

Building R4B (SSD 6965)

Attachment A – Response to Submissions

Response to Schedule 1: Additional matters identified by the Department of Planning and Environment.

Issue		Lend Lease Response
Department of Planning and Environment		
1	Built Form Provide further information and justification in relation to the respective podium designs and compliance with the intent of the Barangaroo South Built Form and Urban Design Controls.	The podium design has been informed by the <i>Barangaroo South Built Form and Urban Design Guidelines</i> ('the Design Guidelines'), which sets a maximum height of RL 22 and seeks to encourage low podiums to maximise solar access at ground level. The design of the podium is also influenced by the existing and future character of the locality, taking into account the relationship of the buildings with the International Towers and existing development along Hickson Road, as well as the future Hickson Park and Crown Integrated Hotel Resort. Each building incorporates a podium consistent with the maximum podium height approved under Concept Plan (Mod 8) and is carefully designed to ensure each building achieves a human scale public domain. Further detailed information is provided in the covering Response to Submissions Report and the in the Supplementary Design Report at Appendix C.
2	Residential Amenity Further consideration should be given to the layout and configuration of units to improve opportunities for solar access for the development. In particular, the number of units receiving direct sunlight between 9 am and 3 pm in midwinter should be reviewed. In addition, the number of units within R4B that do not receive direct sunlight between 9 am and 3 pm in midwinter should also be reviewed.	Solar access modelling has been undertaken to demonstrate the level of solar access achieved for all apartments (attached at Appendix F). As identified in this modelling, the following percentage of solar access is provided to each building between 9am and 3pm: - R4A – 65% - R4B – 64% - R5 – 70% Cumulatively, 66% of apartments receive two hours of solar access across the three buildings. As described in the covering Response to Submissions report, solar access modelling was undertaken during an extended timeframe between 9am and 4.45pm, which resulted in the following level of solar access: - R4A – 96% - R4B – 80% - R5 – 70% Further discussion on this matter is provided in the covering Response to Submissions Report.

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	- Further consideration is required in relation to the habitable room depth of units. - Further consideration should be given to increasing the size and/or depth of balcony/wintergardens for three bedroom units to comply with minimum Apartment Design Guide (ADG) requirements	To provide for ease of assessment, the dimensions of habitable room depths are illustrated for each typical floor plate in the Supplementary Design Report at Appendix C of the covering Response to Submissions Report. These dimensions demonstrate that each apartment incorporates a carefully planned layout that achieves the design intent of Objective 4D-2 of the ADG, as discussed in the covering Response to Submissions Report. To provide for ease of assessment, a detailed schedule setting out private open space dimensions and overall size for all apartment types is provided at Appendix C of the covering Response to Submissions Report. A total of 100 balconies/wintergardens in Building R4A and Building R4B are alternatively sized (16%), providing a total area of 11m² which is a reduction of 1m² from what is recommended in Objective 4E-1 the ADG. All wintergardens open directly onto the principal living area of apartments and incorporate a depth of 2.7 metres, in excess of the 2.4 metres recommended in Objective 4E-1 of the ADG. 26 balconies in Building R5 incorporate a width of 2.25 metres, which is a reduction of 0.15m² from what is recommended in the ADG. These balconies exceed the minimum area recommended in the ADG, providing balconies that are up to 19m² in area. This generous design will enable wintergardens and balconies to be used flexibly and will ensure that future residents are provided with a high level of amenity, as discussed in further detail in the covering Response to Submissions Report.
	Further consideration should be given to exploring alternative designs to improve the amenity of units which do not have study windows or line of sight to a window.	Detailed diagrams have been prepared to demonstrate that a line of sight to a window is maintained for all studies, ensuring a high level of amenity is achieved for residents as they are able to flexibly use this space as an extension of the primary living area or for storage (refer to Appendix C of the covering Response to Submissions Report).
3	Parking Consideration should be given to the implementation of car share spaces within the development in consultation with a car share provider.	Due to management and security issues as well as the site's close proximity to a range of transport options, car shares spaces are not proposed be provided within the development. Providing publicly accessible car share spaces within the Stage 1B basement will compromise security for residents, with a need to allow unregistered visitors into the basement to access the car share parking spaces. Any restriction on access to the basement will limit accessibility for car share users. There are a number of existing car share spaces in close proximity to the site. These include nine (9) spaces within a 500 metre radius of the site. The site is also optimally located with access to public transport at Wynyard Station and King Street Wharf and will benefit from committed future public transport connections from the Barangaroo Ferry Wharf (under construction) and the future CBD Metro. Given the high level of public transport available to the site, and the presence of surrounding car share spaces, the decision to not provide any car share spaces within the Stage 1B basement is considered acceptable. This approach is consistent with the Stage 1A basement at Barangaroo.

