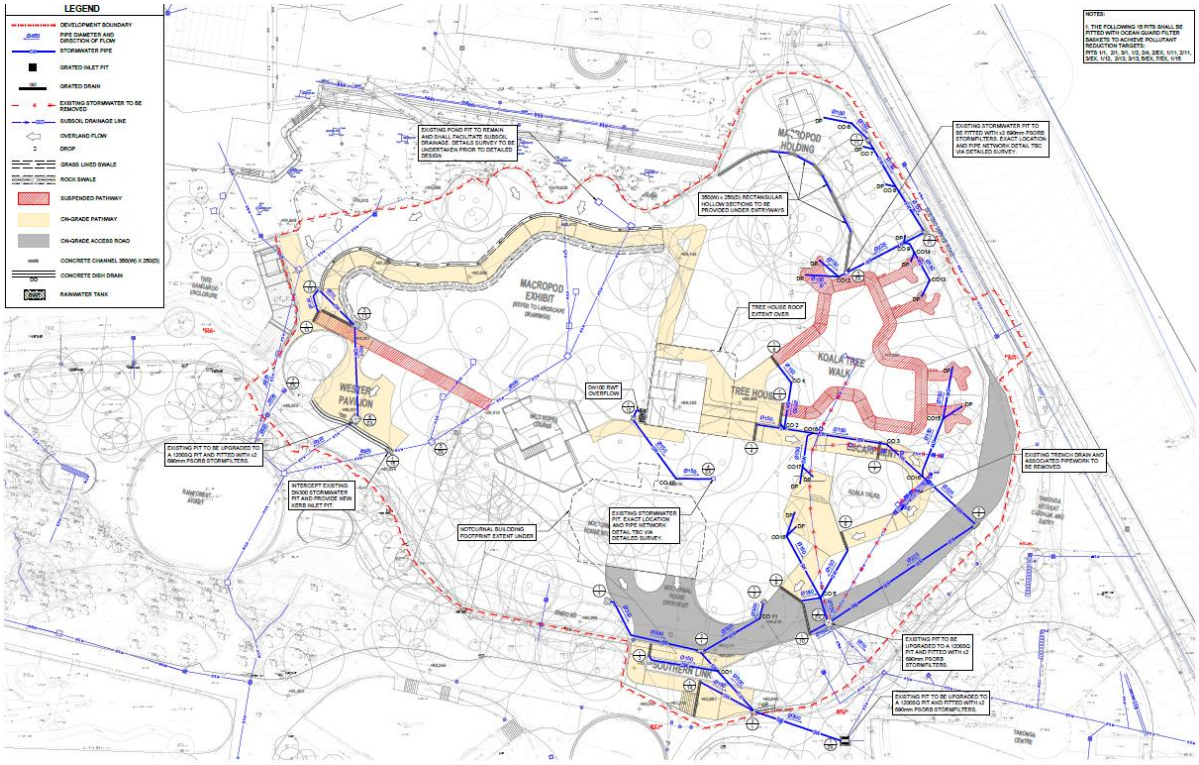
7.7.1. Stormwater Quality and Water Sensitive Urban Design

Various pollutants have been identified by Warren Smith and Partners as potential pollutants to be generated as a result of the development including gross pollutants, e.g. litter; sediments; nutrients (Phosphorus and Nitrogen), and hydrocarbons.

The proposed stormwater management strategy performance was assessed against the standard water nutrient and pollution reduction targets using MUSIC modelling. Based on the proposed treatment systems,

the MUSIC modelling identifies that the proposed stormwater treatment system will meet the required targets for all potential pollutants.

Figure 14 – Proposed Stormwater Layout Plan



Source: Warren Smith and Partners

Management Recommendations and Mitigation Measures

It has been recommended that stormwater treatment devices should be incorporated in the design to manage surface runoff with additional treatment incorporated into the existing stormwater system.

The first level of treatment will consist of filtration systems within the stormwater pits on site. This system will intercept surface runoff at the pit grates and filter the runoff prior to entering the piped stormwater system. The second level of treatment which will be incorporated into the system is a stormfilter system. The stormfilters will be located within stormwater pits and will treat the stormwater prior to stormwater being discharged to the existing private stormwater network.

7.7.2. Water Supply

As the proposed development intends on replacing existing exhibits within the Precinct, it is not anticipated that the water demand for the exhibit will increase. Further details relating to water supply and hydraulic services are outlined in **Section 7.11.3**.

Taronga Zoo has a private water network, used for potable water supply. A private ring main reticulates around the north, east and south of the proposed development site. There is also a public watermain located on Bradleys Head Road. However, there does not appear to be any direct connection to the proposed development site from this asset.

Taronga Zoo also has a private recycled water network, providing non-potable water throughout the zoo. The private main reticulates along Dingo Road to the south of the Precinct and turns north to the east of the existing Nocturnal House. From here it continues north reticulating around the west of the existing Macropod walkthrough, to the top entry pavilion.

7.7.3. Effluent Collection and Treatment

As the proposed development intends on replacing existing exhibits within the Precinct, it is not anticipated that the effluent collection, treatment and disposal for the exhibit will increase. Further details relating to water supply and hydraulic services are outlined in **Section 7.11.3**.

There is an existing Sydney Water DN225 VC sewer asset that traverses the development site, reticulating in a southerly direction. There are also a number of private sewer assets on site that reticulate and discharge to this Sydney Water asset.

The proposed development will need to coordinate with the existing sewer manholes, to avoid impacting the existing surface levels of the structures.

Based on the comprehensive assessment undertaken by Warren Smith and Partners, the proposed stormwater management design discussed within the report will not result in any additional impacts compared to the existing Upper Australian Precinct. In summary, the site has existing infrastructure to meet the demands of the site.

