POWERHOUSE PARRAMATTA
RESPONSE TO SUBMISSIONS REPORT

APPENDIX A
DETAILED RESPONSE TO AGENCY SUBMISSIONS AND DEPARTMENT OF PLANNING, INFRASTRUCTURE AND ENVIRONMENT LETTER

Ethos Urban and Infrastructure NSW

NSW GOVERNMENT

8 October 2020

2190947

Appendix A – Response to Submissions

Extracts from public authority submissions and submissions from organisations, including stakeholder and interest groups, received in relation to SSD-10416 and a response to each of these matters has been provided in the sections below.

CONTENTS

1.0 Public authorities

The following tables include a response to the full text of submissions provided by or on behalf of public authorities/agencies, as defined by DPIE in the categorisation of submissions on the Major Projects website [1]. The full text of each submission is provided in the left-hand column, accompanied by the proponent's corresponding response in the right-hand column. The proponent's responses have been informed by input by the consultant team, and should be read in conjunction with the publicly exhibited Environmental Impact Statement and accompanying technical reports, as well as the Response to Submissions (RTS) Report to which this document is appended.

1.1 Department of Planning, Infrastructure and Environment

No.	Extract	Comment
DPIE1	**Heritage and Archaeology** Further consideration should be given to how the proposal could address the objections raised in public submissions about the proposed demolition of Willow Grove and St George's Terrace. This should include: a) further justification for the removal of the heritage items b) a comprehensive analysis of alternative options (in addition to the design competition entries) which would allow the objectives of the Powerhouse Parramatta project to be realised while retaining heritage (in part or in full) and the benefits/disadvantages of each option c) opportunities for heritage interpretation.	In recognition of the comments regarding the preservation of heritage in Parramatta it is proposed to retain St George's Terrace on the site and to deconstruct and relocate Willow Grove to another location within the Parramatta area. The relocation would be undertaken under the supervision of a heritage specialist and a process of recording and developing sensitive demolition methodologies would be undertaken prior to any works. Create Infrastructure NSW will develop a framework outlining the future site of Willow Grove, as well as the reconstruction process and the program that would be undertaken prior to the opening of Powerhouse Parramatta. This commitment is reflected in Mitigation Measures CM-HER3, CM-HER5, and D/O-HE3 and discussed further in **Section 5.2** and **Appendix F** of the RTS Report. a) **Section 5.2** of the RTS Report addresses the necessity for the removal of Willow Grove. This outcome has been informed by several factors culminating from the opportunities and constraints of the site, the physical requirements of the development, and the endorsed and best-practice design process. The culmination of these factors has meant there is no potential to retain this existing structure on the site either in part or full in situ and, therefore, there is no option that has been identified to achieve the objectives of the Powerhouse Parramatta project while retaining this heritage item. b) The Jury assessed six competition entries, of which only one submitted entry identified the retention of Willow Grove, but this entry did not achieve the remaining project objectives to the same extent as the winning scheme. The submitted competition schemes, therefore, made it clear that it was not possible to achieve the objectives of the Powerhouse Parramatta project while retaining the heritage item. Accordingly, while the retention of heritage was considered carefully during the judging process, the Jury was unanimous in its decision on the final chosen concept. c) Powerhouse has prepared a Heritage Interpretation Strategy (**Appendix G**) to inform the preparation of a Heritage Interpretation Plan as part of the detailed design and operation of Powerhouse Parramatta. The Strategy identifies the principles that will guide heritage

1 i.e. submissions categorised as 'Public Authority' by DPIE on the Major Projects website, with the exception of Jemena and Telstra which were identified as 'organisations', but for the purposes of infrastructure coordination have been treated as public authorities/agencies in the same vein as Sydney Water in responding to submissions.

No.	Extract	Comment
		interpretation and identifies example interpretation strategies that may be implemented for each principal subject to further consultation, study, and coordination with museum programming. This is discussed further in **Section 5.5** of the RTS Report.
DPIE2	Provide further details of how any proposed or future connections to Lennox Bridge will be integrated with the heritage setting of the bridge. In addition, the Statement of Heritage Impact should be updated to address any heritage values of the existing substation on Phillip Street as noted in Heritage NSW's submission.	No works are proposed to Lennox Bridge or its connection to the river foreshore. The project includes construction of a river foreshore path that will connect to the existing path that continues to the Lennox Street Bridge steps. The Statement of Heritage Impact Addendum at **Appendix F** of RTS Report addresses the existing substation on Phillip Street. This is discussed further in **Section 5.3.1** of the RTS Report.
DPIE3	A comprehensive response is required to address the archaeology issues raised by City of Parramatta and Heritage NSW, including proposed measures to avoid any potential archaeological impacts.	Curio Project has prepared an Addendum Historical Archaeology Impact Assessment (HAIA) (**Appendix H**) and Addendum Aboriginal Cultural Heritage Assessment Report (ACHAR) (**Appendix I**). This is discussed further in **Section 5.4** of the RTS Report and addressed further in Sections 1.5 and 1.6 of the table below.
DPIE4	**Public Domain** Further consideration should be given to proposed public domain within the site, including opportunities to improve permeability and accessibility though the site in accordance with the objectives of Civic Link Framework Plan and the Parramatta River Strategy. In particular, the proposal should: a) explore opportunities to increase the width of Civic Link as envisaged in the Civic Link Framework Plan. Justification should be provided for any variation to the consistent 20 m alignment, demonstrating that the Civic Link will continue seamlessly through the site to its termination at the foreshore b) ensure any future redevelopment of the neighbouring property at 32 Phillip Street is capable of addressing and activating the Civic Link c) improve the integration between the lower and upper river foreshore areas to provide highly accessible, activated and programmable spaces.	a) Refer to **Appendix B** - Architectural Design Report Addendum of the RTS Report. b) The design of Civic Link adjacent to 32 Phillip Street includes landscape planting that could be modified and/or removed in future should redevelopment of 32 Phillip Street be undertaken. c) Refer to **Appendix C** for the Landscape Report Addendum and Plans accompanying the RTS Report.
DPIE5	Further consideration should be given to the building's interface with Phillip Street and Wilde Avenue, to ensure the proposal activates those frontages and provides an appropriate address to the Parramatta CBD.	Refer to the Architectural Design Report Addendum which addresses the design intent of the façade, and the Landscape Report Addendum which addresses the activation of the Phillip Street frontage, including address to the Parramatta CBD, at **Appendices B** and **C** of the RTS Report respectively.
DPIE6	Further consideration should be given to the loading/unloading and drop off/pick up requirements of the proposal, with options explored to reduce the prominence of loading areas in the public domain, minimise pedestrian conflicts and ensure safe and convenient access.	Consideration has been given to the site access strategy to limit the extent of vehicle manoeuvring within the public domain as well as to provide appropriate servicing arrangements for the museum. A key aspect of the transport strategy is to minimise, wherever possible, the volume of vehicular traffic entering the site to provide the safest and most amenable pedestrian environment. With respect to the selection of a suitable vehicle access point there are a number of existing constraints that has informed the design, those being:

No.	Extract	Comment
		• Wilde Avenue acting as a strategic bus corridor. • The maximum 3.5m height clearance under the Barry Wilde Bridge along George Khattar Lane, limiting the ability for waste vehicles or Powerhouse service vehicles from entering the site. • The future Civic Link connection on Phillip Street that will form the primary pedestrian access point to the site, with vehicle movements to be restricted at this location. Given the above constraints, Dirrabarri Lane that is and will remain an existing access way, and provides the most suitable access point into the site. The loading areas have been designed to minimise the extent of vehicle manoeuvring within the public domain and facilitate convenient access into and out of the site. To reduce conflict between vehicles travelling within the site and pedestrians, drop off / pick up locations external to the site have been identified in consultation with City of Parramatta Council. These external locations will not require vehicles to drive over existing footpaths and conflict with pedestrians accessing the site.
DPIE7	**Undercroft** The Department notes the proposed undercroft area did not form part of the competition winning design. Further information is requested detailing: a) the design alternatives examined and methodology leading to the undercroft design b) how the undercroft integrates with the public domain and contributes to the design excellence of the building c) further CPTED analysis, including the need for any barriers to prevent access to the undercroft out of hours or in the event of a flood, and any other design measures to ensure public safety d) likely uses of the undercroft with consideration of flooding, height, accessibility, amenity and safety.	a) Refer to Architectural Design Report Addendum at **Appendix B** of this RTS Report and the Flood Risk and Stormwater Management Report Addendum prepared by Arup and included at **Appendix J**. b) The undercroft represents a spatial requirement to convey floodwaters in the event of the river flooding. In essence, the flood impacts to the river level public domain areas outside of the undercroft are the same as the undercroft itself. The undercroft will be closed to public access, unless a programmed event is being undertaken as part of the Powerhouse Parramatta, which could include a range of museum, community and cultural events. Programmed events will ensure public access is managed and are coordinated in tandem with the Flood Emergency Strategy developed for the site (with consideration of the Strategy at **Appendix J** of the RTS Report). c) Arup has prepared an updated CPTED Addendum at **Appendix P** of the RTS Report, providing further recommendations for the detailed design and operation of the undercroft area. Further detail regarding the emergency management measures are also contained within the Flood Risk and Stormwater Management Report Addendum at **Appendix J** of the RTS Report. The management measures for the emergency egress of the undercroft will be similar to that of the river level public domain within the precinct, and those management measures that are employed along all flood inundated areas of the public domain along the Parramatta River. d) As outlined above, the undercroft will be available for a range of programmed uses as part of the Powerhouse program, with this area to be inaccessible to the public outside of managed activities. Flood impacts will be managed in the same manner as the public domain along the river foreshore and paths of emergency egress have been accommodated as outlined in Flood Risk and Stormwater Management Report Addendum at **Appendix J** of the RTS Report. The emergency management strategy will be further

No.	Extract	Comment
		developed prior to occupation as per Mitigation Measure D/O-FL1 and any condition of consent imposed by DPIE.
DPIE8	**Flooding** Provide a comprehensive response to the flooding concerns raised by the Department's Environment, Energy and Science Group, City of Parramatta and public submissions. This should include: a) consideration of events greater than the 1% AEP b) further consideration and justification for the proposed undercroft c) further details demonstrating the structure can withstand floodwater forces d) consideration of alternate or additional measures to ensure safe emergency evacuation from the undercroft in the event of a flood.	a) Refer to **Appendix J**- Flood Risk and Stormwater Management Addendum of the RTS Report. b) Refer to **Appendix J**- Flood Risk and Stormwater Management Addendum of the RTS Report. c) Refer to **Appendix N**- Structural Statement Addendum and **Appendix J**- Flood Risk and Stormwater Management Addendum of the RTS Report. d) Refer to **Appendix J**- Flood Risk and Stormwater Management Addendum of the RTS Report. Reference should also be made to Sections 1.4 and 1.5 of the table responses below.
DPIE9	**Biodiversity and tree removal** The Department notes the requirement for a Biodiversity Development Assessment Report (BDAR) was waived on the basis that up to thirty trees were proposed for removal. However, the Arboricultural Assessment indicates a significantly higher number of trees will be removed to facilitate the new building and public domain. Further consideration should be given to the retention value of trees outside of the building footprint. A revised BDAR waiver request should be made, confirming the number of trees to be removed.	As noted in the amended Architectural and Landscape Plans and Design Statements, the proposed development has been refined in response to submissions. These amendments have ensured that an additional tree from the Willow Grove landscape, a Cupressus macrocarpa, will be retained within the landscape design. All other trees on site (apart from Tree 1, a Eucalypt) are considered to be in poor health, not worthy of retention, or will unavoidably conflict with the required building footprint and levels. The landscape concept includes significant tree replacement planting and will use predominately native and endemic species. A revised BDAR Waiver has been approved. This is discussed further in **Section 5.10** of the RTS Report.
DPIE10	**Additional information required** Update the Transport Impact Assessment to in response to comments provided by Transport of NSW (TfNSW) and the City of Parramatta in relation to traffic, access, servicing and the Parramatta light rail project.	Refer the revised Transport Assessment at **Appendix K** of the RTS Report and the responses at Section 1.2 and 1.5 of the table below.
DPIE11	Amend the ESD Report to address issues identified by the City of Parramatta including energy efficiency, flood resilience and renewable energy provisions.	An updated ESD Strategy is contained at **Appendix O** of the RTS Report.
DPIE12	Update the ESD strategy to provide further detail on the strategies shortlisted for implementation.	An updated ESD Strategy is contained at **Appendix O** of the RTS Report.
DPIE13	Update the Noise and Vibration Impact Assessment Report to address issues raised in the City of Parramatta's submission and public submissions.	Refer to the Noise and Vibration Impact Addendum at **Appendix Q** of the RTS Report.
DPIE14	Provide further analysis and mitigation options for any reflectivity impacts on ferry operations.	Refer to the Reflectivity Statement Addendum provided at **Appendix L** of the RTS Report.

No.	Extract	Comment
DPIE15	Provide an analysis of the impacts of the proposal on the development potential of 32 Phillip Street.	The proposed development has been designed to not adversely impact surrounding or neighbouring development in terms of access, amenity and flooding. Reference should be made to Section 2 of the table responses below, and the discussion in **Section 5.0** of the RTS Report.
DPIE16	Provide a response to the concerns raised in relation to wind impacts, including the reliability and accuracy of the wind modelling undertaken.	This is addressed in response AU9 below and **Section 5.7.2** of the RTS Report.
DPIE17	Provide amended plans providing annotated dimensions and setbacks of key aspects of the proposal, including the width of the Civic Link through the site.	Refer to the revised Architectural Design Report and Plans at **Appendix B** of the RTS Report.
DPIE18	Provide a response to concerns raised in public submissions regarding functional and operational aspects of the museum.	Responses to the functional and operational matters identified in the public submissions is provided in **Section 3** of the RTS Report.

1.2 Transport for NSW

No.	Extract	Comment
TfNSW1	• Servicing Access on Wilde Avenue: Wilde Avenue is a key bus corridor with a dedicated bus lane. The proposed vehicular access on Wilde Avenue to facilitate the scheduled servicing of Presentation Space 1 with vehicles up to 19m in length would potentially compromise the effective operation of bus services.	This comment is addressed below at TfNSW4.
TfNSW2	• Proposed kerbside allocation for various uses: The current proposal involves a suggestion that relies on the use of kerbside space to facilitate different types of transport demands generated by the development. It should be advised that generally the use of the kerbside cannot be guaranteed due to competition with other users. Any kerbside restrictions are prioritised to suit the wider community needs and generally subject to local council approval.	Noted.
TfNSW3	**General comment on shared use of transport facilities and arrangement** Comment The proposal includes the shared use of kerbside space (both existing and proposed) to facilitate various transport demands (i.e. coach, servicing, general pick-up/drop-off) of the proposed development. Any offsite or on-street transport facilities might be subject to changes and approval (i.e. Council and Local Traffic Committee). Recommendation The proposal, where possible, should take into consideration optimising its on-site transport provisions to support its forecasted demand giving effect to avoid adding circulating traffic to the surrounding traffic network in searching for	The proposal makes provision for the loading and servicing task of the museum to take place entirely within the site, in accordance with best practice and aligning with early advice received from TfNSW. There will also be provision along Dirrabarri Lane (within the site boundary) to provide for pick up and drop off for mobility impaired visitors, rather than utilising existing on-street space. During the design process consideration was given to accommodating on-site drop off and pick up for other uses including coaches and general pick up / drop off. Ultimately this was not deemed to be either feasible or desirable due to the following factors: • Site access is constrained via Dirrabarri Lane given the proposed built form along Phillip Street, future pedestrian Civic Link connection as well as Wilde Avenue being a key bus corridor and not facilitating day to day vehicle access.

No.	Extract	Comment
	kerbside spaces should these spaces become unavailable or competitive in use in the CBD environment.	• A key aspect of the transport strategy for the project is to minimise wherever possible the volume of vehicular traffic entering the site so as to provide for the most safe and amenable pedestrian environment as possible. • Provision of on-site space for additional vehicles would significantly detract from the public domain within the site. • Additional vehicles entering the site would increase conflicts between vehicles and pedestrians walking on Phillip Street crossing Dirrabarri Lane. • Parking for buses/coaches would likely need to be provided adjacent to or in close proximity to the site loading dock, including sharing an access point from Phillip Street. Therefore, passengers (including large numbers of children) boarding and alighting coaches would conflict with large service vehicles entering/exiting the loading dock. • Discussions with City of Parramatta Council, the authority that controls the use of kerbside space in the area, has confirmed that the proposed approach for vehicle drop off and pick up (including coaches) is suitable. As part of their submission to the project, Council has suggested additional facilities for drop off and pick up be provided on George Khattar Lane underneath the Barry Wilde Bridge. This arrangement is detailed at CoP36.
TfNSW4	**Freight and Servicing Arrangements** Comment The applicant should be advised that Wilde Avenue is a key bus corridor with provision of a dedicated bus lane. The proposed vehicular access on Wilde Avenue to facilitate the scheduled servicing of Presentation Space 1 with vehicles up to 19m in length would potentially compromise the effective operation of bus services. The proposal indicates the demand of freight and servicing will be accommodated by both loading facilities on-site and on-street (on Philip Street and western side of Dirrabarri Lane), noting the on-street loading zone on Philip Street is proposed to be shared with other transport demands generated by the proposed development through time restriction. It is evident that the proposed development will need to rely on the kerbside restrictions to support its activities while the availability of kerbside space is subject to changes based on transport network requirements to suit wider community needs. Recommendation Alternative heavy vehicle access to the site should be investigated to avoid the use of Wilde Avenue. Details of the proposed development's freight and servicing profile, including the forecast freight and servicing traffic volumes by vehicle size, frequency, time of day and duration of stay should be provided as part of the Response to Submissions. Such information should be considered in analysing the adequacy	Use of Wilde Avenue It is acknowledged that Wilde Avenue is a key bus corridor, with a dedicated bus lane recently installed in both directions. For this reason, the design has been developed to minimise vehicle access to the site via Wilde Avenue – including closure of Oyster Lane which is an existing road that services the site. The design has ensured that all vehicles entering the site will do so via Dirrabarri Lane to ensure bus services along Wilde Avenue are not impacted. Wilde Avenue will however be required to be used to enable direct access for vehicles servicing Presentation Space (PS) 1. With the proposed built form within the site there is no alternative means to directly access PS1 other than Wilde Avenue, specifically for vehicles carrying very large collection items. In light of TfNSW's recommendation to investigate options to reduce the need for vehicles to service the eastern building via Wilde Avenue, further design work has been undertaken since the exhibition of the EIS. The design has been updated to improve servicing connections between the western and eastern buildings – allowing vehicles to park in the loading dock (accessed via Dirrabarri Lane) and goods to be transported to the eastern building via internal goods lift. This design update will significantly reduce the need for vehicles to access the site via Wilde Avenue. The impacts to the Wilde Avenue bus corridor associated with the project are considered to be minimal in the following context: • Access into PS1 from Wilde Avenue would generally only occur occasionally during the changeover of exhibitions and be scheduled well in advance. Given Wilde Avenue's role as a strategic bus corridor, vehicles would not access the site via this access point during peak weekday periods between 7am – 10am and 4pm – 7pm.