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4	Key Worker Housing - Clarification is required in relation to the integration of Key Worker Housing (KWH) units with other residential units within R5. For example, KWH units appear to have a separate entry, lobby and lifts to other units within the building. - Further information is required in relation to the provision of adequate, direct and equitable access to communal open space for the residents of the KWH units noting the requirements of the ADG.	This matter is not relevant to Building R4B and has been addressed in the Building R5 Response to Submissions Report.
5	Bicycle Storage I End-of-Trip Facilities Consideration should be given to amending the layout of the basement car park to provide separate, dedicated, secure bicycle storage facilities for residents and to providing dedicated bicycle parking and end-of-trip facilities for the proposed non-residential uses.	Residents are provided with bicycle storage opportunities within individual storage cages in the shared basement. This approach is consistent with the previous residential buildings in Barangaroo South, as well as the common practice of residential buildings within the City of Sydney Local Government Area. End-of-trip facilities for non-residential uses are provided in Basement Level B0, as shown in the Supplementary Design Report at Appendix C.
6	Pedestrian Accessible Strada (R4A and R4B) Further consideration should be given to the design of ground floor space in and around the Strada to ensure public access is available at all times.	Detailed plans and elevations of the proposed Strada have been prepared to demonstrate the arrangements for public access at ground level and provide further details on the design of the space (refer to Appendix C of the covering Response to Submissions Report). The Strada will be publicly accessible between 7:00am and 11:00pm every day. Due to safety and security concerns, it is proposed that the Strada will be closed overnight when there are limited opportunities for passive surveillance. At all other times, the Strada will provide a direct and publicly accessible through-site-link from Barangaroo Avenue through to Hickson Park. During the period when the Strada is closed, Hickson Park will remain accessible from Watermans Quay, Hickson Road and Barangaroo Avenue. Further discussion on this matter is provided in the covering Response to Submissions Report.
7	Revised Plans, Reports & Documentation - Provide a revised site plan that includes dimensions for proposed setbacks between buildings including setbacks to neighbouring buildings. - Provide revised floorplans that include RLs and include the dimensions and areas of each unit and balcony/wintergarden. - Provide revised section drawings that include basement levels. - Provide specific plans of the proposed pedestrian bridge and canopy over the public plaza (R4B). - Provide revised basement plans that number the proposed parking spaces for each building and detail all accessible parking spaces, shared zones and their dimensions.	A revised site plan that incorporates the relevant details is provided at Appendix C of the covering Response to Submissions Report. Revised floorplans illustrating dimensions are provided at Appendix C of the covering Response to Submissions Report. Revised section drawings including basement levels are provided at Appendix C of the covering Response to Submissions Report. Detailed plans of the proposed pedestrian bridge and ground level Strada are provided at Appendix C of the covering Response to Submissions Report. Revised basements plans are provided at Appendix C of the covering Response to Submissions Report, which detail the number of car parking spaces, accessible spaces and shared zones.