7.8. WATER AND SOILS

7.8.1. Stormwater Management

It is proposed that stormwater within the new development shall be captured via a series of pit and pipe systems that reticulate south and connect into the Zoo's existing private stormwater drainage system. The proposed development site has a significant number of existing trees and so the one combined discharge point is not achievable. The proposed stormwater design utilises multiple discharge points and connects into existing infrastructure where possible.

The stormwater system has been designed such that post development discharge flows do not exceed predevelopment discharge flows for all storms up to and including the 1% AEP storm event, so to avoid exceeding the capacity of the downstream stormwater system.

7.8.2. Flooding

A flood assessment was undertaken by GRC Hydro and is appended to the Stormwater, Flooding & Utility Impact Assessment prepared by Warren Smith and Partners (**Appendix O**). Overall, topographic data indicates that the residential areas of Mosman to the north of the Zoo direct little or no flow towards the Zoo site and grading north of the main entrance building directs any localised runoff towards Bradleys Head Road. In summary, the development site has little to no flood affectation due to the sloping nature of the site towards Sydney Harbour.

7.8.3. Geotechnical Investigation

A Geotechnical Investigation was undertaken by Douglas Partners on 26 and 27 November 2018 under the supervision of zoo keepers. The findings of this investigation are outlined in the Geotechnical Report enclosed in **Appendix P.** The geotechnical investigation included the drilling of seventeen boreholes geological mapping/inspection in-situ strength testing, engineering analysis, a site inspection and photography of the site.

The aim of the investigation was to assess the subsurface soil, rock and groundwater conditions across the site to provide comments on excavation conditions and support, vibrations, groundwater, retaining walls, foundation design and pavements. While the investigation was based on a previous concept plan for the site, the findings would not change as the proposed scheme is consistent with the land uses of the previous concept plan and will maintain a maximum excavation depth of 1.5 metres below existing surface level.

Management Recommendations and Mitigation Measures

Excavation for the proposed redevelopment will be mainly within the filling, natural soils and sandstone bedrock. The following mitigation measures are proposed to ensure construction can occur without any environmental impacts:

- To support the proposed excavation on site, temporary batters and retaining walls may be required for excavation up to 2 metres in depth.
- All excavated material taken off site will need to be disposed in accordance with the provisions of the
- current legislation and guidelines, including Wastes Classification Guidelines.
- Excavation within sandstone will result in vibrations. As the impacts of vibrations on animals in the zoo is not known, it is strongly recommended that zoo keepers/staff assess the affects that vibrations may have on the animals and therefore determine their own vibration limits.

- Due to relatively shallow depth of rock on the site it is recommended that all new structures be founded on the sandstone bedrock on spread footings (e.g. pad footings and strip footings) or on short bored piles.

7.9. SOCIAL & ECONOMIC IMPACTS

The proposed development will result in the redevelopment of an existing animal precinct within Taronga Zoo. The proposed works aim to continue the work of the Zoo to educate and provide world class animal care and exhibits.

7.9.1. Social Impacts

The Upper Australia Precinct will ensure that Taronga Zoo can continue to provide world class animal welfare and education programs for both domestic and international visitors. The proposed works will result in a new and improved animal exhibit at the Zoo that the public will be able to enjoy. Overall, the project will improve the visitor experience with superior engagement between visitors and animals as well as innovation in animal welfare.

7.9.2. Economic Impacts

The Upper Australia Precinct has been fast-tracked by TCSA as a priority project as a result of the unforeseen COVID-19 pandemic, which has significantly impacted Zoo visitation and revenue in 2020 following devastating bushfires earlier in the year. The project will deliver genuine economic benefits in these challenging times, particularly in creating full-time jobs during construction, and will sustain direct and indirect jobs during its ongoing operation.

7.10. WASTE MANAGEMENT

TSCA is committed to ensuring its waste is managed in an environmentally responsible manner and in accordance with legislative requirements, increased resource recovery and minimising environmental impact. All waste generated from the Upper Australia exhibit will be managed in accordance with TCSA's waste management policies and the Zoo's Operational Waste Management Plan enclosed in **Appendix R.**

7.10.1. Demolition and Construction Phase Waste Management

A Construction Waste Management Plan (**CPTMP**) forms part of the Construction Management Plan prepared by RPS (**Appendix S**). The report outlines mitigation measures to ensure the maximum amount of waste material resulting from demolition and early works construction activities are reused and/or recycled to reduce the environmental impact of waste disposal.

The Contractor will be encouraged to implement the following initiatives to ensure waste minimisation:

- Special attention in design and the estimating of materials to minimise waste on-site in off-site fabrication of components for the building.
- Separate building waste from other stockpiled materials in an allocated area on site.
- Separate waste streams on site and place into clearly labelled collection bins for each waste stream.
- Minimise site disturbance and limit unnecessary excavation.
- Implement measures to prevent damage from the elements, odours, health risks and windborne litter.