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	of the proposed loading and servicing provisions to support the forecasted demand (including long dwell time vehicles). Measures should be developed in relation to managing the movements of freight and service vehicles (i.e. preferably in a forward direction) in the vicinity of the loading docks on Dirrabarri Lane from pedestrian safety perspective.	Instead deliveries would be timed outside of these hours so as not to impact key bus services; and • The design update permits the transportation of goods to all areas of the eastern building via the Dirrabarri Lane loading docks and goods lifts, meaning only occasional oversized items will require use of the Wilde Avenue access. Freight and servicing profile This comment is addressed at section 5.7.2 of the revised Transport Impact Assessment at **Appendix K** of the RTS Report.
TfNSW5	**Coach passenger pick-up/drop-off and layover arrangements** Comment The current proposal indicates a coach passenger pick-up/drop-off area along the development site's Philip Street frontage between 9.30am and 3.30pm weekdays and the need for coaches to layover on-street away from the site. It is noted the assessment of the forecast mode share of visitors is based on the finding of travel surveys undertaken for the existing Powerhouse Museum at Ultimo and consideration of the current and future transport environment in Parramatta. The mode share for bus/coach is forecasted as a combined 10% of the daily visitation (Figure 21 of Transport Impact Assessment) with further breakdown of the split between bus and coach in Tables 6 and 7 for weekday and weekend respectively. A sensitivity assessment for car trips has been provided with an assumption of the proposed development accommodating up to 10,000 people at any one time, noting the 10% mode share is assumed to be bus trips only. The nature of the development would likely cater to visitors such as school groups and potentially simultaneous visitation from multiple schools that are likely to be transported in charter buses with some visits that may also involve the use of public transport. It is not evident that the travel survey undertaken for the existing Powerhouse Museum had adequately captured scenarios of school groups or simultaneous visit of groups from multiple schools. It should also be noted that there might be different arrival and departure profiles between the two visitor groups i.e. bus and coach. Recommendation The following information should be provided as part of the Response to Submissions: • Clarification of travel surveys undertaken at the existing Powerhouse Museum on whether the surveys had included school groups and simultaneous visiting groups from multiple schools. If the survey has not accounted for such scenarios, reasonable adjustments should be made to the forecasted demand;	The travel survey conducted at the existing Powerhouse Museum on Thursday 27 February 2020 included data from school groups. These responses were noted as 'bus' in the mode share analysis. The travel demand forecasts outlined in Section 5.2.3 of the Transport Assessment at Appendix F to the EIS took into consideration this existing mode of travel to the site. The proposed provision of coach passenger pick-up/drop-off area was developed in close consultation with Powerhouse staff, taking into account the existing demand for coach parking at the Powerhouse Ultimo site as well as that likely to be generated at the future Powerhouse Parramatta. It should be noted that since the exhibition of the EIS, the NSW Government announced that the retention of the existing Powerhouse Ultimo site. This will have the effect of distributing demand for school groups across these two facilities in Sydney, rather than concentrating all demand at the future Powerhouse Parramatta. Regarding the management of the coach parking area, school groups will notify Powerhouse staff of their intention to visit the site well before their arrival date. If travelling by bus / coach, the school will be given an arrival and departure window for when their vehicle can use the Phillip Street drop off / pick up area. In this way demand for bus/coach parking will be managed so as not to impact general traffic, bus operations, cyclists and pedestrians. This corresponds with current management protocols in place for school visits to Powerhouse Ultimo

No.	Extract	Comment
	• In addition to the above comment, further elaboration should be provided to justify the adequacy of the proposed provision of coach passenger pick-up/drop-off area taking into consideration of arriving and departing demand of school groups and/or simultaneous visiting groups from multiple schools. If required, provide mitigation measures such as, but not limited to, management plan/strategy for the operation of the proposed coach passenger pick-up/drop-off and layover facilities as to minimize its impact to general traffic, bus operations, cyclists and pedestrians.	
TfNSW6	**Point to Point transport passenger pick-up/drop-off arrangements** Comment The proposal indicates that point to point transport passenger pick up/drop off associated with the proposed development is to be accommodated in the several ways including the shared use with the coach passenger pick up/drop off area along the Phillip Street frontage of the site outside of 9.30am-3.30pm weekday periods, within on-street taxi zones in the vicinity of the site and designated existing on-street parking spaces on George Khattar Lane for passenger pick-up/drop-off. As the proposal relies on the shared use of future and existing kerbside facilities, the applicant should further review its proposal in consideration of the following matters: • on-street parking zones in the vicinity of the site are observed to be well used. As people look for alternatives, unauthorised use of the bus lane on the Wilde Avenue frontage of the site may occur and potentially obstruct bus operation; and • provision of short stay on-street parking zones for point to point transport passenger demands within the CBD is in high demand. The availability of these types of facilities cannot be guaranteed due to competing demands. In addition, kerbside restrictions are set to suit wider community needs and transport network requirements and are subject to change. Recommendation The applicant should engage with Council as soon as possible to confirm the feasibility of its proposed changes to the existing kerbside transport provisions. In the event of such changes cannot be implemented, the applicant should provide alternative measures to accommodate the demands.	Consultation was undertaken with City of Parramatta Council in April 2020 prior to the exhibition of the EIS to confirm the proposed transport strategy – including the feasibility of proposed changes to the existing kerbside transport provisions. Council confirmed during this consultation the suitability of the proposed changes to parking controls on Phillip Street to facilitate the bus drop off / pick up area. Council also suggested that existing short term parking spaces on George Khattar Lane be used to facilitate pick up and drop off for point to point transport vehicles. As part of their response to the exhibited EIS, Council raised no objection to the proposed changes to kerbside controls along Phillip Street. It was noted in their submission that a separate application will be required to be made to Council's Traffic Committee under Delegated Authority. Council also confirmed that George Khattar Lane could be used for pick up and drop off, with the response noting that "it is Council's opinion that George Khattar Lane can not only provide access to the foreshore but also can be used as pick up / drop off area for taxis, Uber, etc." Use of George Khattar Lane for pick up/ drop off is addressed at CoP36.
TfNSW7	**Active Transport** Comment The quantum of end of trip facilities proposed to be provided for staff is unclear, noting that the Transport Impact Assessment only indicates the location for the end of trip facilities (lockers, showers and change areas) being provided for staff within the western building. It is also noted that the public domain design does not preclude increases to the number of bicycle parking spaces to address future	The development will provide bicycle parking and facilities for staff and visitors to encourage the use of bicycles when travelling to and from Powerhouse Parramatta. Bicycle parking for staff, residents, and visitors comprises: • 4 bicycle parking spaces for residents; • 25 bicycle parking spaces for staff as well as associated end of trip facilities; and • 40 bicycle parking spaces for visitors.

No.	Extract	Comment
	demand, with the operator of the development to monitor the demand for visitor bicycle parking and, should demand warrant, provide additional capacity. Recommendation The proposal should ensure end of trip facilities are sufficient to encourage a high proportion of staff to travel to the site by active transport. The applicant should be advised that TfNSW's preference would be for the demand for bicycle parking facilities for visitors should be assessed and appropriate quantum of visitor bicycle parking facilities should be provided from the commencement of operations.	In line with the TfNSW recommendation, these facilities will be provided from the commencement of operations on the site.
TfNSW8	**Travel Plan** Comment The Transport Impact Assessment identifies the preparation of a site specific travel demand management plan to help mitigate impacts on the transport network. Recommendation The applicant should be conditioned to prepare a Travel Plan in consultation with TfNSW and Council prior to the issue of an Occupation Certificate.	The recommended condition is supported and reflected in Mitigation Measure D/O-TA2.
TfNSW9	**Construction Pedestrian and Traffic Management** Comment Several construction projects, including the Parramatta Light Rail Project, are likely to occur at the same time as this development within the precinct. The cumulative increase in construction vehicle movements from these projects could further have the potential to impact on general traffic and bus and light rail operations in the CBD, as well as the safety of pedestrians and cyclists particularly during commuter peak periods. Recommendation The applicant should be conditioned to prepare a Construction Pedestrian and Traffic Management Plan (CPTMP) in consultation with TfNSW and submit a copy of the final CPTMP to TfNSW for endorsement, prior to the issue of any construction certificate or any preparatory, demolition or excavation works, whichever is the earlier.	The recommended condition is supported and reflected in Mitigation Measure CM-TA1. It is noted that the primary construction vehicle routes largely do not overlap with those used for the Light Rail project, with the exception of Victoria Road. The number of vehicle movements on this shared route are considered to be relatively low in the context of existing traffic volumes.
TfNSW10	**Other Issues** Comment The following issues are identified in the Transport Impact Assessment: • Section 2.2: Content under this section should make reference to Future Transport 2056 as appropriate. • Section 3.2.2: Update to state that bus lane on Smith Street and Wilde Avenue were completed in April 2020.	JMT Consulting has prepared an updated Transport Assessment, provided at **Appendix K** of the RTS Report, addressing these matters.

No.	Extract	Comment
	• Figure 12: Update to indicate the location of Parramatta Square Light Rail stop. • Section 3.4: Consider including the Active Transport link to be delivered as part of Parramatta Light Rail works between Camelia and Carlingford. • Section 5.2.4: Update to state that additional trains have been operated at Parramatta Station to service events at Bankwest Stadium. Recommendation Provide update to the report in addressing the above matters.	
TfNSW11	**Construction of Parramatta Light Rail** Comment Major construction to deliver the Parramatta Light Rail (PLR) program has begun in 2020 with the network expected to commence services in 2023. Information on the PLR Project can be found at http://www.parramattalightrail.nsw.gov.au/ Recommendation The applicant shall be advised of the above and take it into consideration in the planning of the project.	Noted.
TfNSW12	**Public domain works on the area along the riverbank up to Lennox Bridge** Comment The overall site boundary goes along the river and up to Lennox Bridge. It is advised that Parramatta Light Rail project will have micro tunnel exit in the vicinity of the land that is identified as public domain landscaping works in the Environmental Impact Statement. Recommendation As part of the Response of Submissions, details should be provided with regards to the construction program relating to the works on the land of the river bank up to Lennox Bridge.	Transport for NSW is currently negotiating access arrangements with Create NSW for the Parramatta Light Rail works within the Powerhouse Parramatta site. It is understood that the Parramatta Light Rail works will be complete by November 2021 and the construction programming of landscape works for Powerhouse Parramatta will be coordinated around this date.
TfNSW13	**Utility information** Comment The Environmental Impact Statement (EIS) notes that the utility information has been gathered from DBYD plans, existing utility survey and discussions with utility authority. The EIS does not consider utilities that have been relocated and/or installed by Parramatta Light Rail. Recommendation The applicant is advised to consult with Parramatta Light Rail project on the above matters.	The Infrastructure Services Strategy submitted as Appendix P of the EIS outlines the future steps to be undertaken in relation to services prior to works commencing. A Mitigation Measure (CM-6) is proposed as part of the RTS to liaise with Parramatta Light Rail in relation to services prior to the commencement of works.

1.3 Sydney Water

No.	Extract	Comment
SW1	**Water and Wastewater Servicing** • Sydney Water requires the proponent to lodge a feasibility application via a WSC immediately to fully understand the servicing requirements and potential impact to our existing assets in the area. Once it is received by Sydney Water, our CGD infrastructure team will assess and coordinate all requirements.	A water services coordinator has been engaged by Infrastructure NSW. All construction works, including the extension, augmentation, or relocation of services will be conducted in accordance with Sydney Water requirements.

1.4 DPIE's Environment, Energy and Science Group

No.	Extract	Comment
EES1	A Biodiversity Development Assessment Report Waiver was approved on 14 May 2020.	Noted.
EES2	**Flooding** EES has reviewed the SSDA Report – Flood Risk and Stormwater Management prepared by ARUP, dated April 2020 (the report) and makes the following comments which are generally confined to the methodology used for the assessment as outlined in the report. • Chapter 7 and 8 of the report outlines flood nature particularly flood depth and hazard, due to combined Parramatta River mainstream and overland flooding for the 5%, 1% AEP and the probable maximum flood (PMF) for pre and post development conditions. The report also identifies flood planning level based on 1% AEP plus 0.5m freeboard as 7.3m AHD and proposes a finished floor level (FFL) at 7.5 m AHD. The post development condition shows that up to the 1% AEP the proposed flood management strategy would result in containing mainstream flow within proposed undercroft spaces and external landscape open areas. Post development PMF as illustrated in map P1.0-PMFD shows flood level reaches 10.9 to 11m AHD i.e. 3.5m above the FFL of the Ground Level 0. A plan of Ground Level 0 is provided in the Architectural Plans and Design Report.	Noted.
EES3	• It is also not clear, whether the proponent adopted a no flow ingress approach above the FFL as indicated by map P1.0-PMFD. Though, there is inconsistency between the map and the report's discussion. The map shows the buildings site surrounded by water while the buildings are flood free, while the report indicates that post-development condition for the PMF is shown to be flooded by more than 2m of floodwaters. This needs to be clarified.	The probable maximum flood (PMF) levels are predicted to exceed the proposed terrace/ground level (i.e. 7.5m AHD) and the building façade at this level extends further outwards and poses obstruction to flows. The adopted approach to modelling this event conservatively assumes blockage of flows based on the ground level building footprint. Under this event the undercroft level remains passable for floodwaters. The Flood Risk and Stormwater Report Addendum at **Appendix J** of the RTS Report further models an event for an open undercroft whilst retaining the blockage for the upper building levels.

No.	Extract	Comment
EES4	• Map P1.0-PMFH shows the buildings in PMF are largely within the H6 hazard categories. Therefore, due to the significance of this infrastructure, it may be prudent to address structural measures required to ensure the structure of the buildings can withstand floodwater forces including debris and buoyancy up to this level.	A revised structural statement has been prepared by Arup and is contained at **Appendix N** of RTS Report identifying the structural elements adopted to satisfy the forces from the flood waters. The Flood Risk and Stormwater Report Addendum at **Appendix J** also clarifies the buildings' ability to withstand floodwater forces.
EES5	• Item 12 of the SEARs requires the proponent to prepare an assessment of flood risk in accordance with the guideline contained in the NSW Floodplain Development Manual (2005). The Manual emphasises the need to explicitly consider the full range of flood sizes up to and including the PMF and to consider existing, future and continuing flood risk strategically. The obligation of assessing the full range of flood sizes is principally derived from an understanding of continuing risk and the management measures required to deal with that risk to address the safety of people. The Manual states that: *Analysing the PMF provides an upper bound of flood behaviour and consequences for emergency response planning. It can identify critical factors, such as key levels for loss of evacuation routes and inundation of entire areas, so that appropriate emergency response and recovery planning and community education programs can be developed.* The Manual also highlights that response planning for the consequences of the PMF provides for effective management of all events rarer than the define flood event selected as the basis of the flood planning level (FPL) but smaller than the PMF. There is no consideration from an emergency management perspective regarding flood events rarer than the 1% AEP up to the PMF as the proposed emergency evacuation strategy outline in Section 8.7 is limited to the 1% AEP. EES recommends that this is addressed in this current stage of planning.	Evaluation of the flood risks and emergency response to encompass the PMF and 1% Annual Exceedance Probability (AEP) plus climate change (equivalent to an event rarer than 1% AEP but more frequent that the PMF) is addressed in the Flood Risk and Stormwater Report Addendum at **Appendix J** of the RTS Report. This addendum report includes a flood risk assessment based on the flood consequences and hazards associated with a range of flood probabilities up to the PMF. The proposed Emergency Management Strategy, which focuses on a Shelter in Place approach, is to be adopted for events up to and including the PMF. Further details of the feasibility of the Emergency Management Strategy is contained in the Flood Risk and Stormwater Management Report Addendum at **Appendix J** of the RTS Report.
EES6	• The proposed emergency evacuation strategy recommends shelter in place as the main evacuation strategy during the 1% mainstream flood, the report states: *… time of inundation for a Parramatta River flood is greater and estimated in the order of 10 hours or more for the critical storm event but is still a number of hours rather than days and the advice to remain in the Powerhouse Parramatta buildings and wait until the storm / flood has passed would remain the same.* It should be noted that, shelter in place is not considered an evacuation strategy approved by the State Emergency Service (SES). Evacuation definition is to remove people from risk areas to a flood free area. While shelter in place as a management measure allows people to remain within the risk site but in a higher level above the flood level.	For clarity, the 10 hour duration is at river level i.e. breaking the riverbank. At the level of the ground floor (RL 7.5m AHD), the duration of inundation in a PMF event is in the order of 5 hours. In a PMF event, a large part of the Parramatta CBD would be inundated, and it is considered nearly impossible to evacuate to higher grounds in time by foot. The shelter-in-place strategy is consistent with City of Parramatta Council's Floodplain Risk Management Plan, adjacent developments and is the preferred response that has been adopted within the LGA, in particular for developments along Parramatta River. The shelter-in-place strategy would require evacuating to Levels L1 and L2 of the east and west museum buildings which are several metres above the PMF level.

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EES7	Therefore, it is recommended that, a site flood emergency response plan is developed in consultation with SES and City of Parramatta Council and complementary to existing Parramatta local plans.	It is recommended that the preparation of an emergency response plan form a condition of consent, taking into account the final detailed construction plans and operation of the site. This commitment is reflected in Mitigation Measure D/O-TA2. The Flood Risk and Stormwater Management Report Addendum at **Appendix J** to this RTS Report provides details that demonstrate the feasibility and appropriateness of the Emergency Management Strategy.