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Provide plans clearly identifying areas and dimensions of proposed communal open space.	Plans identifying the areas and dimensions of the communal open space are provided at Appendix C of the covering Response to Submissions Report, illustrating that a total of 2,565m² of communal open space is provided. Further discussion on this matter is provided in the covering Response to Submissions Report.
<u>Apartment Design Guide (ADG)</u> - Provide a more detailed unit schedule containing a breakdown of each proposed unit in relation to number of bedrooms and bathrooms, area, habitable room depth, hours of solar access, cross ventilation, balcony size and depth, and storage (internal and external). - Any variations to the ADG including communal open space, solar access, unit depth, visual privacy, balcony sizes and the number of apartments being serviced per lift shall be further clarified and justified. - Provide more detailed information to demonstrate solar access calculations to units including in relation to window sizes and room dimensions. The submission of a specific solar access study is requested. - Provide more detailed information to demonstrate proposed cross ventilation compliance. Cross ventilation obtained from access corridors (as indicated in the submitted Design Statement) should not be included in these calculations. Clarify that the proposed wintergardens will provide cross ventilation and cannot be permanently enclosed. - Provide more detailed information to demonstrate compliance with storage requirements. This includes within units and within the basement. Bicycle storage should not be provided within individual storage cages unless the volume of each cage is increased accordingly.	A detailed schedule has been prepared by Lendlease Design and is provided at Appendix C of the covering Response to Submissions Report. This schedule provides key detail to enable assessment against the design criteria contained in the Apartment Design Guide (ADG). A detailed assessment of the buildings consistency with the ADG is provided in the Response to Submissions report prepared by JBA. A full assessment of these ADG matters, and a justification as to how the design is consistent with the relevant objectives of the ADG, is provided in the Response to Submissions Report. A detailed Solar Access Study is provided at Appendix F of the covering Response to Submissions Report, which provides further detail relating to solar access calculations for each apartment. Further detail in relation to cross ventilation is provided at Appendix C of the covering Response to Submissions Report. This information demonstrates that cross ventilation can be cumulatively achieved in 60% of units of the first nine (9) levels of each building. A detailed breakdown of each building demonstrates that cross ventilation is achieved as follows for the first nine (9) levels of each building: - R4A – 60% - R4B – 60% - R5 – 60% As noted above, bicycle parking is to be provided within individual storage cages for each apartment. This is consistent with the approach adopted in the Sydney Development Control Plan 2012 (DCP) and within residential buildings in the City of Sydney Local Government Area. In these instances, additional bicycle parking is not required to be provided if an apartment has a basement storage area that is large enough to accommodate a bike and is no smaller than a Class 1 bike locker. Additional detailed provided in the Supplementary Design Report at Appendix C demonstrates that the proposed storage cages in the basement are able to accommodate both the storage amount recommended under Objective 4G-1 of the ADG in addition to a bicycle.
<u>Wintergardens</u> Further information is required regarding the proposed wintergardens demonstrating compliance with the Barangaroo Concept Plan and Barangaroo South Built Form and Urban Design Controls, noting that wintergardens must not exceed 15% of the total GFA for each apartment to which it is connected.	The detailed schedule of apartments provided at Appendix C of the covering Response to Submissions Report identifies the size of wintergardens, as well as the internal apartment size. The wintergarden area as a percentage of apartment size is illustrated within this schedule. Where the wintergarden size is in excess of 15% of GFA for each apartment, this additional area is included in the overall GFA calculations for the building.

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<u>Wind Report</u> - Provide more detailed information regarding the amelioration of ground level wind impacts and the timing of works given the wind report recommends the planting of densely foliating trees around the buildings and these are not proposed as part of the interim landscape works. - Elevations are required detailing the proposed screening for wind amelioration. - The report should clarify suitable wind mitigation measures for the Strada if the bi-fold doors at either end are deleted. - Further clarification is required regarding the landscaping plan relied upon by the wind report for this assessment.	An Addendum Wind Report has been prepared by Windtech (attached at Appendix D of the covering Response to Submissions Report). This addendum Wind Report details how wind impacts are proposed to be mitigated. In accordance with Condition B12 of the Concept Plan (MP06_0162 MOD 8), all public domain elements are required to be provided prior to occupation of any building in Blocks 4A, 4B and Y (which includes the One Sydney Harbour Buildings). As a result of this, the wind assessment has been prepared on the basis that the future public domain (as to be proposed under SSD 16_7944) has been completed. The screening elements required for wind mitigation are detailed design matters which will be provided prior to the relevant Construction Certificate. The wind conditions have been reviewed for the Strada when completely open, partially open and enclosed. In the instances where there was an opening at either or both ends of the Strada, the area was found to be exposed to adverse wind impacts. It is considered that these wind impacts would render the area unsuitable for retail trade and outdoor seating and as a result doors are necessary to prevent adverse wind impacts. To mitigate wind impacts, the original proposal includes baffles which are detailed in the Supplementary Design Report at Appendix C. Additional information regarding the proposed Strada are provided in the revised plans and Supplementary Design Report at Appendix C. As noted above, Condition B12 of the Concept Plan requires that all public domain is completed prior to the issue of an occupation certificate for any of the One Sydney Harbour buildings. As a result of this requirement, the wind assessment has been prepared on the basis that the landscaping works proposed to be delivered as part of the future public domain (SSD 16_7944) are completed.
<u>Landscaping</u> Provide specific details of species, quantity and planting sizes of proposed tree planting. Confirm whether interim landscape planting is to remain as part of the future landscaping of the site.	Further details on species, quality and planting size will be determined in greater detail at the Construction Certificate phase which is considered most appropriate. Interim landscaping is provided where the proposed buildings have a direct interface with the area to be developed as part of the Stage 1B Public Domain, in particular the future Hickson Park, Watermans Quay and Barangaroo Avenue. A detailed landscaping scheme has been developed for the Stage 1B Public Domain site including provision of public domain furniture and fixtures as well as comprehensive planting of trees and other vegetation. The Stage 1B Public Domain works are subject to a separate application. Landscaping works to be undertaken following the Stage 1B Public Domain works application will replace the interim public domain works at ground level of each of the buildings, ensuring that landscaping is provided with each building to ensure amenity for future residents. Condition B12 of the Concept Plan requires that Hickson Park is completed prior to occupation of any of the proposed buildings. As a result, any interim landscaping works will be replaced by landscaping associated with the overall public domain concept for the site.