7.10.2. Operational Waste Management

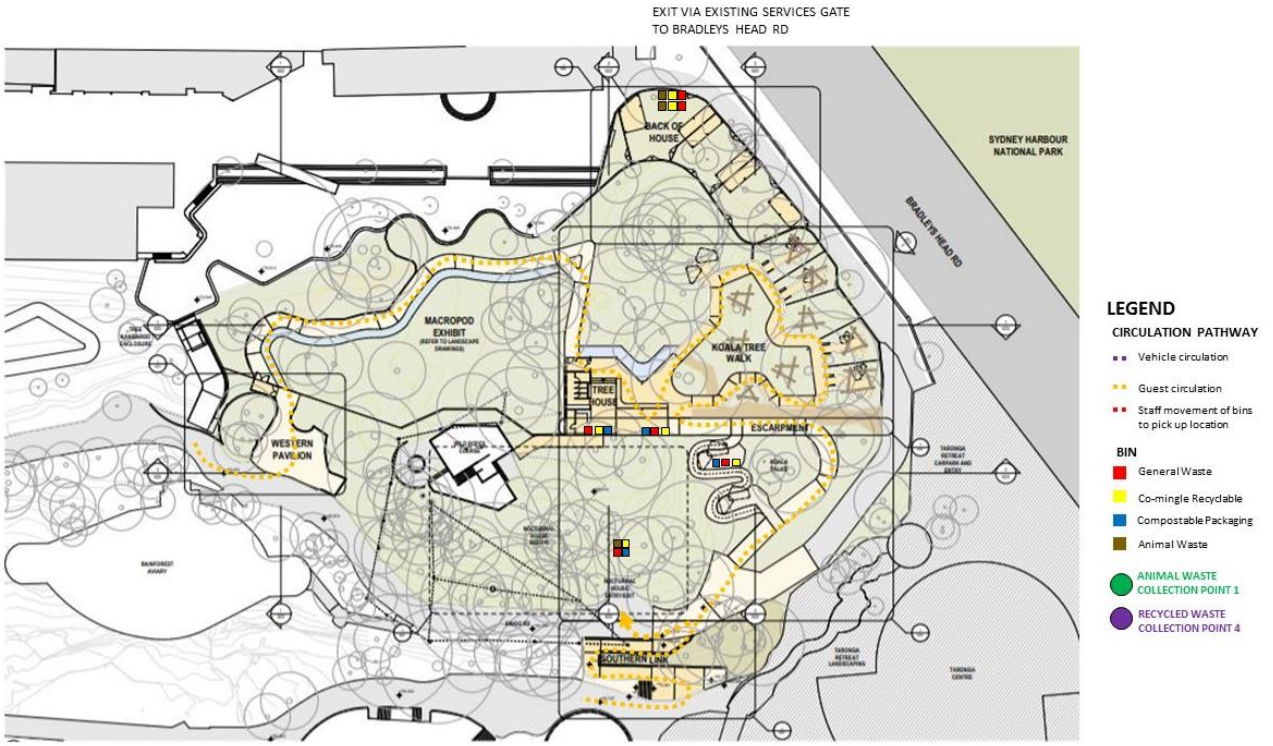
SUEZ Australia have been engaged as the waste operators for the overall Zoo to increase the amount of waste diverted from landfill via processing through alternative waste recycling and treatment facilities. All waste and recycling activities are carried out in accordance with the guidelines and laws of the NSW EPA. In all cases only lawful and approved waste facilities are utilised.

Bin collection procedures will not change on site and collection will occur daily within the Upper Australia Precinct at several bin collection areas illustrated in
Figure 15. **Table 5** provides an outline of general waste types and quantities across the precinct including back of house (BoH) animal care facilities and publicly accessible areas.

Table 5 – Operational Waste Collection details

Workspace	Waste type	Bin Size	Collection frequency	Estimated quantity per week**
Nocturnal House including Back of House (BoH)	▪ General waste ▪ Comingled recyclables ▪ Animal waste ▪ Food organics from animal food prep. ▪	240 litre (120L for food organics)	Daily	175 kgs
Macropod Back of House (BoH)	▪ Animal waste ▪ General waste ▪ Comingled recyclables	240 litre / type	Daily	175 kgs
Koala (BOH)	▪ Animal waste ▪ General waste ▪ Comingled recyclables	240 litre / type	Daily	175 kgs
Treehouse (Public Area Bins)	▪ General waste ▪ Comingled Recyclables ▪ Compostable packaging	240 litre / type	Daily	175 kgs
Treehouse Food and Beverage Outlet (BoH)	▪ General waste ▪ Comingled Recyclables ▪ Organics	240 litre / type (120L for food organics)	Daily	175 kgs
Koala talks (public area bins.)	▪ General waste ▪ Comingled Recyclables ▪ Compostable packaging	240 litre / type	Daily	175 kgs
Sharps Sanitary	▪ Allow for accessible public bathrooms (1) ▪ 1 x public toilet cubicles	Sharps Bin	Daily	

Figure 15 – Bin collection areas



Source: TCSA

7.11. UTILITIES

A Building Services Infrastructure Report has been prepared by ADP Consulting (**Appendix T**) to review the existing building services infrastructure for the Upper Australia Precinct and identify the required infrastructure upgrades. It is deemed that the existing engineering services infrastructure will be adequate for the proposed works with new equipment and augmentation to the existing provided in accordance with the latest standards & codes as outlined below.

7.11.1. Electrical Services

The site is currently served by two power supplies originating from two separate substations & Main Switchboards owned and maintained by the Zoo. The supply to the Platypus House is proposed to be removed with the demolition of the building. Utilising the spare capacity from the Platypus House, a new supply reticulated via in-ground conduit is proposed to be installed providing power to the eastern end of the Upper Precinct Site and Tree House. It is estimated that the overall site load will be approximately equivalent to the existing load and so no upgrade to the supply is anticipated.

7.11.2. Mechanical Services

Existing mechanical exhaust and supply air systems are perceived to be at their 'end of life' and will be replaced with a new system including ventilation fans, ductwork and grilles as well as air conditioning. Extent of plant space required to be determined once finalised heating and cooling requirements for the animals and guests have been clarified. It is proposed to conceal external plant from public view as best as possible, possible located behind acoustic screens if required. The remainder of the Upper Precinct is external or proposed to be naturally ventilated and so no additional mechanical systems shall be installed.