1.5 City of Parramatta Council

No.	Extract	Comment
CoP1	**2. Heritage and Archaeology** The museum can make culture more visible in the public domain and gift the city with greater cultural vibrancy and authenticity. Distinction and confidence on a world stage will also be achieved by recognising through art and interpretation that Parramatta and its river has always been and important meeting place for Aboriginal peoples, and the significance of this area for all peoples as a site of early colonial contact. The application and the design fails to demonstrate adequate consideration of heritage and significant archaeology on the site, including the Parramatta Sand Body (PSB). The application also fails to demonstrate a robust strategy for heritage interpretation.	Noted. A Heritage Interpretation Strategy has been developed for the project that outlines identifies the principles that will guide heritage interpretation and identifies example strategies and programmatic responses that may be implemented for each principle subject to further consultation, study, and coordination with museum programming. The Strategy is provided at **Appendix G** of the RTS Report and will inform the preparation of a Heritage Interpretation Plan as part of the detailed design and operation of Powerhouse Parramatta.
CoP2	**2.2 Aboriginal Cultural Heritage** The Aboriginal Cultural Heritage Assessment Report (ACHAR) notes that the site is likely to have “high social and spiritual significance” (Curio, ACHAR, pg10) to the Darug community, which is consistent with CoP consultation with the local community on cultural values associated with the City River corridor (and noted in the Parramatta City River Strategy). The design proposal (architectural or landscape design) currently fails to respond to this context in any meaningful way.	A Heritage Interpretation Strategy has also been developed for the project that outlines the themes for heritage interpretation elements to be developed in consultation with stakeholders. The Strategy has been developed in consultation with Council. A copy of the Heritage Interpretation Strategy is contained at **Appendix G** of the RTS Report.
CoP3	The ACHAR notes “should the PSB (Parramatta Sand Body) be present within the study area, and contain a remnant Aboriginal archaeological deposit, the study area may have high scientific significance for its ability to contribute to knowledge to the archaeological record about Aboriginal occupation of this area of Parramatta and across the PSB itself” (Curio, ACHAR, p49). Given the significance of the site, further consideration is required of design options that conserve the PSB insitu as a first priority.	Curio Projects has prepared an Addendum Historical Archaeology Impact Assessment (HAIA) (**Appendix H**) and Addendum Aboriginal Cultural Heritage Assessment Report (ACHAR) (**Appendix I**) in response to the revised design and associated construction impacts which include the relocation of the plant, additional piles across the footprint of each building, the undercroft and service impacts. These addendum assessments address any potential impacts resulting from the amended ground works on historical and Aboriginal archaeological potential and provide a revised excavation methodology based on the new impacts. The amended ground works are necessary for the viability of the development and structure and comprise bulk excavation associated with services such as grease arrestor, tanks, sewer and stormwater pumps, lift pits, plant, and foundation piles, the decommission and decontamination of existing building sites, utility trenching, and landscaping works. Where it has not been possible to avoid impacts through redesign or using previously disturbed areas, then

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		archaeological intervention may be necessary to provide a level of mitigation prior to unavoidable disturbance or removal by the development. The assessments identify the processes to be implemented including further investigations to be undertaken on the site, test trenching, and site induction processes.
CoP4	The City of Parramatta's First Nations history is one of the most significant in the nation, and the richness of Aboriginal cultural heritage is the heart of the City's identity. The City River foreshore and Powerhouse Museum site should continue to acknowledge First Nations as custodians of the land, and support Aboriginal culture to shape the story and identity of our City. The City River foreshore will be a key precinct for the location of the First Nations Walk, a curated journey through the CBD comprising physical artworks and digital content that will acknowledge Aboriginal people in a meaningful way, including their ongoing relationship with country.	Noted.
CoP5	2.3 Recommendations 1. That the application and the design demonstrate adequate consideration of heritage and significant archaeology on the site, including the Parramatta Sand Body (PSB). 2. That a robust Heritage Interpretation Strategy with clear commitments be developed and submitted for consideration. 3. Further design development is required to ensure the architectural and landscape design responds to the consultant's evaluation of the site as having strong likelihood of high social, spiritual and scientific significance to Aboriginal people.	1. Refer to response to CoP3. 2. A Heritage Interpretation Strategy has been developed for the project that outlines the themes for heritage interpretation elements to be developed in consultation with stakeholders and inform a Heritage Interpretation Plan. The Strategy has been developed in consultation with Council. A copy of the Heritage Interpretation Strategy is contained at **Appendix G** of the RTS Report. 3. Refer to response to CoP2.
CoP6	**3. Public Domain** The landscape proposal has changed from visualisations of the Design Competition winning scheme, and no longer meets the objectives of the Civic Link Framework Plan or the Parramatta River Strategy to provide a continuous transition and accessible link from Parramatta Square to the River. It is unclear whether landscape changes have been endorsed by the Design Integrity Panel or have been a result of previous comments and/or recommendations. A key priority for Council is to ensure the Powerhouse Parramatta Design integrates seamlessly into the natural landscape and River foreshore and the opportunities to unify public domain and consider the site's heritage, archaeological significance, all the while incorporating flood resilient design, is paramount.	The landscape proposal has been amended in response to the comments received from Council. The Landscape Report Addendum and Plans are provided at **Appendix C** of this RTS Report outlining the design amendments that have been undertaken in response to the comments, and how the amended landscape design is consistent with the objectives of the Civic Link Framework Plan and the Parramatta River Strategy. Confirmation of consistency in design development with the competition winning scheme from the Design Integrity Panel is contained in the Design Integrity Panel Statement at **Appendix E** of the RTS Report.
CoP7	**3.2 Building address and interface with the Civic Link** Visualisation provided from Horwood Place illustrate a narrowing of the Civic Link through the Museum site. Given the proposed removal of 'Willow Grove' as part of the design, every endeavour should be make within the architectural and landscape design to maintain a clear vista from Horwood Place through the	The structure of the proposed development has been divided into two buildings to enable the continuation of the Civic Link uninterrupted through the site, in accordance with the alignment with Horwood Place envisaged in the Civic Link Framework Plan. The width of the Civic Link is generally greater than 20m within the site, with the exception of the space directly between the two buildings where the width is 11.5m for 11.3m

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	building and achieve a minimum 20m Civic Link, consistent throughout all blocks in the City Centre. Further design development is required to address the way the Civic Link terminated or concludes at the River. The following are key considerations to guide design development: • Physically and visually extend Civic Link from Phillip Street to the River, responding to the consistent corridor alignment of 20m wide. • Ensure that Civic Link is publicly-accessible 24/7. • Ensure a legible and generous universally accessible walkway (1:20, preferred) or ramp (1:14) is provided connecting the Civic Link and the lower foreshore. • Facilitate shared cyclist and pedestrian use for the entire Civic Link, from the lower foreshore path to Phillip Street. • Ensure that Civic Link functions as an evacuation route in both overland and river flooding events. • Retain the visual and sensory setting of Willow Grove Garden through conservation of significant trees and interpretation of its historic landscape into the Civic Link public domain. • Allow for structural loading and temporary access points to accommodate event and emergency vehicles along the Civic Link. • Equitable public access is needed to cater to all users.	The location and extent of the eastern and western buildings, and their relationship to each other, has been developed with consideration of the physical constraints of the site and the functional requirements of the proposed museum, as well as a desire to maximise open recreation space at the riverfront. The functionality of the museum further requires connection between the two buildings in order to efficiently and effectively manage operations, particularly visitor circulation and loading between the main loading dock in the western building and the upper level spaces of the eastern building. The resulting 11m by 11m contraction of this link Civic Link where the buildings overlap provides a moment of 'constraint and release' that adds to the vibrancy of the journey through Civic Link. Much as Parramatta Train Station terminates Civic Link to the south, Powerhouse Parramatta will provide a termination point for Civic Link in the north. The narrowing of the Civic Link before opening to an expansive public domain along the river foreshore is considered to be an appropriate urban response that emphasises the importance of the museum building and public domain within the CBD context. The proposed width of the Civic Link as a 20 metre wide connector through the Parramatta CBD is also understood to accommodate a range of varied and disparate uses along its length, including outdoor dining and gathering in addition to pedestrian flow. Powerhouse Parramatta is a unique use along the length of the Civic Link forming both the eastern and western edge of the link within the site. As such the requirement for a 20 metre width to accommodate the competing priorities experienced along Civic Link south of Phillip Street is not apparent within the Powerhouse site. The narrowing to 11.5 metres for a length of 11.3 metres is not considered to inhibit the use of functionality of Civic Link as there are no uses (e.g. outdoor dining) within this 11.3 metre length that would inhibit the flow or gathering of pedestrians. In response to the remaining points raised by Council: • The Civic Link will be publicly accessible 24/7 throughout the Powerhouse Parramatta site. • Accessibility between the upper levels of Civic Link through the site and to the river foreshore level is provided via generous stairs and a lift located at the eastern edge of the eastern building. Both access points are accessible 24/7. Further detail regarding the accessibility between the two levels is contained within the Landscape Report Addendum at **Appendix C** and the Addendum Accessibility Statement at **Appendix R** of the RTS Report. • An accessible ramp between the river foreshore level and the upper levels of the Civic Link is not possible. This ramp would need to be approximately 110m in length which would not achieve the accessibility intent of providing a 'suitable and equitable alternative access.' The proposed lift is considered to provide the best and most equitable access between the levels. Pedestrians may also seek to use the sloped embankment, or the paved ramp from Dirrabarri Lane. • Shared access is provided for both pedestrians and cyclists as part of the Civic Link within the Powerhouse Parramatta site. Connection between the upper and lower

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		levels of the site for cyclists is provided via the lift as a ramped solution is not possible as the length of the ramp will not achieve an equitable outcome in terms of accessibility. The paved ramp on Dirrabarri Lane to the west of the Civic Link may also be used. • As outlined in Appendix O- Flood Risk and Stormwater Management Report of the EIS and **Appendix J** of the RTS Report, the Civic Link will no longer be an overland flow path in storm events up to and including the 1% AEP. The northern end of the Civic Link will provide a means of access into the museum where pedestrians have used the eastern or central staircase. • A mature Cupressus macrocarpa tree from the Willowgrove landscape has been retained as part of the revised landscape design as detailed in the Landscape Report Addendum at Appendix C of the RTS Report. In addition, in recognition of the comments regarding the preservation of heritage in Parramatta it is proposed to retain Ste George's Terrace on the site and relocate Willow Grove. The relocation of Willow Grove would be undertaken under the supervision of a heritage specialist and a process of recording and developing sensitive demolition methodologies would be undertaken prior to any works. Create Infrastructure NSW will develop a framework outlining the future site of Willow Grove, the reconstruction process and program and s that would be undertaken prior to the opening of Powerhouse Parramatta. • Civic Link will be designed to allow for structural loading and temporary access points to accommodate both emergency and event vehicles. • Equitable access has been factored into the amended landscape design as outlined in the Landscape Report Addendum at **Appendix C** and the Addendum Accessibility Statement at **Appendix R** of the RTS Report.
CoP8	**3.3 Building address and interface with the River Foreshore** Council's vision is for the Civic Link to extend to the river and integrate seamlessly with the lower and upper river foreshore. The dimensions and lightweight character of the stairs in the interface of the river foreshore do not create a legible or 'grand' accessible connection between the city and the river. Council's aspiration for a River Square does not need to conflict with the Powerhouse Parramatta's desire for a central lawn. A more integrated design concept is needed that addresses the whole of the publicly accessible and programmable space along the river foreshore. The following are key recommendations for a redesign of this space: • The DCP 2011 and draft Civic Link DCP requirement of a 25m building setback along the River foreshore. • Address level changes between city and river through a tiered landscape and architectural approach in order to: unite the two spaces into a cohesive whole; address the river foreshore at a human scale; seamlessly integrate universal access ramps into the landscape; and create opportunities for informal seating and passive recreation. This would also assist in providing multiple,	The landscape proposal has been amended in response to comments from Council. **Appendix C** of the RTS Report includes the Landscape Report Addendum and Plans, outlining the design amendments that have been undertaken in response to the comments including how the amended landscape design is consistent with the objectives of the Civic Link Framework Plan and the Parramatta River Strategy. In response to recommendations raised by Council: • The revised design has increased building setbacks to the river foreshore so that all components of the building conform to the 25 metre setback along the river foreshore. • The revised landscape design addresses comments in relation to the uniting of the river foreshore and upper levels of the public domain. The sloped lawn provides this connection both visually and physically. The response to CoP7 outlines the limitations in providing accessible ramps between the levels. • The landscape design as contained in **Appendix C** outlines the programmable spaces within the public domain. • The public domain design outlined in **Appendix C** outlines the elements that will promote everyday activation. Seating areas and shade via trees are provided within the public domain as well as use of the outdoor spaces including the rooftop area for

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	universally-accessible evacuation routes out of the lower foreshore that allow for high volumes of people connecting to levels up to and including the PMF (Probably Maximum Flood). • Provide programmable public domain spaces that facilitate high quality events and exhibitions by locating service and utility access points above the FPL (Flood Planning Level), providing generous ceiling heights that fit with the scale of the P (min. 5m), integrating with public amenities, and connecting with landscape views. • Provide foreshore public domain facilities that promote everyday activation, including a boat launch and storage, generous shade, pause points, seating for groups, and spaces for outdoor classrooms. • Explore design treatments that soften the river's edge and invite water engagement.	outdoor learning areas. There is no provision for boat launch and/or storage as part of the proposal. • The river edge landscape treatment includes a bioswale along the foreshore edge. This treatment softens the river edge whilst also performing an important water sensitive urban design response by acting as a filtration device for water before it enters the river.
CoP9	**3.4 Building address and interface with Wilde Avenue** The Substation on the footpath limits pedestrian circulation space and is in a visually prominent location. Loading access to Powerhouse Parramatta on Wilde Avenue will be visually prominent and needs to be carefully detailed. The design needs to address physical and visual prominence of the substation, loading areas and any other mechanical structures from Wilde Avenue.	The substation located on this frontage has been moved to create 5.5m in circulation space and avoid the building footings for the exoskeleton, as detailed in the Architectural Design Report Addendum at **Appendix B** of the RTS Report.
CoP10	**3.5 Response to CoP Public Domain Requirements and Guidelines** Further detail and explanation is needed to outline how the public domain design has responded to CoP Public Domain requirements and Guidelines. To ensure the proposed site integrated seamlessly with its surrounding context.	The Landscape Report Addendum at **Appendix C** of the RTS Report outlines how the project has considered the City of Parramatta Council Public Domain Guidelines.
CoP11	**3.6 Public Art and Interpretation** Public art and interpretation will acknowledge the City's important archaeology and cultural heritage assets identified in the Civic Link Framework Plan and the City River Strategy. A range of art and interpretation typologies have been identified that include iconic works on high profile sites, and a series of functional and interpretative markers that contribute to legibility, wayfinding and an overall coherent and connected understanding of the Civic Link with the City River and Parramatta Square. Proposed public art and heritage interpretation works along City River and Civic Link are also planned for the development of First Nations Walk, which will deliver projects that acknowledge Aboriginal heritage and connection with Country.	Noted.
CoP12	**3.7 Recognition of First Nations Walk** There is a tremendous opportunity to recognise the ongoing significance of Parramatta and the Parramatta River to First Nations people. This should be further considered as part of the design proposal.	The Heritage Interpretation Strategy provided at **Appendix G** of the RTS Report reaffirms the Powerhouse's commitment to reconciliation and opportunities for recognition of the ongoing significance of Parramatta and the Parramatta River to First Nations people.
CoP13	**3.8 General Reliance on Future Connections** There appears to be a reliance on connection by others to achieve key public domain linkages. It is unclear how these connections will be realised and	• The EIS confirms that while there is the potential to provide a future laneway link between Dirrabarri Lane and Church Street, this is not critical to or proposed as part of this development and would be subject to separate and future approvals by others.

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	signage/wayfinding coordinated. Clarification is required regarding consultation with the landowner and the feasibility of realising connections to 330 Church Street. Council is concerned with the dependence on others to deliver the following which should be considered as part of this application: • Future laneway at El Phoenician site (328 Church St) • Barry Wilde Footbridge connection across the river • Access and right of way via 330 Church St (Meriton Site) • Pedestrian ramp from river foreshore up to Lennox Bridge	• There is an existing footbridge connection across the Parramatta River beneath the Barry Wilde Bridge, and as such no further works are required in this instance. • The access and right of way via 330 Church Street is also existing. No change is required to the existing easement facilitating access to the Meriton development through the western boundary of the site.
CoP14	3.9 Recommendations 1. Every endeavour should be made within the architectural and landscape design to maintain a clear vista from Horwood Place through the building and achieve a minimum 20m wide Civic Link. 2. Further design development is required to address the way the Civic Link terminates at the River. 3. Further design detail be provided around the substation and the prominence of loading areas. 4. Further design resolution of the interface of the building and foreshore public domain, particularly the undercroft should be undertaken to remove the segregation created in the current scheme and provide for a more sensitive landscape solution along the River Foreshore. 5. Further design detail is required relating to Art and Interpretation, in particular how the proposal recognises First Nation people.	1. Refer to response at CoP7 2. Refer to response at CoP7 3. Refer to response at CoP9 4. Refer to response at CoP7 5. Refer to response at CoP12
CoP15	**4. Built Form** The importance of an exceptional built form is essential for Powerhouse Parramatta in its delivery of a building that imparts a successful legacy on the City of Parramatta which is unique to its context and landscape. A key priority for Council is to ensure the museum design integrated seamlessly into the city on all its edges as well as its natural landscape. Council feels that the building currently focuses much of its attention to the river foreshore on the north and that there are missed opportunities to better engage with the existing built form of the city to the south on Phillip Street and Wilde Avenue. A significant concern for the current design scheme is its departure from the award winning design and introduction of the undercroft. This is considered a poor outcome and raises concerns for amenity, safety and security, flood and is a poor visual outcome.	Comments in relation to the building façade are addressed in the Architectural Design Report Addendum at **Appendix B** of the RTS Report. The undercroft area was included within the competition winning scheme as a component of the flood mitigation strategy for the site. Through further flood modelling the undercroft area has been required to increase in area to ensure an adequate volume of area for flood conveyance through the site. Utilising the recommendations of Council's DCP and the NSW Flood Development Manual, the project has aimed to ensure that no property or development either upstream or downstream of the site is adversely impacted by flood due to the development. Appendix O- Flood Risk and Stormwater Management Report of the EIS and **Appendix J** of the RTS Report outline the reasons why the undercroft space is required to assist with flood water conveyance, as discussed further in **Section 5.8** of the RTS Report. The amended landscape design as outlined in **Appendix C**, detail how the landscape concept has been revised to better physically and visually connect the levels of the public domain. The result includes a sloping lawn connecting the riverfront promenade and the PS1 terrace and screening the exposed undercroft area. This is consistent with the competition winning scheme whilst also providing adequate flood conveyance through the site.