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<u>Access Report</u> The BCA report advises accessibility will be resolved at the construction certificate stage. An Access Report, prepared by a suitably qualified access consultant, shall be submitted for each application which provides an assessment of the proposed development with regards to the applicable Australian Standards	Noted. An Access Report has been prepared by Morris Goding Accessibility Consulting and is provided at Appendix G of the covering Response to Submissions Report.
<u>BCA Report</u> The BCA report submitted for R5 appears to be a draft document. A final version of the document is required demonstrating that the proposed development complies with the BCA and where compliance cannot be achieved an alternate solution is proposed.	An updated BCA Report prepared by McKenzie Group is provided at Appendix H of the covering Response to Submissions Report.
<u>Operational and Construction Noise and Vibration Report</u> The respective noise and vibration reports indicate construction work would occur within specified hours with the exception of emergency work. The report shall be amended to include the nature and likely scenario in which emergency work would be required to be undertaken outside of the nominated construction hours.	As per previous development approvals related to Barangaroo South, emergency works is defined as <i>'emergency work to avoid the loss of lives, damage to property and/or to prevent environmental harm'</i>. Likely scenarios would be where work is urgently required for safety, property, or environmental reasons. Emergency works would be short term and only undertaken to rectify the immediate situation. The modelled cumulative noise impact from tower structure works to be undertaken on a Saturday is less than what was predicted for the Stage 1A commercial towers. Noise levels from the construction of International Tower 1 was predicted to be up to 15dBA above the required noise management levels. The noise from construction associated with Tower 1 was managed using strategies from the Noise and Vibration Management Sub-Plan prepared by Lendlease, including measures such as community liaison, real-time noise monitoring and the measures specified in the relevant Construction and Operational Noise Report. Additional measures outlined in the Noise and Vibration Management Sub-Plan include: - Use of non-tonal and / or automatically adjusting reversing alarms on site equipment. - Use of silenced generators and compressors. - Turning off plant and vehicle when not in use instead of allowing to idle. - Ensure equipment is operated correctly, including repair of defective mufflers, correction of rattling parts and components, and repair of leakages in compressed airlines - Ensure audible construction activities are only undertaken between 7am and 6pm Monday to Friday, and 7am to 5pm Saturday. - Notify residents and potentially affected stakeholders of planned out-of-hours works and deliveries, and activities with high noise impact, two days in advance. These strategies will be implemented as part of future construction activities. In addition to this, noise generated on Saturdays accounts for less than 1% of complaints realised. This demonstrates the effectiveness of the noise mitigation measures and suggests that noise impacts on Saturdays have not been significant to date.

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Further consideration should be given to anticipated noise impacts on surrounding residents, child care centres and retail tenancies.	As noted above, the mitigation measures for noise that have been utilised to date during construction at Barangaroo have been able to minimise noise impacts to surrounding sensitive receivers. Implementation of these noise mitigation measures will continue throughout the construction and operation of the proposed One Sydney Harbour buildings. The submitted Construction and Operational Noise Report (provided at Appendix M of the exhibited EIS) provided a detailed assessment and recommendations for managing/mitigating noise impacts on surrounding residents, child care centres and retail tenancies. As outlined above, the Noise and Vibration Management Sub-Plan will be continually updated to reflect the progress of the project and to respond to noise impacts as they occur, including specific noise impacts on these identified sensitive uses.
<u>Safer by Design</u> Provide a Crime Prevention Through Environmental Design assessment report including details of relevant consultation and recommendations.	A CPTED Report has been prepared by Harris Crime Prevention Services and is provided at Appendix E of the covering Response to Submissions Report.
<u>Capital Investment Value (CIV)</u> The submitted CIV calculation does not appear to address the anticipated number of construction jobs and operational jobs. This information is requested.	The peak number of construction jobs associated with the combined proposals is approximately 1,500 and the total number of operational jobs is approximately 133.
<u>Key Worker Housing (R5 only)</u> - Provide GFA calculations for residential developments within Barangaroo South to demonstrate compliance with Condition BI 1 (a) of the Concept Plan. - Provide further details as to the proposed off-site location of the KWH demonstrate compliance with Condition BI 1 (b) of the Concept Plan. - Clarification is required as to the provision of car parking for KWH units.	This matter is not relevant to Building R4B and has been addressed in the Building R5 Response to Submissions Report.