7.11.3. Hydraulic Services

Replacement of hydraulic services will be required within Nocturnal House to allow for cold water and sanitary drainage to the new kitchen and toilet areas. It is anticipated that existing cold water services and drainage used in the existing exhibits can be retained and reused to suit the proposed layout changes.

7.11.4. Dry Fire Services

The existing Nocturnal House is provided with fire detection and a Building Occupant Warning System over the existing PA system. The existing addressable Fire Indicator Panel is located near the front entrance. It is intended that augmentation and extension to the existing system will be provided to suit the proposed Upper Australia Precinct.

7.11.5. Gas Services

There are no existing gas services within the development site and no gas services are proposed as part of the development.

7.12. CONSTRUCTION IMPACTS

A Construction Management Plan (**CMP**) has been prepared by RPS (**Appendix S**). Demolition and construction will be undertaken in manner to minimise impacts on neighbours and Zoo visitors and staff.

7.12.1. Site Establishment

TCSA will ensure suitable and safe access, including any applicable social distancing precautions, are maintained at all times around the site for staff and visitors to the construction site. The site contractor will prepare an Access Plan prior to the start of works on site, which will incorporate:

- Temporary signage around the site at key locations accessible to visitors (indicatively shown with a 'S' on the plan below).
- Temporary pedestrian crossing, paths and ramps (if required).
- Hoardings and protective screens and covers (as shown in indicatively in red on the plan below).
- Temporary lighting.

7.12.2. Construction Pedestrian and Traffic Management

A preliminary Construction Pedestrian and Traffic Management Plan (**CPTMP**) forms part of the TIA prepared by GTA Consultants (**Appendix J**). The CTMP details the proposed management of traffic during the construction phases, including the type of constructing vehicles, haulage routes, hours of operation, access arrangements, traffic control and proposed locations for handling materials, having regard to existing levels of traffic in the surrounding road network, it is found that construction vehicle movements to and from the site can be satisfactorily accommodated without impacting on existing levels of service.

Parking demand associated with construction workers will also be able to utilise the existing car parking on the site given the surplus of on-site parking that will be available during construction days. Peak vehicle movements relating to the construction works will only overlap with the zoo's peak operation on a Saturday between 1:00pm and 2:00pm. Overall, construction traffic is likely to generate an additional two to three vehicles per hour on Saturdays, which is considered acceptable and can be accommodated by the local road network.

No other construction works will be occurring on site at the same time as the redevelopment of the Upper Australia Precinct with early works proposed as part of the Local Crown DA will be completed prior to the start of SSDA works.

7.12.3. Sediment and Erosion Control

A Stormwater, Flooding & Utility Impact Assessment has been prepared by Warren Smith and Partners (**Appendix O**) and summaries the design solutions relating to Sediment and Erosion Control on site. The following mitigation measures are proposed during demolition and construction to inhibit the movement of sediment off the site:

- Construction vehicles leaving the site shall be required to pass over a Temporary Construction Vehicle Entry consisting of a 1.5m long by 3m wide 'cattle rack'.

- All exposed earth areas where it may be possible for runoff to transport silt down slope shall be protected with a sediment and erosion control silt fence generally installed along the boundaries of the site in accordance with details provided by the Department of Conservation and Land Management.
- Existing stormwater infrastructure is also to be protected from incoming sediment using the following methods with filtration systems and drainage pits.

It will be the responsibility of the contractor to ensure sediment and erosion control devices on site are maintained. The devices shall be checked daily and the appropriate maintenance undertaken as necessary.

7.12.4. Temporary Stormwater Management

Site runoff within the zones of the excavation will be drained into a central holding well within the excavation. Runoff will be allowed to settle out suspended particles and debris, and an acceptable water of 50mg per litre of Non Filterable Residues is required to be achieved prior to discharge.

7.12.5. Dust Control and Air Quality

A Stormwater, Flooding & Utility Impact Assessment has been prepared by Warren Smith and Partners (**Appendix O**), which summaries dust control procedures to be adhered to during construction and demolition to meet air quality requirements. These requirements are:

- Loose loads entering or leaving the site will be securely covered by a tarpaulin or like material in accordance with RMS and local Council Guideline.
- Soil transport vehicles will use the single main access to the site.
- There will be no burning of any materials on site.
- Water sprays will be used across the site to suppress dust. The water will be applied either be water sprinklers or water carts across ground surfaces whenever the surface has dried out and has the potential to generate visible levels of dust either by the operation of equipment over the surface or by wind. The watercraft will be equipped with a pump and sprays.
- Spraying water at the rate of not less than three (3) L/s and not less than 700kPa pressure. The area covered will be small enough that surfaces are maintained in a damp condition and large enough that runoff is not generated. The water spray equipment will be kept on site during the construction of the works.
- During excavation all trucks/machinery leaving the site will have their wheels washed and/or agitated prior to travelling on Council Roads.
- Fences will have shade cloth or similar fabric fixed to the inside of the fence.

7.13. BIODIVERSITY

A Biodiversity Development Assessment Report (**BDAR**) has been prepared by Narla Environmental (**Appendix U**) to identify the potential impacts of the proposed development on biodiversity values. The BDAR was produced using the 'Streamlined Assessment Module' as it does not exceed the area clearing threshold for small area developments as outlined in the *Biodiversity Assessment* (2017).

Vegetation within the Upper Australia Precinct is largely comprised of planted vegetation that is subject to landscaping, regular maintenance and has been historically cleared for the purpose of creating suitable animal enclosures and wetlands. The *Native Vegetation of the Sydney Metropolitan Area* (OEH 2016a) indicated the presence of two (2) vegetation types within the Zoo:

- Urban Exotic / Native
- Weeds and Exotics

Vegetation within this Precinct consisted of a mixture of remnant and planted locally indigenous and non-locally indigenous native species, with low levels of weed infestation. No native Plant Community types (**PCTs**) were historically mapped within the Upper Australia Precinct but the following PCT was historically mapped within the Zoo grounds adjacent to the Precinct:

- PCT 1778 - Smooth-barked Apple - Coast Banksia / Cheese Tree open forest on sandstone slopes on the foreshores of the drowned river valleys of Sydney

A total of four (4) ecosystem credits are required to offset the biodiversity impacts of the proposed development.