No.	Extract	Comment
		Comments regarding safety and security are addressed in **Appendix P** - CPTED Addendum of the RTS Report.
CoP16	**4.2 The Undercroft** The design competition drawing shows a green space sloping up to meet the ground floor of the museum. The revised design has removed the landscape gesture and replaced it with an undercroft space with a floor to floor height of 4m and a depth ranging from 25m to 40m. the space is enclosed on three sides and only open to river foreshore where it is partially concealed by an expanded metal operable panel façade along the full frontage of the northern façade. The proposed powder coated white 'expanded metal operable panel' is a poor choice for the façade along the river. The material and the operability of the panels are not robust enough to withstand damage from repeated flood events and the mesh is also likely to capture silt and debris. Design options for skylights appear to be desired to introduce daylight into the depth of the undercroft space, but it is not clear what uses are being catered for in the undercroft and if the skylights are adequate. Specific uses have not been nominated for this space except bicycle storage in the deeply recessed south-west corner. Notwithstanding the proposed height and depth of this space is not aligned with the suggested proposed uses and public nature of this space. The landscape architect's package accompanying the SSD application illustrates possible uses for the undercroft space such as basketball courts, temporary exhibition spaces, outdoor theatre seating and skate park. These suggested uses require significantly taller ceiling heights than proposed, for example an indoor basketball court is typically 7m. similarly, the sculptural concrete forms and ceilings shown, require much more generous space to achieve.	The undercroft area was included within the competition winning scheme as a component of the flood mitigation strategy for the site. Through further flood modelling the undercroft area has been revised to ensure flow conveyance through the site is similar to the pre-development condition. Utilising the recommendations of Council's DCP and the NSW Flood Development Manual, the project has aimed to ensure that no property or development either upstream or downstream of the site is adversely impacted by flood due to the development. The amended landscape design as outlined in the Landscape Report Addendum and revised Landscape Drawings at **Appendix C** of the RTS Report, detail how the undercroft area is located beneath a sloped embankment that seamlessly bridges the level difference between the riverfront promenade and the PS1 terrace, in addition to other site improvements. This is consistent with the competition winning scheme whilst also providing adequate flood conveyance through the site. Further detail regarding activation of the undercroft is contained in the Landscape Report Addendum at **Appendix C** of the RTS Report.
CoP17	**4.2.1 Undercroft Space and Flooding** The design of the undercroft space is largely driven as a response to deal with flood levels and flood storage requirements with sections showing that the space is largely inundated in a 1 in 100 flood event. Location of large, habitable spaces within a high hydraulic flood zone also presents a significant threat to life and is unlikely to be permitted. The depth and enclosure of the undercroft raises significant concerns with evacuation of the public during flood events. Currently the only route of escape is towards the flood zone and via a lift, which will have limited capacity and is unlikely to be operating during a flood event.	The undercroft area has been retained as a spatial requirement to convey floodwaters. However, this space has been designed with screens to prevent access except for when a managed event is being undertaken by Powerhouse. Such programmed events will ensure public access is managed and coordinated in tandem with the Flood Emergency Strategy developed for the site. The proposed design of the undercroft space is detailed in the plans at **Appendix B** and **C** of the RTS Report and emergency responses are detailed in the Flood Risk and Stormwater Management Addendum at **Appendix J.**

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	Supporting infrastructure such as lighting, electricity points, mechanical systems will also need to be provided above the flood planning level. All future fit outs, including utility connections, exhibitions, equipment and staging etc, will be limited to sacrificial elements only. These constraints are likely to result in serious limitations on event capacity, low quality programming and few permanent uses of the space.	
CoP18	**4.3 Architectural Expression** The architectural package includes a simple palette of materials, but the architecture relies on the successful design and delivery of the superstructure. No details are provided to demonstrate the tectonics of the superstructure, it is necessary to confirm that the superstructure can meet the ground without requirements for bollards and balustrades to protect pedestrians (see Macquarie Bank in King Street Wharf, UTS Library). The undercroft space does not align with the architectural expression of the building. The superstructure expressed on the façade ends at the ground plane level and at a thin slab to the undercroft. A separate column structure for the undercroft and a thin slab edge to its roof are conceptually and spatially segregated from the more successful architectural expression of the building. The undercroft appears to be squashed by the weight of the building.	The amended design as outlined in **Appendix B** - Architectural Design Report Addendum and **Appendix C** - Landscape Report Addendum of the RTS Report addresses this comment through: • Maintaining the exoskeleton to the ground in front of the western building. • Chamfering the terrace slab to ensure a more slender appearance at its northern edge. • Maintaining the expression of the exoskeleton through the terrace to the undercroft where the columns meet the ground.
CoP19	**4.4 CPTED and Safety Issues** In addition to the significant safety issues associated with the risk of flooding addressed in section 5, there are several concerns with the quality, use and safety of the proposed undercroft. Antisocial behaviour and occupation of the undercroft at night is a concern, the structural qualities of the undercroft create poor sightlines into a deep area, resulting in no passive surveillance. The potential for mitigation of antisocial behaviour through programming is significantly restrained through flood issues. It is unclear how CPTED can be managed in the undercroft whilst also supporting the Powerhouse Parramatta's strategy to create a vibrant precinct that supports the night economy. The proposed undercroft space is not supported from a CPTED and safety perspective.	The undercroft area will be closed to public access unless a scheduled activity or event of the Powerhouse is taking place. **Appendix P** - CPTED Addendum of the RTS Report confirms that through adequate lighting design, CCTV coverage and access points, the undercroft can function safely in line with other public domain spaces of the precinct.
CoP20	<u>4.5 Recommendations</u> 1. The Powerhouse Parramatta undercroft space is to be removed and the design further developed to improve the built form interface with the River Square & Foreshore. 2. Further detail and design refinement is to be provided regarding the superstructure and how it interacts with the ground plane.	1. Refer response at CoP15 2. Refer to response at CoP18
CoP21	**5. Flooding and Overland Flow** The site is subject to river flooding from Parramatta River, which flows across some of the site in fairly moderate floods. The site is also subject to overland	Noted.

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	flow flash flooding from the urban catchment above the site to the south. The applicant's specialist consultant report prepared by Arup, advises that the overland flow that they have modelled results in higher flood levels than the Parramatta River flood levels. there are high hazard conditions across the site from both kinds of flooding. However, at present, the Council remains concerned that the current design fails to appropriately manage the flood constrains of the site and as a result, falls short of delivering the interconnected, accessible, legible precinct that Council's strategies are striving to deliver. Arup have increased the flood planning level well above the 1% AEP (100 year) flood level by increasing the freeboard from 0.5m to 1-1.5m. this is appropriate for a museum. The highest value (irreplaceable) items in Powerhouse Parramatta should be kept/stored above the PMF. However, the current approach to managing flood and overland flow cannot be supported and the design needs to be modified address the serious concerns relating to the undercroft area.	
CoP22	**5.2 Flooding** The applicant's key strategy for managing flood impacts includes on site flood storage, replicating the predevelopment conditions which includes a low level car park that regularly floods. Arup's aim is to recreate the 18,500m3 storage that this provides by the way of a large undercroft. Arup (the applicant's consultants) believe that such storage will reduce the likelihood of increased flood levels elsewhere (downstream) and will not affect warning times, evacuation plans etc. on other sites. If a flood river flow of 1000m3/second is assumed, the storage would be filled in a matter of seconds and then the river would simply bypass it. As such, it is Council's view that the provision of flood storage is unnecessary and achieves very flood mitigation at the expense of creating severe hazards and risks for site occupants and preventing implementation of a better ground level design as discussed at Section 4. Future occupants of the undercroft and Riverbank spaces are proposed to be protected with the use of an alarm system based on rainfall predictions for the overland flow flash flooding. For river flooding events with slightly more warning time, this rainfall prediction alarm system would be augmented by river level monitoring. Council now has a sophisticated flood warning system for the Parramatta River but not for flash flooding from overland flow.	The objective of the proposed flood risk management strategy as outlined in Appendix O to the EIS and **Appendix J** of the RTS Report, is to replicate the existing flood behaviour for both mainstream Parramatta River flood and overland flow flooding through the site. Rather than "containing" or storing the mainstream flow within the undercroft spaces and external landscape areas, the strategy aims to use those areas to maintain conveyance of flows overtopping the Parramatta River banks for all flood events, such that any alteration to the baseline flood behaviour is kept to a minimal. To achieve this, the undercroft seeks to mimic the existing multi-storey car park by allowing flood waters to flow through. This allows the flow conveyance of the post-development condition to closely match the pre-development condition minimising upstream or downstream impacts, which is a requirement of both the NSW Floodplain Development Manual and Council's DCP. The proposal does not intend to contain or actively store flood waters within the undercroft space. The undercroft area would be filled by flood water as a function of the rate of river level rise, rather than the flowrate of the river. The filling of the undercroft area would mimic the floodwater rise of the river which would be unchanged from the existing situation. This filling rate and river rise rate is approximately a 1m/h in the 1% AEP event (but can be as fast as 2m/h). This rate will not change as a result of the project. Modelling undertaken for the project demonstrates that inundation of these areas would occur over an extended period in all riverine flood events. Using the 1% AEP flood event as an example, riverine flooding does not encroach the undercroft space until 2 hours into the storm

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	Safety of site occupants should not be reliant on high technology flood warning systems that in any event cannot predict flash flooding from local rainfall. Safety must be provided for in the first instance by careful design of open space flood containment in well defined conveyance areas and including evacuation routes and pathways to refuges.	event. The southwest corner of the undercroft, where the staircase with highest RL is provided, does not become flood affected until 3 hours into the storm event. This will provide sufficient time for the evacuation of the undercroft and the lower levels of the Powerhouse site. Use of Council's Floodsmart warning system to inform of imminent mainstream river flooding has been included in the revised principles to be addressed within the Emergency Management Plan for the project (refer to **Appendix J** - Flood Risk and Stormwater Management Report Addendum of the RTS Report). This addendum report also provides a detailed description of the chronology of a large rare flood and the egress routes that would be available from the riverbank area / undercroft to the safety of Level 1 (above the PMF). It is understood that Council's Floodsmart warning system does not operate in flash flood events such as overland flow and has not been relied upon for the Emergency Management Plan for the project. Powerhouse Parramatta will be a managed facility with on-site staff and security 24/7. The undercroft spaces will not be accessible between 10pm-7am unless a programmed event is being undertaken in the space. As such the public domain within the Powerhouse site will operate in a similar manner to all other areas of public domain that are subject to flood inundation within the Parramatta CBD. The public domain spaces including Dirrabarri Lane are proposed to be graded to permit a designated overland flow path separate from the evacuation routes such that the flash flood impacts on pedestrian evacuation is managed appropriately. Staircases that access the podium in front of the museum buildings are separate from overland flow paths.
CoP23	**5.3 Overland Flow** Arup's approach to overland is reliant on substantial underground piped flow to alleviate overland flow flooding in certain areas of or near the site, at least for the less intense rainfall events. Given their propensity to become blocked, reliance on piped networks to reduce flooding is unsound and unsafe in this high intensity use area. An additional overland flow path is also proposed through the middle of the site from Phillip St between the buildings. This is a departure from the natural flow regime and could potentially place occupants of that central part of the site at risk.	Appendix O- Flood Risk and Stormwater Report to the EIS notes the presence of two existing overland flow routes through the site under existing conditions (Section 8.3 of the report). Under the proposal, the raising of site levels along the Civic Link will negate the existing overland flow route that runs to the east of the GE Building (32 Phillip Street). This water is proposed to be diverted further west to Dirrabarri Lane. In common rainfall events this water will be managed by installing new surface collection features and conveying water within augmented drainage pipes. The augmentation of the existing trunk under Dirrabarri Lane is required to serve the museum roof downpipes and accommodate the displaced floodwaters from the existing overland flow route along the proposed Civic Link, in order to minimise potential adverse impacts created on Phillip Street. The intent is not to solely rely on a piped network, and in larger rainfall events these systems may be overwhelmed meaning overland flows will be experienced to the west of the GE building, as is currently the case. The comment by Council regarding creation of an additional overland flow path through the middle of the site is considered to be a misrepresentation of the design intent and Appendix O- Flood Risk and Stormwater Report to the EIS. The Flood Risk and Stormwater Addendum provided at **Appendix J** of the RTS Report further clarifies this statement.

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CoP24	**5.4 Flood Risk, Shelter and Evacuation** A strategy is to be developed to manage Parramatta Powerhouse according to risks and consequences of flooding from both Parramatta River and from overland flow. This management strategy shall acknowledge the following: • The presence of high hazard flood conditions across the site. • No habitable rooms shall be located below the relevant flood planning level. • External areas below the Flood Planning Level which are to form part of the MAAS useable spaces must be designed and operated in accordance with the flooding regime and flood risk minimisation principles. Design and operation of such spaces must ensure minimal risk to people and property while optimising use and opportunity. • Recognition that a Shelter in Place strategy and its design response presents less risk from flooding than an evacuation strategy and should be integral to the development design and operations. It must accommodate residents and visitors to the Powerhouse Museum in a safe environment above the PMF for an adequate time, and include access by those in the surrounding public domain. Provision must be made for access to the Powerhouse Museum by emergency services and when feasible public evacuation that is consistent with the Parramatta City River Strategy.	An emergency response plan (inclusive of a management strategy) formed a commitment of the Environmental Impact Statement through Mitigation Measure D/O-FL1. This plan will be developed prior to occupation and address the points noted by Council. Section 8 of **Appendix J**- Flood Risk and Stormwater Management Report Addendum to this RTS Report provides further details to demonstrate the feasibility of the Emergency Management Strategy.
CoP25	**5.5 Drainage, WSUD & Water Quality** Further information and design detail is required regarding a precinct wide water treatment, catchment and drainage strategy. Particularly regarding future and proposed connections into the site and impacts on the overall drainage and water quality performance on site.	Appendix O- Flood Risk and Stormwater Management Report of the EIS includes a preliminary water quality strategy at Section 9.3.3. Further Appendix D of this report contains a preliminary drainage plan in support of this strategy. The strategy will be further developed during the detailed design phase of the project. For clarity, the existing upstream catchment will be treated by an existing GPT near the outfall. Proposed water quality measures, which serve the site's run-off, will be provided upstream of this connection to the mainline stormwater system as described in Appendix O- Flood Risk and Stormwater Management Report of the EIS.
CoP26	<u>Recommendations</u> 1. Provided flood conveyance is not significantly obstructed, the flood storage area, or undercroft, is to be deleted and the Powerhouse Parramatta and riverbank area redesigned to protect both flood conveyance and occupant safety. 2. The eastern and western overland flow routes must be properly formed and designed for conveyance and safety while the central area of the site must be raised or reformed to avoid this function. The redesign of the landform must not rely on pipes and culverts to convey the floodwaters to any significant degree. These should only be used for 'nuisance' flooding as part of the WSUD system. 3. The applicant is to provide further information to demonstrate how the design and use of proposed spaces have appropriately responded to the risks and consequences of site flooding. 4. Construction stage flooding must be addressed.	1. Refer to response at CoP22 2. Refer to response at CoP23 3. Refer to **Appendix J** - Flood Rick and Stormwater Management Report Addendum submitted with the RTS Report. 4. A mitigation measure has been added at CM-SO3 for the Contractor to prepare a Construction Flood Risk Management Plan prior to commencement of construction. 5. Refer to response at CoP25.

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	5. Provision of further design detail on precinct wide water treatment, catchment and drainage to be provided.	
CoP27	**6.1 Powerhouse Museum Name** Acknowledging the historic relationship between the name 'Powerhouse Museum' and its current occupation of a redundant power station in Ultimo, including the synergies between the industrial character of the building and its use i.e. to exhibit the latest industrial, construction and design innovations, further consideration should be given to the appropriateness of the name Powerhouse Parramatta. 6.1.1 Recommendation Council recommends further consideration given to the name of a museum that is more reflective of Parramatta and its history.	This is a matter for the Powerhouse, and is not a relevant consideration for the SSD DA. The future naming and branding of the museum is not an environmental planning issue, and would be subject to refinement at a future stage.
CoP28	**6.2 Property Matters, Ownership and Maintenance of Public Domain** The development appears to be contained within land owned by the State Government with no apparent proposed encroachments onto Council owned land. However, if it is proposed to undertake excavation adjacent to Council road reserved a rock anchor licence from Council may be required before construction commences. If the State Government proposed to dedicate any land to Council at the completion of the project, this land should be restricted to the river foreshore land only, which does not contain any part of the proposed building structure including the stairs leading from the foreshore reserve to the complex. This may require the subdivision of the current foreshore lot. Depending on the proposed ownership arrangement, easements may be required to secure public access along the foreshore. The river foreshore comprises part of a wider public open space corridor that experiences high levels of use and requires a consistent approach to ongoing management and maintenance. Further clarify is required on the future management and maintenance of the river foreshore to ensure seamless integration with adjoining open space under Council ownership and management. 6.2.1 Recommendation Further clarity to be provided in relation to any proposed dedication of land and future maintenance obligations.	All relevant licences will be obtained through Council during the construction process. This issue of land dedication is not a relevant consideration for the SSD DA. Public access through the site has been confirmed within the EIS. The issue of easements is not a relevant consideration for the SSD DA.
CoP29	**6.3 Environmental Management** The methodologies used and conclusions reached in relation to Noise and Vibration Impact Assessment appear to be satisfactory, however, of particular	1. A final list of construction equipment, methodologies and activity locations will be confirmed by the contractor as outlined in Appendix Z- Noise and Vibration Impact Assessment of the EIS.

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	concern is to be expected Noise Management Level (NML) exceedances anticipated for residential receivers along the northern bank of the Parramatta River and also at nearby hotel/residential suites. This will require the development of a detailed community consultation plan with appropriate notification and respite options provided to these effected receivers. The recommendation for an Operational Noise Management Plan with an initial 12-month trial period with performance measurements taken to ensure that the projected noise goals with regard to operational noise levels are complied with or mitigation strategies/devices are adjusted accordingly to ensure acoustic impact during operation is minimised is supported. In relation to Site Contamination, the Detailed Site Investigation and Remedial Action Plan have been developed in accordance with the requirements of SEPP55 and the CLM Act. It is noted that further detailed plans will be required prior to any remediation works commencing i.e. an Asbestos Management Plan and more broadly a Remediation Environmental Management Plan to ensure that all remediation works (including asbestos fines removal) are conducted in a safe and environmentally satisfactory manner. With respect to air quality, the methodologies used and conclusions reached appear to be satisfactory and suitable mitigation measures for potential odour from kitchen exhaust and dust impacts from the construction stage are identified. It is expected that further details of dust mitigation measures will be provided in the Construction Environmental Management Plan. <u>6.3.1 Recommendations</u> 6. That further detail of acoustic impacts and mitigation measures for the construction phase be provided by the selected construction contractor in a Construction Noise and Vibration Management Plan. 7. A Validation Report be required to be developed and submitted for a review prior to an OC being issued for commencement of activity on the site in order to demonstrate that the remediation objectives have been met so as to render the site suitable for the proposed use. An EPA accredited Site Auditor may be engaged at this point to provide a further level of certainty and oversight of the remediation process however given the proposed remediation strategy of complete removal and/or lack of exposure pathway to any remaining contaminated material the risk profile of this site is considered low so this requirement may not be considered necessary.	Noise and vibration mitigation measures which are considered feasible and reasonable have been recommended in Section 3.8 and 3.9 of Appendix Z to the EIS, and are to be reviewed and further developed by the contractor and documented in a Construction Noise and Vibration Management Plan (CNVMP), recommended as the first item in Table 24. A detailed community consultation plan is recommended to be incorporated into this CNVMP, with community liaison actions outlined in Table 24. These measures are committed to as part of Mitigation Measure CM-4. 2. All remediation works will be undertaken in accordance with the Remedial Action Plan contained at Appendix M of the EIS.
CoP30	**6.4 Biodiversity** Whilst the majority of trees within the site are mature landscape plantings, the removal of 50+ trees (predominantly consisting native or locally indigenous species) is considered a significant vegetation loss. The Biodiversity	As noted in the amended Architectural and Landscape Plans and Design Statements (**Appendix B** and **C** of the RTS Report), the proposed development has been refined in response to submissions. These amendments have ensured that an additional tree from the Willow Grove landscape, a Cupressus macrocarpa, will be retained within the landscape design

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	Development Assessment Waiver Report (BDAR) waiver does not adequately capture the full extent of proposed tree removals as it only assesses the removal of up to 30 trees based upon a 'preliminary' arborist report. It also fails to assign the best matching Plant Community Type (PCT) based on the local species present, as is best-practice where the vegetation is a mix of local and non-local planted species in recognition of potential biodiversity value and function. Furthermore, the BDAR waiver states that 'Functional connectivity exists for flying animals such as birds and bats that use the airspace above the development site to move between habitats and the planted vegetation is likely used as a foraging or perching resource as part of daily movements.' The proposed removal of 50+ trees is therefore not negligible, particularly given the lack of native vegetation present along this portion of the river, and a BDAR should be provided in accordance with the precautionary principle to ensure 'no net loss of biodiversity.' The BDAR waiver does not address the potential presence of the Southern Myotis, which in addition to trees, are known to frequently roost in caves, storm water channels, building under bridges. Whilst it states that 'a number of tight spaces were identified including cracks and crevices, holes and joins these were mostly shallow and did not offer suitable microclimate conditions suitable for permanent roosting or maternity roosts', this indicates that not all potential habitat features are shallow and is not considered to provide sufficient evidence demonstrating that the potential roost habitat would not offer a suitable microclimate for this threatened species. The BDAR waiver identifies the presence of two likely remnant trees (Trees 1 and 2) that are not impacted by the proposed built form and are recommended for retention. However, with the exception of Tree 1, the development proposes the removal of all other existing trees along the river foreshore. These trees provide both ecological and environmental benefits, particularly shade and mitigation of the urban heat island effect, and their wholesale removal is not adequately justified. The design of the built form and public domain needs to maximise the retention of existing mature trees along the river foreshore, particularly the likely remnant (Tree 2) and those with high retention values.	and a further two are retained in the Phillip Street streetscape and a tree adjacent to the Lennox Street bridge. All other trees on site are considered to be in poor health, not worthy of retention, or will unavoidably conflict with the required building footprint and levels. The landscape concept includes significant tree replacement planting and will use predominately native and endemic species. A revised BDAR Waiver Request has been prepared by Jacobs and submitted to DPIE. This is discussed further in **Section 5.10** of the RTS Report.
CoP31	**6.5 Sustainability and Reflectivity** A 5 Green Star rating is proposed as the only framework to guide sustainable design and the outcome that can be confirmed to be delivered post development approval. This falls short of the SEARs requirements, the Greater Sydney Regional Plan objectives and the objectives of the Parramatta DCP. The ESD report confirms that there is no improvement to energy efficiency provisions over minimum regulated requirements of the current NCC 2019 BCA.	1. To address the SEARS, the project plans to achieve a Green Star Design & As Built rating of 5 stars, which is considered Australian Excellence as defined by the Green Building Council of Australia. Innovative proposals, as requested in the SEARS, included in the current design and operation of the building which exceed the NCC 2019 provisions including: • mixed mode air conditioning of circulation areas, • extensive climate change adaptation strategies, • large landscaped areas, and • design guided by life cycle assessment of material impacts.