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Response to Agency and Council Submissions

Key Issues Raised	Lend Lease Response
City of Sydney Council	
Planning issues <u>Uncertainty with SEPP and Concept Plan</u> The SSD applications should not be determined or progressed given the level of planning uncertainty with SEPP (State Significant Precincts) and the Barangaroo Concept Plan. There is a current appeal against the Planning Assessment Commission's approval of MOD 8 to the Concept Plan and the Crown Resort SSD. It is expected that any successful appeal will overturn amendments to SEPP (State Significant Precincts) 2005 including rezoning of public open space to development zones, uplift in gross floor area and uplift in building heights that, on the recommendations of the PAC, facilitated approval of MOD 8 and the Crown Hotel and Resort. If the appeal is successful, the enabling zoning may reinstate the land to RE1 Public Recreation (i.e. open space zone) where the three SSDs will be rendered prohibited development. Furthermore, the creation of the tower envelopes for R4A, R4B and R5 will be invalid. As such, the SSDs will be prohibited and inconsistent with the Concept Plan. If the appeal is successful, the Department should immediately request that the applications be withdrawn.	Modification 8 to the Barangaroo Concept Plan MP06_0162 (Concept Plan (Mod 8)) was approved on 28 June 2016. The lodgement and exhibition of the proposal was carried out in accordance with the <i>Environmental Planning and Assessment Act 1979</i>. <i>Millers Point Fund Incorporated v Lendlease (Millers Point) Pty Ltd</i> [2016] NSWLEC 166 was decided in the respondents favour on 23 December 2016, rendering the appeal unsuccessful. As a result of this decision, Modification 8 to Concept Plan approval 06_0162 is valid and the proposed development of Buildings R4A, R4B and R5 remains permissible with consent. As this matter is now resolved, it is considered that there is no uncertainty in relation to the application of <i>State Environmental Planning Policy (State Significant Precincts) 2005</i> or the Barangaroo Concept Plan and that the assessment and determination of each SSDA may continue.
<u>Premature Lodgement of Applications</u> Lodgement of the SSD applications is premature as the applications are not coordinated with the surrounding land. It is impossible to realistically review these proposals, in particular the ground plane, without consideration of the wider context. The following contextual issues arise:	The building designs have been undertaken with the future Hickson Park and surrounding public domain design in mind. This approach of concurrently developing the design of the basement, buildings and public domain design is consistent with the approach undertaken for Stage 1A of Barangaroo South. Council has been one of many stakeholders consulted in the planning and design phase of each component associated with Stage 1B of Barangaroo South. Public exhibition has occurred for the Stage 1B Basement and the three residential buildings (subject of this Response to Submissions). Furthermore, Council has been consulted and presented with the future Hickson Park and surrounding public domain design. As such, there should be no impediment to Council's review and comment on the three residential buildings.
(1) The design and intent of the adjacent Hickson Park remains unknown.	The design of Hickson Park is the subject of SSD 7944 and is currently under review by the Barangaroo Delivery Authority for landowners consent. As set out above, this component of the project is critical to the overall success of the Barangaroo precinct and there are a number of stakeholders who must be consulted to ensure a high quality outcome is achieved. Council has been provided with presentations on the design of the public domain.
(2) Pedestrian connection and desire lines from these buildings to the Barangaroo Metro Station through Hickson Park are not determined;	Throughout the development of Barangaroo, detailed pedestrian flow studies have been undertaken to determine connections to key destinations. Consistent with this approach, the SSDA for the public domain of Stage 1B and surroundings, including Hickson Park, will outline desire lines. The public domain approach and design has been developed in unison with the design of the three proposed residential towers, including pedestrian desire lines.