A total of 21 threatened fauna specified and 3 threatened flora species were identified by DPIE's *Biodiversity Assessment Method Calculator* as potential species within the Upper Australian Precinct. Only one of the flora species (Neilsen Park She-Oak) was surveyed within the site with none of the species located during the site inspection by Narla Environmental.

The development has been positioned to minimise impacts on native vegetation and habitat as much as possible. The majority of the proposed development is to be located within a highly modified environment. To mitigate the removal of native vegetation within the Upper Australia Precinct, a landscape plan prepared by Spackman Michaels has been designed to incorporate native planting within disturbed areas. Further details are incorporated in **Section 3.6**.

Management Recommendations and Mitigation Measures

The BDAR provides recommendations to be implemented before, during and post construction to avoid and minimise the impacts of the project. These mitigation measures should be incorporated into the final Construction Management Plan and the Contractor advised of them. Prior to any construction works or vegetation clearing, the following tasks should be completed by an Ecologist:

- Undertake any required targeted searches for threatened flora prior to vegetation clearing.
- Undertake an extensive pre-clearing survey; delineating habitat-bearing trees and shrubs to be retained/removed.
- Supervise the clearance of trees and shrubs (native and exotic) in order to capture, treat and/or relocate any displaced fauna.

Prior to construction, a Construction Environmental Management Plan (**CEMP**) with relevant mitigation measures must be prepared to ameliorate potential impacts to biodiversity values outside of the development area. The CEMP should include but not limited to sediment and erosion control, tree protection and stormwater management. Specific details on dewatering the wetland ponds should also be prepared. All dewatering works including fauna capture and relocation are to be undertaken by a suitably qualified and licensed Ecologist experienced in species identification and fauna handling skills.

7.14. LANDSCAPING AND TREE REMOVAL

An Arboricultural Impact Assessment report has been prepared by Sydney Arbor Trees (**Appendix V**) to review the impacts of the proposed tree removal on site and provide mitigation measures to minimise the impact on native vegetation. The minimum number of trees possible have been removed to accommodate the new exhibits and wherever possible the exhibit has been designed around the existing landscaping.

A total of 198 trees were assessed by Sydney Arbor Trees during their site visit. A total of thirty-seven (37) trees will be removed to facilitate the redevelopment of the Upper Australia Precinct. None of the trees to be removed are listed on the Section 170 Register or identified to have a high retention value. 9 of the 37 trees for removal are of moderate retention value with the remaining 28 trees to be removed considered to be low retention value and do not require special works or design modification to be implemented for their retention.

While it is noted that the trees to be removed are not individually identified to be significant from a cultural heritage or aboricultural perspective, their contribution to the presentation of Item 123L (Australian Sections Landscaping) is acknowledged. In order to ensure that the overall vegetated character of the section is retained, a holistic treatment to reflect the Australian landscape is prioritised throughout the development.

Management Recommendations and Mitigation Measures

While the retention value of the proposed trees is low-moderate, Sydney Arbor Trees have outlined specific mitigation measures to protect the remaining trees within and around the development area:

- A site-specific tree protection plan should form part of the final Construction Management Plan detailing the location of tree protection fencing, inspection and reporting protocols and any areas where ground protection will be required.

- All pruning must be conducted in accordance with AS4373-2007- The Pruning of Amenity Trees.
- No underground services are to be located within the TPZ or SRZ of any tree to be retained.
- All tree protection measures must be undertaken in accordance with the relevant Australian Standards.

7.15. BUSHFIRE AND SAFETY

The site is identified as bushfire prone land in Mosman Council's bushfire prone land maps and therefore a bushfire assessment relative to the *Planning for Bushfire Protection 2019* (**PBP**) has been undertaken by Australian Bushfire Assessment Consultants (**Appendix W**). Due to the precinct's close proximity to vegetation along Bradley's Head Road, the area could be subject to radiant health levels exceeding 40kw/sqm.

The proposed redevelopment of the precinct will not impact on existing evacuation procedures. A muster point is located in close proximity to the Nocturnal House entrance and will not be moved or impacted by the proposed works. Evacuation to the west is still possible through the site with no changes to major paths through the Zoo.

Management Recommendations and Mitigation Measures

To mitigate any impacts from potential bushfire scenarios, the following recommendations are made:

- Structural elements are to be constructed on non-combustible materials where possible.
- Emergency management and response procedure for the overall Zoo site be updated to clearly document the evacuation procedures for the exhibit.

7.16. STAGING

The Upper Australia Precinct is proposed to be delivered in two stages:

Stage	Indicative Timing
1. Early Works subject to a separate Local Crown DA	Construction to begin in October and finalised by end of 2020
2. SSDA Works	Construction to begin early 2021

If there is any delay between completing the early works and the SSDA construction work commencing, site establishment measures outlined in **Section 7.12** will be maintained to prevent any access to the site while in its temporary state as shown in **Figure 16**.

Figure 16 – Temporary End State between Early Works and SSDA works

Source: Lahznimmo

7.17. DEVELOPER CONTRIBUTIONS

The site is covered by the *Mosman Contributions Plan 2018*, which authorises the Council to collect contributions of money towards the provision of public amenities and services. The plan was prepared in reference to Section 7.12 of the EP&A Act.