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	Concern is also raised that the responsibility to deliver renewable energy is proposed to be transferred to the building operator through a requirement to purchase off site renewables. Any approvals should not rely on a future operator obligation to reduce the extent of renewable energy provided on-site in the proposed development. In relation to reflectivity, the reflectivity report applies a robust technical methodology and adequately covers the risk of disability glare to drivers of cars. The analysis of risk to ferry operators shows that disability glare will be experienced when a ferry is turning at the end of journey. The risk is said to be avoidable through the ferry operator looking away from the glare. It is suggested that DPIE confirm with the Ferry Operator that this risk is acceptable. <u>Recommendations</u> 1. The ESD report be updated to address the following: – Solar photovoltaic generation is be installed on site to an equivalent area of not less than 50% of the building roof area. – A dual reticulation (dual pipe) system is to be installed, with the dual reticulation system being of sufficient size to supply all non-drinking water uses of the building, including cooling towers, and suitable for future connection to a recycled water main. – The building is to capture rainwater and provide sufficient storage for reuse of no less than 95% of the typical annual rainfall falling on the building's roof for non-drinking water uses through the dual reticulation system. – The use of PVC must be limited with minimum replacement of 60% (by cost) compared to standard practice. – 95% of all timber is used on the project is to be FSC Certified under the Forest Stewardship Council certification system. – Water efficient fixtures and fittings must be used throughout. Minimum WELS rating of 4 star for toilets, 6 star for urinals, 6 Star for tapware and 3 star (less than 7.5L/min) for showers are required. 2. DPIE confirm with the ferry operator that the risk of reflectivity is acceptable.	These features also align with the Greater Sydney Regional Plan objectives for landscape, efficiency and resilience. Further: • The area used for PV is maximised to cover all available roof area that is not otherwise provided as landscaped or publicly accessible area. Area not available to PV generally are above building services plant that have ventilation requirements, e.g. cooling towers. Additional off-site renewable energy is proposed to offset carbon beyond what is already achieved through efficiency and on-site renewables. • Dual reticulation is provided as part of the current building design to provide non-potable water supply for flushing and irrigation. Rainwater harvesting is included. Additionally, it is understood that there are future plans for provision of recycled water mains to the Parramatta CBD – the facility will be enabled to take advantage of this. • PVC will be minimised, and where used will be best practice PVC as defined by the GBCA. • All timber will be FSC Certified (or equivalent) as part of the Green Star pathway. • Water efficient fittings exceeding the listed WELS ratings are proposed as part of the design. An updated ESD Strategy is contained at **Appendix O** and discussed in **5.12** of the RTS Report. 2. Refer to **Appendix L** - Reflectivity Statement Addendum and **Section 5.7.1** of this RTS Report.
CoP32	**6.6 Traffic, Parking and Loading Traffic** The Applicant's Traffic Impact Assessment (TIA) (prepared by JMT Consulting dated 22 April 2020) states that traffic modelling has been undertaken at the Smith Street/Phillip Street/Wilde Avenue intersection to understand potential traffic impacts during a high utilisation scenario. The traffic modelling demonstrates that, even under a worst-case high utilisation scenario adopting conservative assumptions, the adjacent road network performance will perform at a similar level to that currently forecast, the TIA also indicates that the overall degree of saturation of the intersection remains unchanged, with a minor	Noted.

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	increase in average vehicle delay of six seconds – equivalent to an 8% increase. The report concludes that given the conservative assumptions adopted and the infrequency of this scenario occurring, particularly during the busiest hour of the day, this impact is considered to be acceptable.	
CoP33	**Parking** The TIA report in support of the proposed development states that the Powerhouse Parramatta does not propose any on-site car parking for staff, residents or visitors, with public transport to be promoted as the primary mode of access to the site. The report also indicates that no parking is proposed on site to maximise the amount of publicly accessible open space and minimise the traffic impacts arising from the development – particularly given the strong public transport links to the Parramatta CBD. This approach is supported. The TIA indicates that bicycle parking and an end of trip facility us propose for staff, residents and visitors of the site in order to encourage access by bicycle to the Powerhouse Parramatta. This is supported and should be secured through condition. The bicycle storage/racks are to comply with AS 2890.3-2015.	Noted. The proposed condition of consent is supported.
CoP34	**Loading** Two permanent on-site loading docks are proposed within the site. Both loading docks will be accessed via Dirrabarri Lane. The northernmost dock will accommodate deliveries if Powerhouse collection/exhibition items and can accommodate either a 19m articulated vehicle or two 12.5m heavy rigid vehicles (HRVs) simultaneously. The southernmost dock will service the retail, catering and waste collection requirements of the building and can accommodate a 10m medium rigid vehicle (MRV). This proposed loading/unloading provision is considered adequate for the proposed development. However, the use of the loading docks within the site may create safety issues due to the potential conflicts with pedestrian movements accessing the foreshore, the applicant is to be required to submit a Loading Dock Management Plan to the satisfaction of Council's Traffic and Transport Manager. The Plan must address delivery requirements and service schedules, operational aspects on how to use facilities and management duties and responsibilities. Two other areas have also been proposed to accommodate loading and servicing through the day, particularly for smaller vans and utes. These areas include the western side of Dirrabarri Lane, at the location of the existing short term parking spaces (3 spaces) and within the proposed coach drop off/pick up layby zone on the northern side of Phillip Street and the associated parking restriction to Council's Traffic and Transport Services for consideration by the Parramatta Traffic Committee under Delegated Authority and Council's approval. The construction of the approved treatment (including the realignment of the footpath) is to be carried out by the applicant and all costs associated with the supply and construction of the traffic facility and appropriate signage are to be	The requirement for a Loading Dock Management Plan to be developed in consultation with Council is supported and reflected in Mitigation Measure D/O-TA1.

No.	Extract	Comment
	paid for by the applicant at no cost to Council. The layover and the realigned footpath are required to be dedicated to Council.	
CoP35	**Coach Drop Off** The proposed development also proposes a 60m long coach pick up/drop off area on the northern side of Phillip Street, adjacent to the central access way through the site, which can accommodate up to three coaches parked at any one time. Coach parking is proposed to be provided in this space between 9.30am – 4.00pm. this area will be utilised as loading area between the hours of 6am-9am when this area is not required for coaches. In term of off-sites parking for coaches, Grand Avenue within the Camellia precinct and Market Street (which has designated coach parking between 8am-6pm on weekdays and weekends) are proposed as suitable locations for off-site coach parking, given not acceptable due to the busy environment of Market Street. Coach layover within the CBD is not accepted during business hours on weekends. The applicant is to submit a Coach Layover Management Plan including consideration for layover to be outside the CBD on weekdays. The TIA states that formal existing pick up/drop off locations within 2-3 minute walk of the site entry point include Phillip Street (full taxi zone), George Khattar Lane (set down/pick up area) and Smith Street (night time taxi zone). However, the submitted architectural plans are not clear on how George Khattar Lane can be accessed as the existing vehicle site egress point at Oyster Lane is proposed to be closed and the architectural plans do not show any access to George Khattar Lane. It is Council's opinion that George Khattar Lane cannot only provide access to the foreshore but also can be used as pick up/drop off area for taxis, Uber, etc. The applicant is required to submit a detailed engineering plan of George Khattar Lane turnaround facility. The construction of the George Khattar Lane turnaround facility is to be carried out by the applicant and all costs associated with the supply and construction of the facility are to be paid for by the applicant.	This item is addressed at Section 5.8 of the revised Transport Impact Assessment contained at **Appendix K** of this RTS Report.
CoP36	<u>6.6.1 Recommendations</u> 1. Detailed engineering plans of a turnaround facility at George Khattar lane are to be provided by the applicant with confirmation that these works are to be completed as part of this project. 2. Further details be provided in relation to loading management and the proposed coach and bus drop off on Phillip Street. 3. A number of conditions will be required in relation to the submission of a Construction and Pedestrian Traffic Management Plan (CPTMP), proposed work zones, road occupancy permits and oversize vehicle permits.	1. A concept layout of the potential turnaround arrangements on George Khattar Lane is provided at Section 5.9 of the revised Transport Impact Assessment at **Appendix K** of the RTS Report, and reflected in Mitigation Measure D/O-TA3. 2. It is noted that Council has stated that the on-site provision for loading and servicing is considered adequate for the proposed development. The recommendation regarding the loading dock management is addressed at CoP34. The recommendation regarding bus drop off and layover is addressed at TfNSW5 and Section 5.8 of the revised Transport Impact Assessment contained at **Appendix K** of the RTS Report. 3. The recommended condition is supported and reflected in Mitigation Measure CM-TA1.
CoP37	**6.7 Design Excellence Report** Whilst the Design excellence report is focused on the international design competition winning scheme, there are no detailed discussion on any alternative	A revised statement from the Design Integrity Panel is contained at **Appendix E** of the RTS Report.

No.	Extract	Comment
	proposals considered. Given that the alternate designs are now in the public realm the Design Excellence Report should be updated accordingly. The application plans submitted differ from the visualisations of the design competition winning scheme, especially in relation to the undercroft and landscaped public domain. It is unclear if these changes have been considered as part of the Design Excellence Process prior to submission or if they will be reviewed by the Design Integrity.	

1.6 Heritage Council NSW

No.	Extract	Comment
HC1	Heritage Council notes that a connection ramp from the State Heritage Register-listed Lennox Bridge will potentially be part of the scoped works. Further details should be provided to enable assessment of potential impacts the works may have to this key heritage item and to ensure the appropriate integration within the setting is achieved.	No works are proposed to Lennox Bridge or its connection to the river foreshore. The project includes construction of a river foreshore path that will connect to the existing path that continues to the Lennox Street Bridge steps.
HC2	It is noted that the proposed works also include the demolition of the art deco substation No. 16 (42 Phillip Street). The Statement of Heritage Impact identifies existing buildings on the site however it is unclear what consideration was given to this building being of potential heritage significance. Further detail should be provided.	An Addendum Statement of Heritage Impact has been prepared by Advisian and provided at **Appendix F** of the RTS Report, providing an assessment of the significance of the existing substation that forms part of the site at 42 Phillip Street.
HC3	The Heritage Council notes its previous submission at SEAR's regarding the properties' Willow Grove and St George's Terrace and their status as local heritage items appropriately managed within the controls of the Parramatta Local Environmental Plan 2011.	Noted.
HC4	The proposed development site includes three Archaeological Management Units (AMU) of the PHALMS archaeological study: AMU 2882 - 42-56 Phillip Street, Parramatta; AMU 3083 - Church Street, Parramatta, and AMU 3092 - Church Street, Parramatta. Along the southern and eastern boundaries of the site, Colonial occupation occurred from 1804 with potential archaeology of State significance. The centre of the site and its northern and western boundaries had less historic occupation. Curio Projects has assessed the development to require physical impacts to areas containing potential archaeology of both State and Local heritage significance. These include excavations for the support columns, service corridors and mature tree plantings. We note the statement by Curio Projects that if possible, elements of the construction should be redesigned to avoid impacts on archaeology. The Heritage Council supports this general approach.	The EIS included an Aboriginal Cultural Heritage Assessment Report at Appendix H. It is noted that the Heritage Council NSW has not reviewed this document in forming their submission. All issues pertaining to assessment of Aboriginal Cultural Heritage are contained within this report and the Addendum Aboriginal Cultural Heritage Assessment Report provided at **Appendix I** of the RTS Report.

No.	Extract	Comment
	If avoidance is not possible, then Curio Projects has recommended a program of archaeological investigation and recording as a mitigation. That archaeological program would commence with test trenching to investigate the level of survival of the potential archaeology. Open area 'salvage' excavation may then be required based on the results of the testing phase. The Heritage Council agrees that salvage excavation would most likely be required if significant archaeology would otherwise be removed through construction. The Curio report provided a list of preliminary archaeological research questions. Whilst those would be sufficient to support archaeological testing, it is recommended that should salvage archaeology be required then more detailed and comprehensive Archaeological Research Design (ARD) questions should be prepared ahead of that phase. The development location is likely to contain sites and objects of importance to the heritage of established Aboriginal occupation of the River valley through the Parramatta Sand Sheet interface. Appropriate assessment and controls for ACH values should be required under the National Parks & Wildlife Act 1974.	

1.7 Telstra

No.	Extract	Comment
T1	1. Further to our conversation this afternoon, Telstra has no issue with the proposed development. 2. Telstra acknowledges the proposal with respect to Telstra's main and distribution networks in the area of the proposed development. 3. Telstra requests that application is made via 1800 810 443 or on-line via https://say.telstra.com.au/customer/general/forms/request-asset-relocation-or-commercial-works to engage with Telstra, to determine any impact to the Telstra network when further detail is made available.	Noted, appropriate infrastructure coordination and application/s will be undertaken at the future detailed design and construction stage of the project.

1.8 Jemena

No.	Extract	Comment
J1	Jemena confirms that it supports the redevelopment of the site and will actively work with the State to ensure that the proposed development proceeds with the following conditions (below) to ensure the integrity of the gas distribution network servicing the adjoining community is retained, whilst ensuring community safety during the construction phasing of the development and ongoing operations of the gas main in proximity to the development.	Noted, appropriate infrastructure coordination and application/s will be undertaken at the future detailed design and construction stage of the project.

No.	Extract	Comment
	1. Jemena has a secondary gas main in the road reserve of Phillip Street and Dirrabarri Lane before it transitions into the development site. Jemena will request the project to determine the exact alignment and depth of cover of the secondary main within the land parcel and within the road reserve so that it can be adequately protected during the construction phasing. Any proposed works within the easement, including change in levels, will need to be submitted to Jemena for review. 4. 2. Site supervision of the gas main will need to coordinated with the constructor with a Jemena Pipeline Protection Officer supervising any construction works within 3 metres of the gas main. (See Jemena Construction Guidelines attached GAS-960-GL-PL-001) 5. 3. The Concon regulator is currently situated within the footpath of Dirrabarri Lane. As the proposed works will have an impact on the Cocon regulator, Jemena will request that the Cocon regulator be relocated outside of the construction zone at the projects expense. 6. 4. Any request for a new connection, augmentation of the gas main alignment, the removal or further isolation of the existing gas main will need to be coordinated through Jemena Gas Network Development (Zachary Kennett). Jemena has previously installed a stub contemplated a future connection point for gas into the property parcel (see highlight section in map below). ARUP have been advised of the stub connection as part of the early engagement with the Powerhouse project in April 2020. 7. 5. At a high level, any future meter room associated with the Powerhouse development, can be either external or internal room on an exterior facing wall on levels B1, Ground or Level 1. The service line between the below point and the meter can't be built on top of other than where it penetrates into an internal meter room.	

2.0 Organisations

2.1 Neighbouring landowners - Australian Unity Office Fund – owners of 32 Phillip Street, Parramatta

No.	Extract	Comment
AU1	The PPM [*Powerhouse Parramatta Museum*] project has a significant impacts on the highest and best use of the site under the existing and proposed planning controls. In particular, a redevelopment scenario that includes residential uses is expected to be most impacted. Given the close proximity of the PPM to the subject site the ability to achieve SEPP 65/Apartment Design Guideline design criteria such as solar access and	It is noted that 32 Phillip Street, Parramatta is currently occupied by commercial offices. There are no residential uses on the site, and no redevelopment is currently proposed for the site in an exhibited Development Application. It is inappropriate to consider all speculative development options for the adjoining site, notwithstanding this, the following is noted: • The setbacks assumed in the Fitzpatrick & Partners mixed use schemes do not comply with either the Apartment Design Guide or the Parramatta DCP.

No.	Extract	Comment
	building separation is likely to be severely impacted due to the proposed height and position of the proposed Powerhouse Parramatta buildings. In addition to compliance with the relevant design criteria for residential use under SEPP 65/ ADG, the proposed development will have a significant impact on views experienced from 32 Phillip Street to the Parramatta River, district views and to Central Sydney, up to a height above the proposed PPM building. The PPM appears to have been designed without due regard to the potential of 32 Phillip Street to contribute to the activation of the PPM site, and the precinct. This appears to be a lost opportunity. 1. DPIE should have regard to the impact of the PPM on the highest and best use of the 32 Phillip Street site, and require the PPM to provide for appropriate building separation distance, heights of buildings, overshadowing and visual privacy such that the potential for both sites to contribute to the activation of the precinct is maximised.	• Powerhouse Parramatta complies with both the maximum building height and FSR development standards, and is significantly reduced in scale from what would be permitted under the Parramatta CBD Planning Proposal. • It is not reasonable to retain views across a side/rear property boundary where the proposed development complies fully with the principal applicable development standards. An assessment of private views from commercial offices does not form a key consideration in the planning assessment for this site, which is appropriate taking into account the non-residential nature of the site, the CBD context of the precinct, and Council's intent to reshape the Parramatta CBD. As identified above, the proposed scale of the development complies with the relevant development standards and is less than would otherwise be permitted if the site were redeveloped under potential future planning controls. Further, the neighbouring site at 32 Phillip Street will continue to benefit from the significant future Civic Link view corridor through the CBD.
AU2	Australian Unity objects to the demolition of Willow Grove and the St George's Terrace. The local heritage listed items provide in a level of protection of the significance of these places in the planning framework, that are understood by Australian Unity to represent heritage significance that is valued by the community to be retained. It is also understood that the City of Parramatta Council support the retention of two local heritage items and integration with the PPM.	• While the amended proposal has enabled the retention of St George's Terrace, the proposed development ensures that Willow Grove cannot be retained on the site. The subject site is the most suitable location for the Powerhouse Parramatta as outlined in the EIS, including the site's iconic location within the CBD of Sydney's Central City, positioned on the Parramatta River foreshore at the terminus of the future Civic Link. • Powerhouse Parramatta has been the subject of a two-stage international design competition, in which the competition brief requested that design teams consider aspects of heritage and cultural significance within their submissions, including local heritage items, whilst achieving the functional brief required to be delivered on this important site. The retention of heritage was considered carefully during the judging process, and ultimately the Jury were unanimous in their decision on the final chosen concept by Moreau Kusunoki and Genton. • In recognition of the comments regarding the preservation of heritage in Parramatta it is proposed to deconstruct and relocate Willow Grove to another location within the Parramatta area. The relocation would be undertaken under the supervision of a heritage specialist and a process of recording and developing sensitive demolition methodologies would be undertaken prior to any works. Create Infrastructure NSW will develop a framework outlining the future site of Willow Grove, as well as the reconstruction process and the program that would be undertaken prior to the opening of Powerhouse Parramatta. This commitment is reflected in Mitigation Measures CM-HER3, CM-HER5, and D/O-HE3. • Powerhouse is uniquely placed to undertake programmatic interpretation and connect people to local histories, which will recognise the significant and changing relationships between people and place within the urban and cultural landscapes.