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Key Issues Raised	Lend Lease Response
(3) Environmental impacts are not coordinated. See the below commentary in this regard.	A comprehensive review of all potential environmental impacts has occurred, both in relation to each individual building and the potential cumulative implications. Appropriate mitigation measures have been provided to ensure environmental impacts are managed/mitigated effectively.
(4) The three buildings must mitigate the unacceptable wind conditions they create within their own site boundary, and not rely on questionable future tree planting to create a habitable space.	An addendum Wind Report has been provided at Appendix D of the covering Response to Submissions Report, which clarifies the wind mitigation measures to be implemented as part of the proposed development.
Urban Design and Built Form issues <u>Lack of Building Podiums</u> The absence of podiums to the towers is contrary to principles of human scale, breaking down building bulk and mass and wind mitigation strategies. Podium forms should be introduced on each frontage of the towers.	The proposed design of each building is in accordance with the <i>Barangaroo South Built Form and Urban Design Guidelines</i> (the Design Guidelines)' approved under Concept Plan Mod 8. These controls set the parameters of each building envelope as well as standards in relation to podium height, street wall establishment and accessibility of the public realm. Low-rise podiums are incorporated into each building, consistent with the Design Guidelines which seek to maximise solar access at the ground plane. A further detailed assessment of the proposals consistency with the Design Guidelines is included in the Supplementary Design Report at Appendix C and is discussed in the covering Response to Submissions Report.
<u>Wind Effects</u> There is a significant issue with the pedestrian wind environment created by these towers. The wind report, prepared by Windtech illustrates dense lines of trees that are positioned around the edges of each building. These trees are required to achieve a height of 7-10m, with a dense canopy of 3-6m wide. (1) The landscape design report states that 'for technical reasons large tree planting is not possible above the floors below on podium level' (sic). The phrase is obviously a typing error, however the true meaning is quite critical. If the 'technical reasons' prohibiting large tree planting apply to all large trees on podium, presumably this excludes large trees above the basement. (2) The location of the deep soil pockets is unknown. The wind impacts of the developments have not been adequately assessed. It has been the City's experience that where wind barriers/breaks/awnings have been conditioned by the Department or the PAC that these conditions are then deleted through modification owing to lack of coordination or feasibility at a later stage.	An addendum Wind Report is provided at Appendix D , which determines that the proposed design of the towers minimises the impact of existing wind conditions and that the current design provides suitable wind amelioration to mitigate any adverse wind conditions and maximise public comfort at the ground plane. It is noted that the public domain works to be proposed under SSD 16_7944, including Hickson Park, will be completed prior to the occupation of any of the One Sydney Harbour buildings in accordance with Condition B12 of the Concept Plan (as modified) and that the wind mitigation provided by this future landscaping will ensure that wind mitigation is maximised at the ground plane. The size, location and quantity of trees proposed in Hickson Park will be assessed in detail under SSD 16_7944. This SSDA is expected to be lodged imminently, and as outlined above, has been the subject of pre-lodgement consultation with a range of stakeholders including Council. For absolute clarity, tree planting will be proposed above the Stage 1B basement. As outlined above, the addendum Wind Report provided at Appendix D of the covering Response to Submissions Report addresses wind mitigation measures. These measures can form conditions of consent which are enforceable and can only be modified formally by the consent authority.

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<u>Canopy</u> The “Strada canopy” between buildings R4B and R4A effectively encloses and privatises the public domain between these buildings. This is contrary to the Concept Plan and not supported from an urban design perspective. It is not in the public interest to enclose and privatise this space. The link bridge between R4B and R4A is not supported, irrespective of whether the strada canopy is built or not. Upper level links are discouraged in the Sydney CBD. Instead, the City encourages pedestrians to traverse the streets at ground level, to enliven, activate and participate in city life. Little detail is provided relating to the strada canopy and link bridge, by way of architectural design, materials and finishes. The design should be amended to remove the canopy and overbridge link and the creation of public open space between R4A and R4B. Awnings for pedestrian protection should be installed rather than a canopy and overbridge.	The area between R4A and R4B to be known as “The Strada” provides a direct public link between the public domain at Watermans Cove and Hickson Park. The Strada has been deliberately designed to ensure that it is able to provide a pleasant pedestrian environment at all times, taking into account variable weather conditions and the need to provide protection from wind, rain or harsh sunlight. Retail and restaurant tenancies along the Strada benefit from the ability to provide seating both within the podium and outdoors, encouraging visitors into the area and minimising any harsh demarcation between public and private land. To protect the amenity of this predominantly outdoor space all year round, the Strada incorporates a glazed covering as well as retractable doors to be used to mitigate inclement weather conditions. These components ensure that there will be a space that provides a high level of amenity to pedestrians and visitors to the area, regardless of weather conditions. It must be noted that the Barangaroo South Built Form and Urban Design Controls approved under Concept Plan Mod 8 designate this pedestrian link as secondary. Contrary to Council's comments, the Concept Plan (as modified) does not prohibit the provision of a canopy or link bridge between Buildings R4A and R4B. Further discussion on the Strada is provided in the covering Response to Submissions Report and greater details on the design of the Strada are provided at Appendix C of the covering Response to Submissions Report.