Any relevant contribution that applies to zoo facilities (animal exhibits) will be paid prior to the issue of construction certificate.

8. MITIGATION MEASURES

8.1. RISK ASSESSMENT

The SEARs require an environmental risk analysis to identify potential environmental impacts associated with the proposal.

This analysis comprises a qualitative assessment consistent with AS/NZS ISO 31000:2009 *Risk management–Principles and guidelines* (Standards Australia 2009). The level of risk was assessed by considering the potential impacts of the proposed development prior to application of any mitigation or management measures. Comment on residual risk (the remaining level of risk following implementation of mitigation and management measures) is also provided within this section.

Risk comprises the likelihood of an event occurring and the consequences of that event. For the proposal, the following descriptors were adopted for 'likelihood' and 'consequence'.

Table 6 – Risk Descriptors

Likelihood	**Consequence**
A Almost certain	1 Widespread irreversible impact
B Likely	2 Extensive but reversible (within 2 years) impact or irreversible local impact
C Possible	3 Local, reversible (within 2 years) impact
D Unlikely	4 Local, reversible, short term (<3 months) impact
E Rare	5 Local, reversible, short term (<1 month) impact

The risk levels for likely and potential impacts were derived using the following risk matrix.

Table 7 – Risk Matrix

		LIKELIHOOD				
		A	B	C	D	E
CONSEQUENCE	1	High	High	Medium	Low	Very Low
	2	High	High	Medium	Low	Very Low
	3	Medium	Medium	Medium	Low	Very Low
	4	Low	Low	Low	Low	Very Low
	5	Very Low	Very Low	Very Low	Very Low	Very Low

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 8** below. The measures identified to mitigate the potential environmental impacts of the proposed development are described in detail within **Section 7** of the EIS and summarised in the table below.

We note that while this analysis has been undertaken in accordance with the SEARs, this methodology was designed principally in relation to processes impacting on natural ecological systems and is highly dependent upon 'reversibility'. In an urban context where buildings are designed to be relatively permanent, rankings are skewed upwards, and of questionable real meaning.

A range of mitigation measures are proposed to reduce any potential environmental and social impact of the proposal. The following table below provides a summary of environmental management measures proposed to mitigate the medium to high risks identified in the section above.

Table 8 – Risk Assessment

Aspect	Potential Impact	Likelihood	Consequence	Risk Level	Mitigation Measure
Built Form, Urban Design and Visual Impacts	Built form scale and appearance will be readily visible when viewed from Sydney Harbour and other key public vantage points.	D	3	Low	As outlined in **Section 7.1.2** of the EIS, the proposed buildings and structures remain within the tree canopy of the Zoo and are not visible from Sydney Harbour.
Heritage	Adverse impact on the heritage significance of the site Adverse impact on the heritage significance of the locality Damage to archaeological relics	C	2	Medium	The works will facilitate the continued use of the Upper Australia Precinct for its originally intended purpose of showcasing Australian native animals. Prior to the beginning of construction: ▪ The Heritage Council of NSW is to be notified of the demolition of items listed on the TSCA Section 170 Register. ▪ The entire Precinct is to be archivally recorded before any works are commenced. ▪ A Construction Management Plan is to be prepared which outlines the protection of trees to be retained (in accordance with the Arboricultural Impact Assessment Report) and item 06L – the sandstone retaining wall in the vicinity of the Wetlands Ponds (which are to be infilled). If any sections of the Wetlands Ponds are to be removed rather than infilled, removal of fabric by hand is to be employed where any risk exists to proximate items. ▪ Detailed design development is to include demonstrated consultation with the Heritage Consultant to ensure that the design resolution of the below is sympathetic to the

Aspect	Potential Impact	Likelihood	Consequence	Risk Level	Mitigation Measure
					significance of individual items, the Section and the Zoo overall: – Selections of walls and edging to be retained and left visible remnant from the Wetlands Ponds. – Area for incorporation of salvaged bricks and paving (salvaged from demolition carried out under early works) into new path design. – Detailed design of the Nocturnal House entrance and the new alignment of the brick wall to the west of the entrance (bricks to be salvaged). – Detailed design of the Nocturnal House exhibits. However, it is appreciated that the design of these is to be driven by best practice for the accommodation and exhibition of animals. – Methodology for protection of and item 06L – the sandstone retaining wall in the vicinity of the Wetlands Ponds (which are to be infilled). As an additional measure, monitoring of earthworks and excavations is proposed to ensure that the Chance Find Procedure is implemented in the event of identifying any Aboriginal objects or archaeological resource.
Traffic, Parking and Access	Impacts on road network from construction and operational phase Additional demand on car parking spaces.	D	4	Low	No mitigation measures necessary due to the low impact of the proposal.

Aspect	Potential Impact	Likelihood	Consequence	Risk Level	Mitigation Measure
Noise	Adverse noise generation during construction on surrounding neighbours	C	3	Low	The following project-specific mitigation measures are recommended during construction: ▪ Ensure that construction work including general demolition, site preparation, bulk earthworks, construction and construction-related activities is restricted to the stated normal working hours with high noise-generating activities scheduled to be undertaken when background noise, including local road traffic, is high to provide masking to construction noise. ▪ Inform surrounding neighbours ahead of time of the intended scope of works regarding noise. ▪ Excavating of rock, and the use of jack-hammers, pile-drivers, vibration rollers/compactors or the like is to occur on weekdays where practicable or at intervals during the day. ▪ Where practical, earth mounds or screening will be constructed in sensitive locations, to act as acoustical barriers and to minimize noise emissions. ▪ The Contractor shall monitor noise and vibration objectively of plant and sensitive receptors. The results of these tests shall be recorded on a regular basis.
Water, Drainage and Stormwater	Adverse impact on the quality of stormwater runoff Adverse impact on ground water quality	D	2	Low	Stormwater treatment devices should be incorporated in the design to manage surface runoff with additional treatment incorporated into the existing stormwater system.