No.	Extract	Comment
AU3	The PPM proposes to activate the Civic Link through the site with the inclusion of three retail tenancies and the Presentation Space with a primary entry. This is considered to be a positive outcome for the precinct and for the future redevelopment of the subject site. Concern is raised in relation to the proposal to retain dense vegetation along the western boundary of the PPM site adjoining the subject site, as this will not provide any potential to activate the western side of the Civic Link, including active uses with outdoor dining opportunities on the ground floor of the subject site. It is assumed that the PPM design seeks to retain vegetation along the western boundary to screen the existing office building on the subject site. This is a lost opportunity to facilitate activation of both sides of the Civic Link, a key public domain element for the Parramatta CBD that is anticipated will have high levels of pedestrian movements. The landscape treatment on the western side of the Civic Link should allow for ground level use of the 32 Phillip Street site to include active uses that address and make the most positive contribution to activating the Civic Link. The landscape treatment of the Civic Link should be open to allow pedestrian movement and visual connections between buildings on both sides of the Civic Link. The landscape solution for the PPM should provide for outdoor dining opportunities including licenced areas along the western edge of the Civic Link fronting the 32 Phillip Street site.	The design of Civic Link adjacent to 32 Phillip Street includes landscape planting that can be modified and/or removed in future should redevelopment of 32 Phillip Street be undertaken. The proposed development does not impede future access of the neighbouring building to the Civic Link.
AU4	There are inconsistencies with the information submitted with the SSDA EIS. The architectural, landscape plans and arborist report shows the removal of some of the trees and planting of new trees along the western boundary with the subject site. 3D photomontages submitted with the SSDA EIS show a different and less dense landscape solution to the plans submitted The PPM project team should be requested to clarify the proposed landscape treatment for the Civic Link.	The final landscape design submitted as **Appendix C** and the final architectural design submitted as **Appendix B** of this RTS Report are aligned and address any inconsistencies.
AU5	The proposed levels in the landscape documentation and indicated on the architectural documentation seek to lift the level of the ground plane from a current RL 6.7 along our northern boundary to RL 7.5. From the Flood report it is clear this has been undertaken to avoid flooding from the Parramatta River with the level being set higher than the modelled maximum 1% Annual Exceedance Probability (AEP) flood level with an additional allowance of 500mm freeboard. This design strategy means the Civic Link will rise 1m across the length of the east and west boundaries from its current levels. The implications of this design strategy include reworking of the loading dock levels, car park ramp levels and	Powerhouse Parramatta has been designed to ensure no additional flooding impacts are experienced at adjacent properties. Any redevelopment of 32 Phillip Street would be required to conform to the same principle. It is not proposed to amend floor levels of existing, adjacent property thresholds.

No.	Extract	Comment
	potential conflicts with the ability to open up and activate the Civic Link along the eastern frontage of the subject site.	
AU6	The PPM EIS states that the project will present an annual program of largescale cultural and community events for up to 10,000 people that reflects the aspirations of its communities and expand the cultural calendar of Sydney and NSW. Given the significance of the PPM for the people of Parramatta and Western Sydney, it would be expected that the EIS include details on the operation and management of major events. Concern is raised with the lack of information on how major events at the PPM are to be managed to determine potential impacts on the site and surrounding area. The PPM project team should be requested to provide an Operation and Event Management Plan, including but not limited to: • Approach to provision of Operator Services • Methods of dealing with Public authorities • Precinct Interface Management Plan (Operating Phase) • Traffic and Pedestrian Management Plan (Operating Phase) • Transport and Accessibility (Operations) • Security Plan (Operating Phase) • Public use of facilities	The public domain areas are intended to support temporary community activities and events that contribute to the Powerhouse programming. These could include live performances, temporary public art, public lectures, film/cinema pop-ups, cultural events such as Diwali, Eid, or Parramasala, and events which engage communities and contribute to the cultural calendar of Sydney and NSW. The majority of activities/events hosted on the site will be ephemeral smaller civic, community and cultural functions that can occur concurrently with other activities and exhibitions and are non-transactional (i.e. no purchased tickets). Events hosted in the public domain outside of the typical day to day operations of Powerhouse Parramatta will be subject to separate and future approval. These could comprise activities hosted by the Powerhouse or other parties such as City of Parramatta Council, and will consider emergency and event access to the river foreshore within the site and how access to the site will be secured, if required.
AU7	The PPM will impact on the amenity for visitors and workers accessing the subject site via Dirrabarri Lane during the construction stage, due to heavy vehicles access and construction activities. The TIA states that the construction works associated with the PPM development are not anticipated to have impacts on road user safety due to: • Traffic controllers managing the construction vehicle movements on Dirrabarri Lane. • The vehicle site access points being under the control and management of accredited traffic controllers. • The construction vehicle routes not coinciding with the major pedestrian activity areas. • The traffic flows associated with construction activities being relatively low. • All footpaths and bicycle paths remaining open and unaffected during the construction period. • Class hoardings on the northern side of Phillip Street will be established to protect pedestrians walking in an east-west direction.	The EIS includes a Mitigation Measure to prepare a detailed Construction Pedestrian and Traffic Management Plan at CM-TA1. The RTS Report revises the wording of this Mitigation Measure to include consultation with neighbouring landowners in the development of this plan.

No.	Extract	Comment
	The TIA states that Dirrabarri Lane will retain full vehicle and pedestrian access during construction of the PPM. However, the report does not detail how this will occur during times that Dirrabarri Lane is resurfaced or other associated works. The PPM should be required to work with Australian Unity and building management while developing the Construction Traffic Management Plan (CTMP) to ensure adequate site access is retained throughout the construction period. Australian Unity should be provided an opportunity to review and comment on the final CTMP prior to the issue of a construction certificate and commencement of the works. Heavy vehicles should be required to use the existing and future entry / exit off Wilde Avenue only.	
AU8	It is understood that that physical changes to the PPM site including the creation of Dirrabarri Lane and informal agreement between landowners has taken place without titles and rights of carriage way being updated. The substantial works proposed to Dirrabarri Lane associated with the PPM project should to include the legal formalisation of the access arrangements to the 32 Phillip Street from Dirrabarri Lane, whilst maintaining the width of existing pedestrian access along the western boundary of the subject site. The PPM project should be required to include the legal formalisation of the access arrangements to the 32 Phillip Street from Dirrabarri Lane, whilst maintaining the width of existing pedestrian access along the western boundary of the subject site.	• The existing right of carriageway benefits the Meriton development at 330 Church Street, and no change is required to this existing easement. The pedestrian right of way along the eastern edge of Dirrabarri Lane will, likewise, not be amended by the project. • The owners of 32 Phillip Street may wish to negotiate access via the right of carriageway at a future occasion.
AU9	Areas of particular concern in relation to potential wind impacts identified by Wintech relate to the potential for activating the eastern aspect of the ground floor level at the subject site, which faces the Civic Link. Such activation will involve outdoor stationary activities. Given that the south-easterly winds are the most prevalent winds within this part of the Sydney Basin, there is some concern that the eastern wing of the proposed Powerhouse building on Phillip Street could result in accelerated wind flows onto the eastern aspect of the ground floor and potentially impacting the viability of the future retail tenancies along that aspect. The Arup CFD modelling suggests that the wind conditions surrounding the proposed development are similar to those experienced surrounding the existing development on site. Arup has suggested that all locations measured will achieve the safety and comfort criteria and are identified as being appropriate for their intended use. Arup has identified potential measures that could assist in further improving wind conditions on the site. Wind mitigation measures have not been carried into Section 8.0: Mitigation Measures of the EIS.	The methodology between physical and numerical modelling is identical, with the results of the analysis being combined with the same wind climate, and compared against the same assessment comfort and safety criteria. The only difference is the technique for acquiring the wind data. Numerical modelling acquires data across the entire modelled volume and therefore does not have the limitations of testing at discrete points as experienced with physical modelling. As tested at full-scale, it has no Reynolds Number scaling issues with small passages and internal flows, which will be important for this development. In addition, numerical modelling provides both wind speed and wind direction, rather than just wind speed from the physical modelling. This allows more refined mitigation measures to be developed as required.

No.	Extract	Comment
	There are concerns that the submitted wind impact assessment has failed to properly address the SEARS, which required wind tunnel testing. Wind tunnel testing will enable the public, surrounding properties owners and the consent authority with an accurate understanding the impact on the wind environment. A detailed Wind Impact Assessment should be requested using wind tunnel testing to more accurately assess the impact of the PPM on the pedestrian amenity in the surrounding streetscapes as well as the potential for activation of the eastern aspect of the ground floor of 32 Phillip Street frontage to the Civic Link.	
AU10	Molino Stewart have raised concerns with the flood modelling prepared by Arup at Appendix O of the EIS. In particular, concerns are raised in relation to whether adequate consideration has been given to the potential blockage of stormwater pits. Blockage is stormwater pits has the potential to change the reported flood modelling results. It is noted that City of Parramatta Council requires an assumption of a 100% blockage factor for any flood modelling associated with development applications in the CBD. This assumed blockage percentage will have a significant bearing on whether the proposed development will increase or decrease flood levels at the subject site. The existing stormwater flows pond in front of the subject site and flow in a 600mm diameter pipe under the Dirrabarri Lane to the river. When the flows to the low point exceed the capacity of the pipe the water rises until it reaches the high point in Dirrabarri Land and the high point in Willow Grove and flows overland around the subject site. If the inlet to the 600mm diameter pipe is partially blocked, less water will get into the pipe and more water will have to flow overland to the river in the same storm event. This means that any blockage in the pipe will increase the depth of the flows around the subject site and the depth of ponding in front of the building. A 100% blockage will mean all the flows go overland and maximise the flood depths at the subject site. The overland flow management strategy for the PPM is to increase the capacity of the pipe in Dirrabarri Lane and to provide a new pipe to take overland flows along the eastern side of the subject site. This will effectively increase the flow rate underground and reduce the flow rate overland. Molino Stewart are concerned that if the inlets to the pipes are 100% blocked then they will make no contribution to flood conveyance and will not reduce flood levels at the subject site. As it is proposed to increase the ground levels to the east of the subject site and if Dirrabarri Lane is increased in level, then overland flow water will need to pond to a higher level in Phillip Street and increase the flood levels for the subject site.	The flood impact assessment and the derivation of the flood levels to ascertain the finished floor levels have been modelled based on an assumed blockage of pits for overland flows. A 20% blockage of on-grade pits and a 50% blockage of sag pits was assumed in the assessment. In this scenario, the project would not result in adverse flood impacts to adjacent properties. A 100% pipe blockage scenario has also been modelled as a sensitivity analysis and is documented in the Flood Risk and Stormwater Management Report Addendum at **Appendix J** of this RTS Report. The flood impacts on 32 Phillip Street and Dirrabarri Lane under the 100% pipe blockage scenario would be in the order of 60mm for the 5% AEP and 1% AEP events, and 65mm for the 1% AEP with climate change event. This scenario is highly unlikely. The pit blockage assumptions are more reasonable estimation of possible blockage during a flood. However, the sensitivity analysis assuming fully blocked pipes indicates that flood levels would not increase dramatically in this scenario and the afflux would occur on a building (32 Phillip Street) that would always be inundated in that scenario (regardless of the flood probability). The amended design includes lowering of the crest levels adjacent to 32 Phillip Street and at the top of the ramp at Dirrabarri Lane. This will improve the capacity of the overland flowpath down the lane and compensate for the lost overland flowpath through the carpark. These level changes will be complemented with an amplified stormwater drainage system in Dirrabarri Lane with additional surface collection features. Council's updated Parramatta River flood model is currently at draft status and has yet to be formally adopted. Therefore, the flood model is not available for the flood assessment herein. However, once this flood model is made available, it can be used to assess the impacts of the development at later stages of this project. The proposed design will minimise potential flood afflux which may be caused on adjacent properties including 32 Phillip Street.

No.	Extract	Comment
	Australia Unity support the provision of amplified stormwater pipes on either side of 32 Phillip Street site. The flood impacts of the final PPM design should be tested using City of Parramatta Council's more up to date, and peer reviewed, flood model when it becomes available to ensure that there will be no adverse flood impacts on the subject site or the surrounding public domain. The PPM project team should be requested to provide updated flood modelling accounting for an appropriate blockage percentage for stormwater pits. The civil design solution must not increase flood levels adjacent to 32 Phillip Street.	
AU11	Section 8.10 of preliminary CMP notes mitigation measures to minimise the damage and environmental impact caused by flooding during the construction phase. Water extraction methods during heavy rains and maintenance of erosion control measures during the works are acknowledged as important, consideration must be given to ensuring that the works do not temporarily, or permanently change the overland flow conditions and effectively create a low point at 32 Phillip Street, increasing the impacts on Australian Unities property during periods of heavy rain, which could have serious implications on the property and its tenants. Cornerstone has recommended that Australian Unity request details on how the project team will ensure that this does not occur.	The RTS Report has updated the Mitigation Measures to include CM-SO3, requiring the preparation of a Construction Flood Risk Management Plan.
AU12	There are a number of inconsistencies between the NVIA and the CMP in respect of equipment. Notably, the CMP foreshadows the use of rock breakers (excavator mounted hydraulic hammers) during demolition, and rock saws and rock removal during the excavation phase. These are excluded from the NVIA. The CMP proposes a number of noise and vibration management measures that are not detailed in the NVIA. Acoustic logic were not able to verify the numbers of equipment assumed in the NVIA, nor the location on site used as there does not appear to be any corresponding advice in the CMP as to numbers, nor is there information in the NVIA as to the locations of the sources used to assess noise levels. The NVIA predicts a worst case noise level of 82 dB(A) during the works, except for the Bulk/Detailed Excavation Phase where a noise level of 83 dB(A) is predicted. These noise levels exceed the NML for 32 Phillip Street by 12-13 dB(A), which are significant exceedances. (A noise level increase of 10 dB(A) is considered to be a subjective doubling of loudness.) Using the noise emission levels used in the NVIA, and assuming the piling works could occur as close as 10m from the Phillip Street norther façade and around 25m from the eastern façade, the resultant façade noise level from this activity would be up to 90 dB(A) outside the nearest commercial tenancies (ground level	The loudest anticipated construction equipment sound power levels (Lw) which have been assessed in the NVIA include concrete saws (Lw 122dBA), excavators (Lw 117dBA) and piling (impact Lw 129 intermittently, bored Lw 111dBA continuously). The total combined Lw for the site establishment and demolition, is 124dBA. This assumes: - Besides impact piling & concrete sawing, all equipment is operating concurrently and constantly - Impact piling noise is generated 20% of the worst 15 min period, likely to be much less in reality due to the short 'impulsive' nature of impact piling noise - Concrete sawing assumed to operate 50% of worst 15 min period. Based on these assumptions, the use of a rock breaker (Lw 118) would potentially increase the total site sound power level by 1dB to 125dBA. Instantaneous or intermittent construction noise levels above 83dBA are likely, however predicted levels represent $dBL_{Aeq(15min)}$ levels in accordance with the ICNG. Considering the above assumptions are conservative, $L_{Aeq(15min)}$ levels above 83dBA are not anticipated outside of isolated occurrences, and internal $L_{Aeq(15min)}$ levels exceeding 60dBA are unlikely.

No.	Extract	Comment
	eastern façade and level 5 northern façade). This is well above the 83 dB(A) predicted as a worst case in the NVIA. The resultant internal noise level predicted in the NVIA would be around 53 dB(A) and our predictions indicate impact piling may produce up to 60 dB(A). Noise at these levels (particularly at 60 dB(A)) would impact amenity. Given that impact piling is likely to generate higher noise levels than assumed in the NVIA, noise levels in the commercial spaces may exceed 70 dB(A) which would have a serious impact on amenity.	Nonetheless, significant exceedances of NML are predicted and all feasible and reasonable mitigation measures should be implemented. As per Mitigation Measure CM-NV1 the Construction Noise and Vibration Management Plan will include final details of plant to be used and updated estimates of the likely levels of noise and the scheduling of activities.
AU13	The use of hydraulic hammers to demolish the carpark may generate similar noise levels to piling, i.e. around 85 dB(A). This is not addressed in the NVIA as it states that demolition will be undertaken using pulverisers only. Given the CMP contradicts this, the potential impact of this activity should be assessed. Modelling of construction noise impacts has been undertaken for the NVIA. However, the NVIA does not indicate where the noise sources have been placed on the site to obtain the predicted levels. The analysis presented above indicates the assessment undertaken does not adequately assess impact at 32 Phillip Street. While a “typical” location of plant may be adequate to predict impacts to more distant receivers, the proximity of 32 Phillip Street to the site demands a more detailed assessment of impacts. In response to the prediction of the NML the NVIA presents only very generalised and non-site specific recommendations in respect of the management of construction noise, nor does it recommend any real commitments to be adhered to by the proponents. The NVIA does recommend that the constructors develop a detailed Construction Noise and Vibration Management Sub Plan, but provides no recommendation as to the contents of the plan nor the desired outcomes. The CMP promulgates the use of respite periods to mitigate noise from louder operations, whereas the NVIA is silent on this. It is noted that the CMP proposes a respite period between 7am and 8am and no loud works on Saturday. While this addresses residential and hotel receivers, this will concentrate louder activities to periods when the building is occupied, and away from periods when the building is unoccupied or lightly occupied. In respect of vibration, the only activity that is likely to adversely impact the subject site is impact piling. The NVIA indicates a separation of 20m is typically required to prevent adverse impacts on amenity. It is noted that piling appears likely to be needed within that distance. The NVIA likely under-predicts potential noise and vibration impacts at the subject site by adopting base noise emission levels that are lower than those that might potentially occur, and by not assessing activities that might occur close to the boundary with the subject site.	As outlined in AU12, the potential increase in impacts due to the use of a hammer is anticipated to be 1dB. A number of conservative assumptions listed at AU12 lend to the conservative nature of the predicted noise levels. The location of a hammer at the nearest boundary to 32 Phillip St is not anticipated to exceed the overall $dBL_{Aeq(15min)}$ noise predictions due to the intermittent nature of hammering events, however, this will be refined once the construction methodology is further developed. It is anticipated that the noise and vibration mitigation measures recommended in Appendix Z-Noise and Vibration Impact Assessment (NVIA) of the EIS would be implemented in the Construction Noise and Vibration Management Sub Plan (CNVMSP) as per typical procedures and in accordance with Mitigation Measure CM-NV1. Inconsistencies between the NVIA and CMP will be resolved in the CNVMSP by adopting the more stringent mitigation measures of the two. The restriction of loud equipment to only standard hours is shown in Table 19 which states the loudest equipment (excavators, piling rigs and concrete saws) shall not be used outside of standard hours. The reason the use of loud construction equipment is limited to standard hours is because the noise sensitivity of commercial premises is considered lower than residential receivers. The concentration of louder activities during standard hours is standard practice to avoid more sensitive periods for residents. Regarding vibration, the Noise and Vibration Impact Assessment at Appendix Z of the EIS outlines a procedure for conducting piling within the minimum required working distance Section 3.9, which recommends dilapidation surveys and on-going monitoring.