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<u>Non Compliance with SEPP 65 - Compliance with the Apartment Design Guide</u> The design of the apartments results in non-compliances with the Apartment Design Guideline. The apartment yield is excessive and non-compliances should be excised from the proposals. <u>Building separation</u> The proposed design does not meet the objectives of the Apartment Design Guide in relation to building separation. The proposed minimum separation distance between R4A and R4B is 13m, which is 11m less than is required 24m separation in the ADG. The opaque façade to provide privacy to the R4B living rooms is likely to diminish the outlook amenity for all apartments. The detail of the opaque façade and opaque privacy screen is unknown, as well as how effective these features will be in providing visual privacy. The design should be amended to ensure no habitable rooms or balconies are located facing one another between R4A and R4B and that buildings meet minimum separation distances. Detailed drawings of windows and materials should also be provided at a 1:50 scale.	A detailed assessment against the ADG is provided in the report prepared by Renzo Piano Building Workshop and Lendlease Design at Appendix C and a detailed discussion of the ADG is included in the covering Response to Submissions report. The assessment provided in the Response to Submissions report determines that the proposed development is acceptable and when considered holistically the proposals provide a high level of amenity consistent with the objectives of the ADG. A detailed discussion on this matter is provided in the covering Response to Submissions report. The proposal is in accordance with the Concept Plan (as modified) and the Barangaroo South Built Form and Urban Design Controls. The proposal also achieves the objectives of the ADG by offsetting outlook and providing materiality/screening to sensitive areas where privacy issues may have occurred. The opaque façade provided to some apartments in Building R4B will not adversely diminish outlook as residents will still be able to obtain outlook to other directions. These are detailed design features which will be confirmed in greater detail during the Construction Certificate process, as is standard practice. As outlined above, the proposed development is in accordance with the Concept Plan (as modified) and the Barangaroo South Built Form and Urban Design Controls. The proposal also achieves the objectives of the ADG, therefore is acceptable. Detailed drawings of windows and materials at 1:50 scale will be prepared prior to the commencement of construction.
<u>Solar access and natural cross ventilation</u> The proposed towers do not comply with the minimum threshold for solar access. Building R4B contains a number of apartments that receive no direct sunlight in winter. Solar diagrams in plan and elevation should be submitted with the application indicating compliance with the ADG. The applicant should provide diagrams demonstrating the methodology used to measure natural cross ventilation. Alternative methods to measure solar access should not be utilised.	Solar access and cross ventilation has been assessed in detail, as described at Appendix C of the Covering Response to Submissions Report. The outcomes of this assessment are discussed in the covering Response to Submissions report, with an overall determination that the proposed development is consistent with the relevant objectives of the ADG. These details are provided at Appendix C of the Covering Response to Submissions Report. These details are provided at Appendix C of the Covering Response to Submissions Report. A further assessment has been undertaken to identify the hours in which over 70% of apartments receive two hours of solar access to living rooms and balconies on mid-winter.
<u>Natural light and air.</u> The proposed towers have rooms indicated as studies that have no windows, which is no longer permitted. The Apartment Design Guide now requires that studies are not to borrow light and air from other rooms. The apartments should be redesigned to achieve compliance with the Apartment Design Guide.	As outlined on the amended Architectural Drawings at Appendix C of the Covering Response to Submissions Report, all studies are provided with a line of sight to a window. Further assessment on this matter is provided in the Covering Response to Submissions Report.