Aspect	Potential Impact	Likelihood	Consequence	Risk Level	Mitigation Measure
Water and Soils	Sediment and Erosion runoff during construction	D	3	Low	The following mitigation measures are proposed during demolition and construction to inhibit the movement of sediment off the site: ▪ Construction vehicles leaving the site shall be required to pass over a Temporary Construction Vehicle Entry consisting of a 1.5m long by 3m wide 'cattle rack'. ▪ All exposed earth areas where it may be possible for runoff to transport silt down slope shall be protected with a sediment and erosion control silt fence generally installed along the boundaries of the site in accordance with details provided by the Department of Conservation and Land Management. ▪ Existing stormwater infrastructure is also to be protected from incoming sediment using the following methods with filtration systems and drainage pits.
Construction Impacts	Adverse construction impacts on animals and neighbouring properties	C	3	Medium	As the impacts of construction noise and vibration on animals in the zoo is not known, it is strongly recommended that zoo keepers/staff assess the affects that vibrations may have on the animals and therefore determine their own vibration limits. The following dust control procedures to be adhered to during construction and demolition to meet air quality requirements: ▪ Loose loads entering or leaving the site will be securely covered by a tarpaulin or like material in accordance with RMS and local Council Guideline;

Aspect	Potential Impact	Likelihood	Consequence	Risk Level	Mitigation Measure
					▪ Soil transport vehicles will use the single main access to the site; ▪ There will be no burning of any materials on site; ▪ Water sprays will be used across the site to suppress dust. The water will be applied either be water sprinklers or water carts across ground surfaces whenever the surface has dried out and has the potential to generate visible levels of dust either by the operation of equipment over the surface or by wind. The watercraft will be equipped with a pump and sprays; ▪ Spraying water at the rate of not less than three (3) L/s and not less than 700kPa pressure. The area covered will be small enough that surfaces are maintained in a damp condition and large enough that runoff is not generated. The water spray equipment will be kept on site during the construction of the works; ▪ During excavation all trucks/machinery leaving the site will have their wheels washed and/or agitated prior to travelling on Council Roads, and; ▪ Fences will have shade cloth or similar fabric fixed to the inside of the fence.
Biodiversity	Adverse ecological impacts as a result of the development	C	3	Medium	The following tasks should be completed by an Ecologist prior to any vegetation clearing: ▪ Undertake any required targeted searches for threatened flora prior to vegetation clearing;

Aspect	Potential Impact	Likelihood	Consequence	Risk Level	Mitigation Measure
					▪ Undertake an extensive pre-clearing survey; delineating habitat-bearing trees and shrubs to be retained/removed; and ▪ Supervise the clearance of trees and shrubs (native and exotic) in order to capture, treat and/or relocate any displaced fauna. Prior to construction, develop a Construction Environmental Management Plan (CEMP) with relevant mitigation measures to ameliorate potential impacts to biodiversity values outside of the development area. The CEMP should include: ▪ Sediment and Erosion Control ▪ Tree Protection ▪ Stormwater management ▪ Specific details on dewatering the wetland ponds
Landscaping and tree removal	Construction impacts on retained trees at the site.	C	3	Medium	While the retention value of the proposed trees is low-moderate, specific mitigation measures to protect the remaining trees within and around the development area are outlined below: ▪ A site-specific tree protection plan should form part of the final Construction Management Plan detailing the location of tree protection fencing, inspection and reporting protocols and any areas where ground protection will be required. ▪ All pruning must be conducted in accordance with AS4373-2007- The Pruning of Amenity Trees.

Aspect	Potential Impact	Likelihood	Consequence	Risk Level	Mitigation Measure
					▪ No underground services are to be located within the TPZ or SRZ of any tree to be retained. ▪ All tree protection measures must be undertaken in accordance with the relevant Australian Standards.
Bushfire and Safety	Adverse impacts on evacuation methods during a potential bushfire scenario	C	3	Medium	To mitigate any impacts from potential bushfire scenarios, the following recommendations are made: ▪ Structural elements are to be constructed on non-combustible materials where possible. ▪ Emergency management and response procedure for the overall Zoo site be updated to clearly document the evacuation procedures for the exhibit.
Staging	Delays between early works and SSDA works	D	4	Low	Site establishment measures outlined in **Section 7.12** will be maintained to prevent any access to the site while in its temporary state including: ▪ Temporary signage around the site at key locations accessible to visitors (indicatively shown with a 'S' on the plan below); ▪ Temporary pedestrian crossing, paths and ramps (if required); ▪ Hoardings and protective screens and covers (as shown in indicatively in red on the plan below); and ▪ Temporary lighting.

9. SECTION 4.15 ASSESSMENT

The proposed development has been assessed in accordance with the relevant matters for consideration listed in Section 4.15 of the EP&A Act.

9.1. ENVIRONMENTAL PLANNING INSTRUMENTS

The proposed development has been assessed in accordance with the relevant State and local environmental planning instruments in **Section 5**.

The assessment concludes that the proposal complies with the relevant provisions within the relevant instruments.

9.2. DRAFT ENVIRONMENTAL PLANNING INSTRUMENTS

No draft environmental planning instruments are relevant to this proposal.

9.3. DEVELOPMENT CONTROL PLAN

Both the Sydney Harbour Foreshore and Waterways Area Development Control Plan (**SHDCP 2005**) and Mosman Development Control Plan 2012 (**Mosman DCP**) provides detailed planning controls relevant to the site and the proposal. Although DCPs are not relevant for SSDAs, consideration of the relevant DCP controls is provided in **Appendix Y.**

The assessment concludes the proposal generally complies with the relevant provisions within both DCPs.