No.	Extract	Comment
	The PPM project team should be requested to provide independent auditing and monitoring of, or the establishment of a noise logger to monitor the implementation of controls and mitigation measures to ensure compliance with conditions of consent to mitigate adverse acoustic impacts on the subject site. It is requested that contractors be required to consult with Australia Unity prior to the preparation of detailed CMP.	
AU14	Cornerstone were engaged to undertake a review of the preliminary CMP, prepared by Aver and submitted with the PPM EIS. The purpose of the review is to examine the potential impacts of construction of the PPM on the subject site and its tenants at the subject site. Impacts on the subject site may arise from the PPM construction activities including; • Vibration from demolition of existing structures or from socketing new CFA piles into sandstone bedrock • Plant or machinery failure / impact • Heavy Construction Vehicle Traffic Cornerstone have provided recommendations in relation to mitigating the impacts of the PPM construction on dilapidation of the building at the subject site. The PPM project team should be required to provide Dilapidation Reports of Council's assets to Australian Unity, in so far as it relates to the footpaths and roads in the vicinity of 32 Phillip Street.	The Principal Contractor will carry out a dilapidation survey prior to commencement of work. The dilapidation survey will cover surrounding buildings, pavements, fences, fixtures and trees within or immediately adjacent to work sites.
AU15	Cornerstone has provided advice and recommendations in relation to dust impacts associated with construction activities of the PPM on the subject site. Section 5.1 of the EIS Wilkinson Murray Air Quality Report states; *"The preceding assessment of potential dust impacts from the proposed construction works indicates that, in the absence of specific mitigation measures, the works have a high risk of dust soiling impacts and a low risk of health impacts."* The close proximity of demolition and construction and the associated increased levels of dust soiling from the works, are of concern as they will have a detrimental impact on the maintenance and operation of mechanical plant rooms, air conditioning filters and above ground carparking in the building as fine dust particles pass through the mechanical louvers (area defined by orange arrows) and carpark screens (area defined by red arrows) on the Western and Northern elevations of the existing building on the subject site. In addition, the glass façade of the existing building on the subject site will be subject to high levels dust soiling from the PPM construction activities, and as a result the façade will require additional scheduled cleaning.	All dust suppression requirements will be implemented and managed throughout the duration of the works by the Contractor and in accordance with all current legislation and the management measures outlined at section 8.5 of the Appendix R- Construction Management Plan and Appendix T- Air Quality Impact Assessment of the EIS. In addition to committed regimes of monitoring, it is expected that the project will be monitored and auditing undertaken in accordance with guidelines prepared by DPIE. The final construction methodology and its impact to adjoining plant rooms / carparks and facades is unclear. The use of additional dust screening devices may be implemented upon appointment of the Contractor if it is deemed necessary in order to comply with the recommendations of Appendix T- Air Quality Impact Assessment of the EIS.

No.	Extract	Comment
	Whilst Section 8.4 of the Preliminary CMP and the Wilkinson Murray report nominates a number of mitigation strategies, these will not prevent additional maintenance and cleaning that will be incurred by Australian Unity over the 24 month construction period. Independent auditing and monitoring of the implementation of controls and mitigation strategies should be employed by the PPM project team. A review of past cleaning and maintenance expenses for 32 Phillip Street is required and forecast additional cleaning and maintenance expenses to be paid for by the PPM project. The PPM team should be requested to provide additional dust screening, noting the need to satisfy fresh air and / or ventilation requirements to the carpark and plant rooms on the subject site.	
AU16	The deepest known excavation associated with the PPM is identified near the north boundary of the subject site associated with base of the large goods lift pit, BOH 3 that will serve the loading dock in the proposed western building. At this location, the existing ground level is approx. 6.70m. The lift (BOH L3) is nominated as having an excavation level at the base of the lift pit of 4.75m AHD, approximately 2m below the existing bitumen carpark, and approximately 12m north of the boundary with the subject site. In addition, pier caps on the perimeter of the building line will need to be excavated, which at this point have not had levels nominated. Consideration must be given to how Australia Unity will be able to ensure ongoing maintenance and emergency access to the substation room and pump room in the North Eastern corner of the subject site in light of this excavation and future construction activities in this part of the PPM site. Cornerstone have identified other excavation that has the potential to impact upon 32 Phillip Street, would include service trenching in connection with new or diverted services which may be in the areas adjacent to the boundaries of the subject site, or removal of hazardous materials. Section 12.2 of Aver's preliminary CMP sets out their understanding of the areas of cut required at this point in time, and acknowledges that; "where excavation works are required close to the boundary and / or neighbouring buildings further consideration with the zone of influence will be required, it is anticipated a shoring system such as either contiguous piled walls, or soldier pile walls with infill shotcrete panels would be implemented" Given this uncertainty Cornerstone has provided recommendations to ensure that Australia Unity is adequately consulted. Australian Unity should be given the opportunity to review the potential impact of all excavation works, prior to the issue of a construction certificate. Details for	Construction of Powerhouse Parramatta will ensure adjoining properties maintain access arrangements to essential and/or emergency services. At all times during construction, it will be the Contractor's responsibility to provide the necessary access to adjoining neighbours while mitigating where possible the impact of the works. Any potential construction impacts to adjoining properties will be managed by the Contractor including methodologies for ground shoring systems or similar. As the structural design is still on-going any requirement for temporary/permanent anchors, will be managed by the Contractor. If ground anchors are required, the necessary consultation will occur between Australian Unity and the Contractor.

No.	Extract	Comment
	any anchors that impact upon the subject site should be provided to Australia Unity to determine any threats or constraints to the property.	
AU17	Section 10.4 of the preliminary CMP sets out controls and safeguards related to the identification, removal and disposal of hazardous / contaminated materials on the site, and Appendix L to the EIS, JBS&G Detailed Site Investigation (DSI) into potential contamination provides further detail on the outcomes of the detailed site investigation and subsequent remedial action plan (RAP) developed by JBS&G. Australian Unity are considering independent auditing and monitoring of the planning and execution of the works and the RAP by the museum project team, to ensure that commitments are satisfied, given the proximity of 32 Phillip Street and the open carpark and tenants of the building.	Noted
AU18	**Hoardings** Cornerstone have reviewed the proposed hording and materials handling for the PPM. Figure 6 in the preliminary CMP illustrates the location of the proposed work zone in Phillip Street and the perimeter site boundary hoarding. Concern is raised in relation to the boundary hoarding and entry into the PPM site off Dirrabarri Lane, and the location of site gates at the end of the lane and the intersection of the carpark entry ramp to the subject site. As recommended above, heavy vehicle access to the PPM site should be limited to Wilde Avenue, especially during the demolition, excavation and piling, and early structure phases of the project to take pressure off Dirrabarri Lane and Phillip Street. **Materials Handling** The preliminary CMP sets out plans for craneage and materials handling, noting that a fixed crane (Favco or Hammer-head type) will be utilized on the site. Further details are required on the proposed location of the crane, its swing and the type of crane to be used. **Scaffold** Section 13.9 of preliminary CMP confirms that scaffolding around the perimeter of the new building is anticipated. Further details of proposed scaffolding are required to ensure dust control and privacy, and to aviod impeding emergency access/egress to the pump room and switch room in the North East corner of the subject site The site gate location in Dirrabarri Lane must ensure access is maintained to the car park entry ramp to 32 Phillip Street. Clarity is sought from the PPM project team where site gates will be located on Dirrabarri Lane. Site gates should be located away from the base of the carpark	Access for neighbouring sites through Dirrabarri Lane, including access for emergency services to neighbouring properties will be maintained throughout construction. Details regarding the location of site gates and cranes within the site will be detailed in the Construction Environmental Management Plan and Construction Pedestrian and Traffic Management Plan that will be prepared and implemented prior to the commencement of construction per Mitigation Measure CM-TA1, which requires consultation with the owners of 32 Phillip Street during the preparation of the document.

No.	Extract	Comment
	ramp to the subject site, to ensure the safety of drivers exiting the carpark at 32 Phillip Street. The PPM project team should be required to confirm the proposed location of the crane, its swing arc to confirm it will not swing over the subject site, and the type of crane. Shade cloth must be included on the scaffolds or screens to provide dust control and privacy screening for the occupants of 32 Phillip Street working near the windows on the Northern elevation of the building. Scaffolding must not impede emergency access / egress to the pump room and substation room in the North East corner of 32 Phillip Street.	

2.2 Organisations including community and special interest groups

The below table provides a high-level description of the matters raised in the submissions categorised as 'organisations' (with the exception of neighbouring landowners which have been discussed in detail above), and a summary of the response and references to where these issues have been covered in the detailed documentation as relevant. The frequency of an issue raised in the below table comprises support, objection, and comments.

Issue tag	Summary of issue	Response	Reference to further information
New Powerhouse location 21% of submissions received	• The site is not the best site for a museum, due to the threat to heritage and flood issues. There is a better suited state government owned 30ha of land in Parramatta for an arts and cultural precinct known as the North Parramatta Heritage Precinct (Cumberland Hospital East Precinct). • The Environmental Impact Statement does not consider alternative sites, which would enable the retention of heritage items.	• The then NSW Premier and Deputy Premier released the *Create in NSW: NSW Arts and Cultural Policy Framework* and announced the Government's decision to investigate the creation of Powerhouse Parramatta. Following that announcement, Create Infrastructure NSW initiated and led the development of the planning framework for Powerhouse Parramatta. This included a site selection assessment which concluded that the Riverbank site in Parramatta was the preferred site for the new museum. The Government confirmed this decision and announced its choice of the Riverbank site in April 2016. The Riverbank site was acquired by the NSW Government to facilitate the delivery of the project in early-2019. • Further analysis of alternative locations is a matter for the NSW Government and is not relevant to this planning assessment process.	-
	• Establishing Powerhouse Parramatta would be a step towards placing a Tier 1 cultural institution within the accessibility of millions of Sydneysiders who reside in Western Sydney. • Approval for the Powerhouse Parramatta will be a commitment to redressing imbalance, making cultural infrastructure much more accessible to the growing western Sydney population.	• Powerhouse Parramatta will be the first major, world class cultural institution to be established in Sydney's Central City. City of Parramatta Council's Local Strategic Planning Statement identifies the proposed new museum in the Parramatta CBD as being the first of many needed cultural infrastructure projects to redress imbalance if Parramatta is to achieve rounded growth. • Its location aligns with key Government strategies including the development of a Parramatta Cultural Precinct under the *State Infrastructure Strategy Update 2014* and *Cultural Infrastructure Strategy 2016*, and the *Create in NSW: NSW Arts and Cultural Policy Framework 2015*. The *Greater Sydney Region Plan* and *Central City District Plan*	-

Issue tag	Summary of issue	Response	Reference to further information
		further support investment in the metropolitan centre of the Central River City, as part of the Greater Parramatta and Olympic Peninsula (GPOP) Corridor.	
Loss of heritage 17% of submissions received	• Concern is raised for the loss of the two heritage properties Willow Grove and St George's Terrace, in the current design plan. • No sound reasons, supported by detailed assessment, have been offered that demonstrate that these buildings cannot be retained, and adaptive new uses.	• The subject site is the most suitable location for the Powerhouse Parramatta as outlined in the EIS, including the site's iconic location within the CBD of Sydney's Central City, positioned on the Parramatta River foreshore at the terminus of the future Civic Link. • Powerhouse Parramatta has been the subject of a two-stage international design competition, in which the competition brief requested that design teams consider aspects of heritage and cultural significance within their submissions, including local heritage items, whilst achieving the functional brief required to be delivered on this important site. The submitted concept designs made clear that it was not possible to deliver on the design ambitions of the brief and deliver connectivity, whilst also retaining local heritage items. The retention of heritage was considered carefully during the judging process, and ultimately the Jury were unanimous in their decision on the final chosen concept by Moreau Kusunoki and Genton. • Powerhouse is uniquely placed to undertake programmatic interpretation and connect people to local histories, which will recognise the significant and changing relationships between people and place within the urban and cultural landscapes. • In recognition of the comments regarding the preservation of heritage in Parramatta it is proposed to deconstruct and relocate Willow Grove to another location within the Parramatta area. The relocation would be undertaken under the supervision of a heritage specialist and a process of recording and developing sensitive demolition methodologies would be undertaken prior to any works. Create Infrastructure NSW will develop a framework outlining the future site of Willow Grove, as well as the reconstruction process and the program that would be undertaken prior to the opening of Powerhouse Parramatta. • Design amendment has also further enabled the retention of St George's Terrace as part of the Phillip Street frontage of Powerhouse Parramatta. This will comprise works to integrate the terrace with the renewed site and to adaptively reuse the building to support Powerhouse Parramatta programming.	• **Sections 5.3** and **5.5** and **Appendix F** of this Response to Submissions (RTS) Report • Appendix G and Section 6.2 of the EIS.
	• There has been no attempt to quantify the cumulative loss of heritage beyond the very recent, and the assessment did not extrapolate on the expected loss of heritage for the Metro West project.	• The Heritage Impact Statement prepared by Advisian (Appendix G of the EIS) addressed the cumulative impacts in the context of the proposed redevelopment of the site. It was identified that the Parramatta Light Rail has physical, visual and vibration impacts for heritage items located in the Parramatta CBD, including the Royal Oak Hotel and Stables, and that the future Sydney Metro West and Civic Link projects would also have the potential to contribute to the cumulative impacts on heritage items in the Parramatta area. It was confirmed that the proposal would have a minimal cumulative impact on the loss of heritage items in the Parramatta CBD in consideration of other nearby current and future developments.	• Appendix G and Section 6.2 of the EIS.

Issue tag	Summary of issue	Response	Reference to further information
		• The proposed design amendments have also enabled the retention of St George's Terrace on the site, which will minimise the cumulative impact of the loss of heritage items in the Parramatta CBD.	
	• The relocation of the building(s) would ensure the retention of their heritage fabric whilst minimising impact on their heritage value and enabling preservation for the community.	• The amended proposal seeks to retain St George's Terrace on the site and to deconstruct and relocate Willow Grove to another location within the Parramatta area. This retention and relocation of heritage items provides opportunities to mitigate impacts where possible.	-
	• Representing the significance of these sites through contemporary interpretation is in not acceptable.	• Heritage interpretation is a means of sharing Australian culture and history within communities and with other communities, new citizens, visitors, and people overseas. It is also a means of passing on the knowledge and appreciation of Australian culture to new generations. Interpretation is an integral part of the experience of significant heritage places. • The Powerhouse Museum is uniquely placed to undertake a range of interpretation strategies for the site and its histories. In addition to physical installations, the Powerhouse has the opportunity to undertake programmatic interpretation that would align with the evolving exhibition program proposed for Powerhouse Parramatta. • A Heritage Interpretation Strategy has been prepared by Powerhouse outlining the commitments of the project.	• **Appendix G** and **Section 5.5** of the RTS Report.
	• The project fails to address the issues of the ecological and spiritual values of the river and to recognise, respect and value Dharug stories of being, belonging and becoming within the Parramatta district.	• The Aboriginal Cultural Heritage Assessment prepared by Curio Projects notes that the site is located on the southern foreshore of river and has social significance both for its intangible values (such as Dharug connection to Country and use of space), as well as for its association with tangible archaeological evidence of continued Aboriginal occupation of the area. Numerous sites are located in close proximity provide physical evidence for the continued Dharug occupation of the river foreshore and immediate surrounds. • The Heritage Interpretation Strategy defers to the Statements of Understanding developed and signed with Dharug Strategic Management Group Ltd and The Deerubbin Local Aboriginal Land Council and identifies the need to continue to build collaborative relationships with these groups and other Aboriginal communities and groups.	• **Appendix I** and **G Sections 5.4** and **5.5** of the RTS Report.
Expenditure 16% of submissions received	• The project represents a huge cost that could be better spent/used on more important issues at this present time.	• The project expenditure decision is a matter for the NSW Government and is not relevant to the planning assessment process.	-
	• Some of the funds earmarked for relocation costs could be used on renovations. • The 'do nothing' option including modest investment in updating the museum at Ultimo or developing other	• In April 2018, the NSW Government published a business case summary for the development of Powerhouse Parramatta within Western Sydney. This business case supported the development of the new institution, which contributes to the future of	-

Issue tag	Summary of issue	Response	Reference to further information
	major new cultural infrastructure in Western Sydney has not been addressed.	Parramatta as the metropolitan centre of the Central River City and locates for the first time a major NSW Cultural Institution in Western Sydney. • The project expenditure decision is a matter for the NSW Government and is not relevant to the planning assessment process.	
	• This project provides much needed stimulus and jobs creation.	• The project will support approximately to 1,100 full-time equivalent (FTE) construction jobs as well as approximately 2,430 FTE indirect jobs over the development period, and between 300 to 400 FTE direct jobs (full-time, part-time and casual) as a result of the ongoing operation of Powerhouse Parramatta. This also presents the opportunity for increased job opportunities for those employed in the science, education, innovation, creative and retail industries. • There are further forecast benefits for visitation and tourism expenditure, demand for entertainment, food and accommodation, and research and education programs.	• Appendix Y and Section 6.6 of the EIS.
Programming 14% of submissions received	• The exhibition spaces are not adequate for the new museum to be perceived as a world-class institution when more than half of its nominal premises do not comply with world-class standards.	• The proposal has been designed to support diverse and flexible exhibition spaces, as a purpose-designed museum and research precinct. The museum comprises six levels and provides over 18,000m^2 of exhibition and public space. The museum has been designed to support large scale exhibitions that feature Powerhouse collections	-
	• No space is dedicated to collection storage, curation, and other museum backroom operations. • Lack of storage space will hamper the achievement of rapid turnovers of exhibitions.	• Powerhouse Parramatta will have flexible spaces for world class facilities and exhibitions and allow for regularly changing exhibitions providing greater access to the Collection than ever before. Powerhouse manage their collection in accordance with their legislation and collection management policies.	-
	• The development is described as being for “the purpose of an information and education facility” and not a museum as the public have been led to believe.	• ‘Museum’ is not a defined term under the legislation, meaning the proposed development has been described as a ‘information and education facility’ in accordance with the Parramatta LEP. An information and education facility means a building or place used for providing information or education to visitors, and the exhibition or display of items, and includes an art gallery, museum, library, visitor information centre and the like.	-
	• The proposed development will be used as a retail and function venue more than an arts and cultural destination. • It appears to be designed to support the night time economy of Parramatta, as an entertainment zone for large events and temporary exhibitions. • The site should take advantage of its proximity to serviced apartments, rather than providing them.	• A key principle of the proposed development is to create an active precinct that will host multiple concurrent activities including exhibitions, events, and community and education programs. Each space is to play a distinct role in the precinct, and when working together, create an active 24-hour precinct. • Powerhouse will be a working precinct that will connect researchers with students, with staff, with audience members and the community. The ethos of the precinct will be about collaboration and sharing knowledge, which complements and builds-on the exhibition program that is typical for museums. • The Precinct will facilitate international exchange programs, lead interdisciplinary research and set a new benchmark for culturally diverse programming. The new Powerhouse program will drive visitation, leverage investment and support ongoing	-