9.4. PLANNING AGREEMENT

No planning agreements are relevant to this proposal.

9.5. REGULATIONS

This application has been prepared in accordance with the relevant provisions of the EP&A Regulation.

9.6. LIKELY IMPACTS OF THE PROPOSAL

The proposed development has been assessed considering the potential environmental, economic and social impacts as outlined below:

- The proposal will have minimal acoustic or environmental impacts upon nearby residential as the proposed construction works will be located away from residential land.
- The proposed works will not have any significant adverse heritage impacts and will facilitate the continued use of the Upper Australia Precinct for its originally intended purpose of showcasing Australian native animals.
- The works will not have any detrimental impact on the scenic, visual and natural bushland setting of Sydney Harbour.

All environmental and construction impacts arising from the proposal have been considered by the various technical consultants and can be managed through appropriate consent conditions. The potential impacts can be mitigated, minimised or managed through the measures identified in **Section 7** of this EIS.

9.7. SUITABILITY OF THE SITE

The site is considered highly suitable for the proposed development for the following reasons:

- The proposed works are permitted with development consent.
- The proposed works are compliant with the relevant state and local planning instruments.
- The site provides a continuation of the current use of the site for Zoological Gardens and will provide an improved visitor experience including site accessibility as well as overall improvements to animal care.

9.8. SUBMISSIONS

It is acknowledged that submissions arising from the public notification of this application will need to be assessed by Council.

9.9. PUBLIC INTEREST

The proposed development is considered in the public interest for the following reasons:

- The project will reinforce Taronga Zoo's position as a major tourist attraction and therefore improve NSW tourism sector when it recovers after the COVID-19 pandemic.
- It will create approximately 800 jobs including design, project management and construction over the 18-month design development and construction period and will sustain direct and indirect jobs during its ongoing operation.
- During the preparation of the EIS, no feedback was received from the general public.

10. CONCLUSION

This EIS has been prepared in support of SSD-10456 to assess the environmental, social and economic impacts of the Upper Australia Precinct for Taronga Zoo. The EIS has addressed the issues identified in the SEARs and has been prepared in accordance with Schedule 2 of the EP&A Regulation. For the reasons outlined in this EIS, the site is suitable for the proposed development for the following reasons:

- The design positively responds to the site conditions and existing landscape character of the locality.
- The works will facilitate the continued use of the site as an animal exhibit, which is permissible with consent and consistent with the zone objectives. Further, there are no significant environmental constraints that would limit the proposal from being developed at the site.
- The proposed works are respectful of the heritage significance of the overall Australia Precinct and will enhance the original design intent of the Precinct to showcase Australian native animals.
- The works will not have any significant detrimental impact on the scenic, visual and natural bushland setting of Sydney Harbour.
- The proposal has been prepared having regard to State and Council planning policies and complies with the aims and objectives of the controls for the site.
- Subject to the various mitigation measures recommended by the specialist consultants, the proposal does not have any unreasonable impacts on adjoining properties or the public domain in terms of views, traffic, acoustic and environmental impacts.
- The site is well serviced by public transport and various walking and cycling routes. Further, the proposal greatly encourages the use of non-private vehicle options to access the site.
- The project will deliver genuine economic benefits in these challenging times, particularly in creating full-time jobs during construction, and will sustain direct and indirect jobs during its ongoing operation.

This project is fully funded and ‘shovel ready’ for commencement of construction as soon as possible next year to take the opportunity for construction whilst visitor numbers to the Zoo are restricted in these challenging times as a result of the COV-ID19 pandemic. Given the site is suitable for the development and the proposal has minimal environmental impacts and is in the public interest, this application should be subject to a fast-tracked approval by the Minister or his delegates.

DISCLAIMER

This report is dated 24 July 2020 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd **(Urbis)** opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Taronga Conservation Society Australia **(Instructing Party)** for the purpose of Environmental Impact Statement **(Purpose)** and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

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APPENDIX A SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

APPENDIX B QS REPORT

APPENDIX C ARCHITECTURAL PLANS

APPENDIX D LANDSCAPE PLANS

APPENDIX E SITE SURVEY

APPENDIX F ARCHITECTURAL AND LANDSCAPE DESIGN STATEMENT

APPENDIX G STATEMENT OF HERITAGE IMPACT

APPENDIX H HISTORICAL ARCHAEOLOGICAL ASSESSMENT

APPENDIX I INTERIM ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT

APPENDIX J TRAFFIC IMPACT ASSESSMENT

APPENDIX K ACOUSTIC ASSESSMENT

APPENDIX L ECOLOGICALLY SUSTAINABLE DEVELOPMENT REPORT

APPENDIX M BCA REPORT

APPENDIX N ACCESS STATEMENT

APPENDIX O STORMWATER, FLOODING & UTILITY IMPACT ASSESSMENT

APPENDIX P GEOTECHNICAL INVESTIGATION

APPENDIX Q CONTAMINATION REPORT

APPENDIX R OPERATIONAL WASTE MANAGEMENT PLAN

APPENDIX S CONSTRUCTION MANAGEMENT PLAN

APPENDIX T BUILDING SERVICES INFRASTRUCTURE REPORT

APPENDIX U BIODIVERSITY DEVELOPMENT ASSESSMENT REPORT

APPENDIX V ARBORICULTURAL REPORT

APPENDIX W BUSHFIRE ASSESSMENT

APPENDIX X ENGAGEMENT AND COMMUNICATION OUTCOMES REPORT

APPENDIX Y DCP COMPLIANCE TABLE

APPENDIX Z TARONGA ZOO EMERGENCY RESPONSE PLAN

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