Issue tag	Summary of issue	Response	Reference to further information
		collaborations with industry and community. A constantly changing and diverse program will increase access to the Powerhouse Collection. • The creative studios are an important part of the museum program. They will not operate as a hotel but instead will be managed and operated by the Powerhouse. The creative studio program will, at any one time, support national and international researchers, artists and scientists to live and work at Powerhouse Parramatta.	
	• The opportunities for collaboration and engagement with schools, universities, training institutions and workplaces are significant. • The museum will focus on STEM topics with new exhibits and engaging content. • The proposed transformation of the Powerhouse Museum into a more engaging, dynamic and accessible museum is supported.	• Creating diverse, interesting and relevant education programs will be at the forefront of museum programs. The design of Powerhouse Parramatta will support this, with accessible and visible education spaces. • The project will provide new levels of access to STEM education for NSW students, including regional students with the support of purpose-built accommodation on the site. • INSW and the Powerhouse Museum have been working with educational institutions throughout the planning process to get feedback on the new museum and its education program. The Powerhouse Museum will continue to work in partnership with these institutions.	-
Flooding 9% of submissions received	• Flooding risk is a significant reason why the proposed development should not proceed. • The site has a history of flooding and stormwater flow across the floodplain of the Parramatta River and it's catchment.	• The proposed development has been the subject of significant study and assessment by Arup, identifying the flood risk of the site and associated management strategies. • The ground floor (finished floor levels) of the eastern and western buildings will comply with the flood planning level set by the Parramatta Development Control Plan and will be able to withstand riverine flooding and overland flooding events. The probability of overland flooding is very low and about 1 in 800 in any year. Expressed in terms of the design life of the building of 100 years, it represents a chance of 1 in 8 (i.e. 12%) of a flood occurring in this period which is within 0.3m of the ground floor level. The chance of ground floor inundation from the Parramatta River flooding is approximately 1 in 1000 in any year. • An Emergency Evacuation Plan will be prepared for the site with consideration of Council's draft *Update of Parramatta Floodplain Risk Management Plans* consistent with other developments in the surrounding Parramatta CBD.	• **Appendix J** and **Section 5.8** of the RTS Report. • Appendix O and Section 6.5 of the EIS
	• It is unclear how the building can handle a safe, orderly evacuation of elderly/disabled visitors or school groups. • The management framework would cause disruption if visitors needed to be evacuated or for school groups having to cancel visits if there is a Bureau of Meteorology warning for a severe storm.	• The design of the proposed development does not present increased risk to public safety or for the people within the building. The buildings and main entrances are designed above the recommended flood level, and as such the only key consideration for the evacuation of the site is the riverfront area and foreshore that has been designed to accommodate inundation by floodwaters. • The revised Flood Risk and Stormwater Management Report prepared by Arup confirms the emergency management strategy for the site, which will be further refined and developed prior to the commencement of operations on the site. The site will	• **Appendix J** and **Section 5.8** of the RTS Report. • Appendix O and Section 6.5 of the EIS

Issue tag	Summary of issue	Response	Reference to further information
		operate in accordance with the strategy identified by other developments in the precinct and the draft Parramatta Floodplain Risk Management Plan. • Arup confirms that some 1.8 hours would be available for people to leave the public domain after the engagement of the Emergency Evacuation Plan, including for people with mobility impairments. The timeframes are significant and appropriate when considering typical fire escape plans from high-rise buildings require evacuation in less than 15 minutes (without lifts).	
Transparency and due process 7% of submissions received	• Community consultation has been inadequate. • Computer-based consultation has limited the consultation process and resulted in the exclusion of comment from elderly community members.	• INSW in partnership with the Powerhouse has undertaken a range of community and stakeholder engagement activities including webinar briefings, one-on-one meetings including via email, inquiries through the project webpage, a print advertisement campaign, establishing a hotline for inquiries, an online survey, letterbox drop, phone calls to local businesses, social media updates, digital banners and advertisements, and google advertisements. • Further consultation was also conducted following the lodgement of the EIS, as detailed in the Consultation Outcomes Report prepared by Aurecon.	• **Appendix D** and **Section 2.0** of the RTS Report. • Appendix Q and Section 3 of the EIS.
	• The design process and selection of the winning design appears flawed. • The retention of heritage buildings was not a pre-requisite in the design instructions.	The design competition brief was endorsed by the Government Architect NSW and the Australian Institute of Architects, and the design competition was conducted in accordance with the New Museum Design Excellence Strategy that was approved by the (then) Department of Planning and Environment and endorsed by the NSW Government Architect and City of Parramatta Council. The Strategy ensured that the competition Jury comprised a range of experts in architecture, urban design, museum design, business and cultural institutions operation, and included government representatives as well as a representative from City of Parramatta Council.	• **Appendix E** and **Section 5.2** of the RTS Report • Appendix D and Section 5.5 of the EIS
	• The Environmental Impact Statement describes the relocation of the Powerhouse Museum and should be revised.	The EIS makes reference to the relocation of the Powerhouse and the construction of a new culture and arts destination in Parramatta in the context of the strategies that informed the background of the project including the *State Infrastructure Strategy Update 2014, Create in NSW: NSW Arts and Cultural Policy Framework,* and *Cultural Infrastructure Strategy 2016*.	Section 1.2 of the EIS.
	• The demolition of buildings on the site is premature in the absence of formal assessment of the proposed future development of new buildings on the site. Demolition should be refused.	The proposed development is not a staged development in the meaning of Section 4.22 of the EP&A Act. The proposal seeks consent for the design and operation of the Powerhouse Parramatta as one stage.	Section 4 of the EIS.
Closure of Ultimo 3% of submissions received	• It is disappointing to learn of the imminent closure of the Powerhouse facility at Ultimo. • A number of submissions were drafted on the understanding that the proposed development would	• The Premier of NSW announced on 4 July 2020 that Powerhouse Ultimo would be retained. The decision ensures Sydney and NSW benefits from two world-class facilities, providing a significant boost for the arts, tourism, and employment sectors.	-

Issue tag	Summary of issue	Response	Reference to further information
	be an alternative to the Ultimo site, and not in addition to.	• The Environmental Impact Statement describes and assesses the redevelopment of the subject site. The operation of other existing sites is outside of the scope of this assessment and is a matter for the NSW Government.	
Operational parking, traffic, and transport 3% of submissions received	• The Environmental Impact Statement does not consider transport and access requirement for visitors from all Sydney areas or those areas close to Sydney which are not in the west.	• The site benefits from a range of existing and planned transport options. Parramatta Railway Station is located approximately 600m south of the site and accessible via major walking routes along Church Street and Smith Street, there are regular bus services along Phillip Street that connect to the surrounding area, and the Parramatta Ferry Wharf is located approximately 470m east of the site, with clear and accessible pedestrian pathways directly linking the site to the Wharf. There are also two light rail stops in easy walking distance of the site. • The new metro station within the Parramatta CBD as part of the Sydney Metro West project is also approximately 300m south of the site and will effectively double the rail capacity between Parramatta and the Sydney CBD, ultimately being able to move more than 40,000 people an hour in each direction. • The site benefits from a number of existing and planned public transport links. Further analysis of alternative locations is a matter for the NSW Government and is not relevant to this planning assessment process.	• **Appendix K** of the RTS Report. • Appendix F and Sections 2.1.3 and 6.4 of the EIS.
	• Parramatta car parks are usually full or near full during the day from Monday to Friday and this will make it more difficult to park.	• Public transport will be promoted as the primary mode of transport to use when travelling to and from the site, recognising that there are strong public transport links existing within and planned for the Parramatta CBD. This approach is supported by City of Parramatta Council to maximise the amount of publicly accessible open space and minimise the traffic impacts arising from the development. • On a typical weekday, it is modelled that the site may generate parking demand for approximately 140 cars. These vehicles can be easily accommodated within surrounding public carparks located within the Parramatta CBD in walking distance of the site. These carparks accommodate over 12,000 spaces.	• **Appendix K** of the RTS Report. • Appendix F and Sections 2.1.3 and 6.4 of the EIS.
	• The projected building has only one loading dock that the museum functions will need to share with other activities (including waste from commercial spaces, bars and restaurants and apartments).	• The loading and servicing requirements for the site have been assessed by JMT Consulting, confirming that the loading docks within the site have been designed to accommodate the anticipated level of vehicle demand generated throughout the day. Given the expected profile of service vehicle movements, amount of service vehicle parking bays available as well as the vehicle duration of stay, the loading area will have sufficient capacity to meet the needs of the future site.	**Appendix K** and **Section 5.9** of the RTS Report.
Tree removal and ecology 3% of submissions received	• The destruction of significant trees on the site is seen as being unimportant and insignificant.	• The proposed development necessitates the removal of 51 existing trees that are either located within the footprint of works for Powerhouse Parramatta, will obstruct the construction of buildings or the circulation through the site, or which are identified as being in poor condition and are a priority for removal.	**Appendix S** and **C**, and **Section 5.10** of the RTS Report.

Issue tag	Summary of issue	Response	Reference to further information
		• Whilst this does represent the loss of some healthy mature vegetation on the site, the proposed removal of trees will be mitigated through significant supplementary landscaping and tree planting. • The amendments to the design in response to submissions has specifically also enabled the retention of an additional tree from the Willow Grove landscape, a Cupressus macrocarpa.	

3.0 Molino Stewart Report (submitted with Kylie Winkworth)

The Flood Risk and Review Assessment was submitted as part of a 'public' submission as categorised by DPIE, and is discussed in further detail in this section.

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MS1	It is my opinion however that the model developed by Arup and its results should only be used as an interim tool for providing indicative flood information for the site, and that a more detailed and comprehensive assessment should be undertaken once the model from Council is released. The limitations of the Arup model are: 1. The model is calibrated against an old one-dimensional model (i.e. the Upper Parramatta River Catchment Trust model). The results of such model are limited by the age of the software and the fact it used superseded methodologies (Australian Rainfall and Runoff), developed in 1987 and that have now been extensively updated. 2. The Arup model does not clarify the assumptions that were used in terms of stormwater system blockage, when simulating overland flood behaviour and peak levels on site. It is my understanding that Council uses a 100% blockage assumption when assessing overland flood behaviour. Arup used a different, unspecified, blockage percentage, this would have resulted in lower flood levels on site, particularly in the more frequent flood events (up to the 1% AEP event), which are those used to inform the design of the building.	1. The flood model utilised for the assessment of Powerhouse Parramatta has been checked against both the Adopted Flood Levels which use ARR87 and the draft flood study which use ARR2019. As shown in Figure 16 of Appendix O- Flood Risk and Stormwater Management Report of the EIS, (quoted as Figure 2 in this submission) the draft flood study using ARR2019 presents lower flood levels in both the 5% AEP and 1% AEP events than the currently adopted flood model which used ARR87. As such this is considered a conservative baseline rather than a limitation of the 2D model developed for the EIS. 2. The flood levels used in the flood risk assessments in the original SSD DA reporting and the addendum report are 20% blockage of on-grade pits and a 50% blockage of sag pits. Sensitivity assessments have also been undertaken using the highly conservative assumption of 100% blockage of all pits and pipes. These assessments indicate that the peak 1% AEP flood level assuming 100% pit and pipe blockage would be 7.2m AHD which would still provide an adequate freeboard of 0.3m to the ground floor. Assuming 20% blockage of on-grade pits and a 50% blockage of sag pits, a freeboard of 0.78m AHD would be provided to the ground floor. These assessments and the justification for a 0.3m freeboard for overland flow is documented in the Flood Risk and Stormwater Management Report Addendum at **Appendix J** of this RTS Report.
MS2	In compliance with Parramatta DCP, the ground floor levels of both buildings were set at the level of the 1% AEP flood plus 0.5m freeboard. This is a standard approach used to place the ground floor of new residential and commercial development above the reach of flood events as frequent as 1 in 100 per year. The additional 0.5 freeboard is to account for uncertainties in the way the peak	The Flood Risk and Stormwater Management Report Addendum at **Appendix J** of the RTS Report provides updated flood modelling and flood risk assessments. In summary of this updated work, the following conclusions are drawn relevant to this submission comment:

No.	Extract	Comment
	level of the 1% AEP flood. The EIS report however suggests that the museum is being given a greater level of protection than the 1% AEP, which is incorrect and misleading .	• A 0.3m freeboard for overland flow and a 0.5m freeboard for riverine flow are justified given the local conditions. • The assumption of 100% pit and pipe blockage is considered overly conservative in providing an accurate assessment of building flood risk. The assumed pit blockages of 20% blockage for on-grade pits and a 50% blockage for sag pits is a reasonable assumption for a risk assessment. • With these freeboards and blockage assumptions, the ground floor level would have a flood immunity of 0.13% AEP (1:800 AEP) for overland flow and 0.1% AEP (1:1000 AEP) for riverine flow. • With a conservative assumption of 100% blockage of all pits and pipes in the Parramatta CBD, the ground floor would have an overland flow immunity of 1% AEP (with a 0.3m freeboard). A conclusion that the museum has greater than 1% AEP flood immunity is valid.
MS3	Finally, we note that in setting the ground floor level, no consideration was given to events greater than the 1% AEP, which although relatively rare could cause extensive damage to the building facilities and, more importantly, its contents. Given the value of the museum collection and the fact that this could not be replaced if damaged by a flood, I believe it is imperative to give some consideration to the risk from everts greater than the 1% AEP, rather than strictly complying with the minimum floor levels stipulated in Parramatta DCP.	The Flood Risk and Stormwater Management Report Addendum at **Appendix J** of this RTS Report provides updated flood modelling and flood risk assessments. In summary of this updated work, the following conclusions are drawn relevant to this submission comment: • A range of flood probabilities has been considered in assessing the risk of flooding for the project. • This risk assessment has indicated that there is a low probability of ground floor inundation during the project life (in the order of 12%) – and this assessment includes allowances for freeboard.
MS4	The development proposes to convey any overland flooding running from Phillip Street to the River into larger underground stormwater pipes, and to direct any excess flow along the pedestrian connections between the River and Phillip Street. The ability to rely on amplified underground pipes to ensure the development does not increase flood levels on neighbouring properties is highly dependent on the blockage factors assumed in the modelling but these are unstated. Whatever proportion flows underground there will remain a substantial flow above ground. This means that people evacuating from the rising river along these pedestrian connections could be confronted by a torrent cascading down each of their possible escape routes. This is an unacceptable design solution, especially considering that some of the evacuees would have mobility impairments or would be parents with children and infants.	The Flood Risk and Stormwater Management Report Addendum at **Appendix J** of this RTS Report provides updated flood modelling and flood risk assessments. In summary of this updated work, the following conclusions are drawn relevant to this submission comment: • The project would result in a single overland flowpath to the river along Dirrabarri Lane • There would not be any adverse impacts on adjoining properties as a result of the project assuming reasonable blockage factors • With highly conservative assumptions of 100% blockage of all pits and pipes in the Parramatta CBD, the flood impacts would be in the order of 60mm (on a building that would always be inundated in that scenario). • This flowpath is not a designated evacuation route during floods and the Emergency Management Plan would not rely upon this route in any way to be effective. • The amended design includes additional flood egress routes that obviate the need to use Dirrabarri Lane. The inclusion of steps at the rear of the undercroft area (at the high point of the undercroft) means that there is a continuously rising evacuation route out of this area. • The addendum report outlines the feasibility of an Emergency Management Plan that indicates there is ample time for people (including those with mobility impairments or

No.	Extract	Comment
		parents with children and infants) to move to Level 1 of the building which is above the PMF level.
MS5	The proposed undercroft spaces may represent a serious risk to life. During a rainfall event people may take shelter in these spaces but they may become trapped there as the Parramatta River rises. This is because the evacuation routes from these spaces go down towards the river before rising to Phillip Street. A continuously rising evacuation routes needs to be provided from these spaces to an area above the reach of the PMF without walking through an overland flow path.	The Flood Risk and Stormwater Management Report Addendum at **Appendix J** of this RTS Report provides updated flood modelling and flood risk assessments. In summary of this updated work, the following conclusions are drawn relevant to this submission comment: • The amended design includes steps at the rear of the undercroft area (at the high point of the undercroft) meaning that there is a continuously rising evacuation route out of this area. • The addendum report outlines the feasibility of an Emergency Management Plan that indicates there is ample time for people (including those with mobility impairments or parents with children and infants) to move to Level 1 of the building which is above the PMF level.
MS6	The increased risk to life due to potential overland flow running down pedestrian evacuation routes or to patrons being trapped in the undercroft spaces are inconsistent with the DCP provisions, namely with Objective O.8, Principal P1 and Principal P3. This is also inconsistent with Section 7.6L of the draft LEP. The potential damage to the museum collections is also arguably insufficiently addressed (DCP Principal P2). In order to comply with the draft LEP provisions, the new building would need to ensure that the indoor refuge area is structurally safe, is located above the PMF level, is capable of hosting and can be accessed by all the museum patrons and staff, and has emergency electricity and water supply. The EIS provides no evidence that these requirements were addressed.	DCP Objective O.8 will be met. The discussion in the above points highlights that there will be minimisation of the risk to life through the provision of access from the undercroft to Level 1 (which is above the PMF). In regard to Principal P.1 of Objective O.8 ('new development should not result in any increased risk to human life'), it is clear that the project would have significantly less risk to human life than the current car park which has limited egress from the lower level. In regard to Principal P.3 of Objective O.8 ('new development should only be permitted where effective warning time and reliable access is available for the evacuation of an area potentially affected by floods to an area free of risk from flooding'), the Emergency Management Plan will provide ample time for egress to Level 1 which is above the PMF. Evacuation routes to higher ground are separate from overland flow paths within the development. There will be steps to allow flood egress from the highest point of the undercroft (where people could possibly shelter if they have not made their way to Level 1 in the preceding hours). This egress is unlikely to be required (as patrons will have been moved to Level 1 as part of the Emergency Management Plan) but will be provided as a safeguard against unforeseen circumstances. The structure will be designed to withstand the forces of floodwater, debris and buoyancy up to and including a PMF level, as addressed in the addendum structural assessment prepared by Arup and provided at **Appendix N** of the RTS Report. Section 7.6L of the draft LEP is met and the details of emergency power supply are documented in the Flood Risk and Stormwater Management Report Addendum at **Appendix J** of the RTS Report. The generator room, generator LV switch room, and fuel storage was shown on plan DA103 and section DA250 of Appendix B- Architectural Plans of the EIS. These spaces are located at RL18.5 and are well above the probable maximum flood (PMF) level. The generator capacity is sufficient to provide emergency lighting and other essential services up to 10 hours. This would far exceed the duration that people would require shelter from flooding, which is likely to be in the order of 5 hours for a PMF event.

No.	Extract	Comment
		The substations will be located 0.3m above the 1% AEP overland flood level (assuming 100% pipe blockage) at 7.5mAHD. With reasonable blockage assumptions, sub-stations will have a flood immunity of 1:800 AEOP (0.13% AEP) including allowances for freeboard. Hence, only in rare flood events would the sub-station be inundated. The emergency power supply would provide power to the building in this situation for up to 10 hours.
MS7	The EIS indicates that it is proposed to supply power to the museum through a pad mounted substation at the 1% AEP flood level. No mention is made of how power will be supplied to the building in larger flood events to ensure occupants can reach levels above the PMF and safely shelter in them or how the class AA climate control will be maintained.	The substations will be located 0.3m above the 1% AEP overland flood level (assuming 100% pipe blockage) at 7.5m AHD. With reasonable blockage assumptions, sub-stations will have a flood immunity of 1:800 AEOP (0.13% AEP) including allowances for freeboard. Hence, only in rare flood events would the sub-station be inundated. The emergency power supply would provide power to the building in this situation for up to 10 hours. Critical electrical infrastructure inside the building, such as main switchboards and back-up generators, will be provided and will be located above PMF Level. Out of 10 lifts, 8 will be connected to the back-up power supply. There would not be any presentation spaces in the museum requiring AA climate control. Presentation Space 5 is the only space with A/B climate control.