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Transport and Access <u>Car Parking Supply</u> The amount of car parking being pursued is excessive. The number of car parking spaces proposed should be restricted to the rates within the Sydney Local Environmental Plan 2012. The City calculates that the application of the LEP 2012 would generate 488 car parking spaces for all three towers whereas there are 881 spaces proposed.	The provision of car parking has been provided in accordance with the rates set in the approved Concept Plan (as modified). These rates were derived from the <i>Sydney Local Environmental Plan 2005</i>, which was in force at the time of the Concept Plan approval. <table><tr><th>Apartment Type</th><th>Barangaroo Concept Plan Mod 8 rate (Condition C4)</th><th>Total Apartments Provided</th><th>Maximum Car Parking Permitted</th></tr><tr><td>1 bedroom</td><td>1 space per 2 apartments / 0.5 spaces per apartment</td><td>249</td><td>125</td></tr><tr><td>2 bedroom</td><td>1.2 spaces per apartment</td><td>310</td><td>372</td></tr><tr><td>3 + bedroom</td><td>2 spaces per apartment</td><td>177</td><td>354</td></tr></table> A total of 795 car parking spaces are proposed, as shown in the basement car park plan provided in the Supplementary Design Report at Appendix C. As outlined above, the provision of car parking is completely in accordance with the rates set under the Concept Plan (as modified). The Transport Management and Accessibility Plan submitted with the original SSDAs found that the transport network in the Barangaroo precinct can adequately accommodate increased traffic generation as a result of the proposed development. This is consistent with the findings of the traffic modelling undertaken for modification to the Barangaroo Concept Plan (MOD 8). Throughout the development of Barangaroo South, there has been a strong commitment to encouraging sustainable and active transport. A Travel Demand Management Plan will be implemented to reduce trips made by vehicle and to encourage the use of alternative and sustainable transport modes, such as cycling, walking or public transport. In particular relation to the development of the residential buildings of One Sydney Harbour, bicycle parking for residents is provided in the basement whilst visitor parking will be provided with the future Stage 1B Public Domain works. Future residents and users of the site also benefit from access to a range of public transport options, including train, ferry and bus. It is noted that development at Barangaroo has triggered the significant upgrade of access to public transport at the western edge of the CBD, with Wynyard Walk providing a dedicated pedestrian link to Wynyard Station and an additional ferry wharf under construction. The area will also benefit from the provision of a metro station upon the completion of the CBD Metro.	Apartment Type	Barangaroo Concept Plan Mod 8 rate (Condition C4)	Total Apartments Provided	Maximum Car Parking Permitted	1 bedroom	1 space per 2 apartments / 0.5 spaces per apartment	249	125	2 bedroom	1.2 spaces per apartment	310	372	3 + bedroom	2 spaces per apartment	177	354
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The provision of car parking is in contrast to the sites access to existing and proposed public transport. The amount of proposed car parking will result in road congestion of the local and district road network. Sustainable and active transport should be encouraged over high private vehicle use.																	

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Key Issues Raised	Lend Lease Response
<u><i>Traffic Generation and Intersection Performance</i></u> The traffic modelling analysis in the submitted TMAP identifies a number of the intersections currently operating near or at capacity resulting in significant delays in the adjacent road network and states that the proposed development will contribute modest traffic impacts to the road network. The traffic modelling uses a coefficient value of 0.14 for traffic generation per dwelling at AM peak. The RMS guideline for high-density residential flat buildings (TDT 2013/04a) requires a value of 0.19 to be used. The analysis reported has a much lower impact than the actual could be. It also noted that construction traffic movement in the PM peak hour was not considered at all in the modelling exercise. The performance of the Hickson Road and Watermans Quay intersection may be compromised due to a total of approximately 893 (including 4 large trucks, 5 service vehicles, 3 retail vehicles and 881 resident vehicles) vehicles seeking to use this access point. Traffic spill back from the Hickson Road and Watermans Quay intersection may affect entry and exit vehicle queues from the basement car parking. Existing vehicle queuing in the southbound direction on Sussex Street in the PM peak hours may be exacerbated. Given the significant number of car parking spaces in 4 levels of basement concentrating to a single access point, the traffic impacts from the proposal should be thoroughly tested.	The rate of 0.19 for traffic generation per dwelling during the AM peak period outlined in the <i>RMS Guide to traffic generating development</i> ('RMS Guide') is an average rate based on surveys of a number of different sites across Sydney. It is noted that the rate of traffic generation across the sites surveyed ranges between 0.07 and 0.32, which reflects the varying geography and accessibility of each site. As recommended by Transport for NSW and RMS, a survey was carried out to obtain the traffic generation rate which represents the likely behaviour and activity of future residents and users of the site. This survey studied sites with similar characteristics in the vicinity of Barangaroo. Based on these surveys, a rate of 0.14 trips per dwelling was adopted. This site specific rate is considered appropriate as it reflects the site's location within the CBD and with good access to public transport. It is noted that some of the sites surveyed by RMS to generate the recommended rate for high-density residential flat buildings are outside out of the CBD and are disadvantaged by reduced access to public transport. As noted in the report, construction activity in the PM peak generated by the site is expected to be minimal. Surveys undertaken found that only 2% of daily construction vehicle activity occurs during the PM peak hour. It is also noted that previous applications for development at Barangaroo have not included construction stage traffic modelling for the PM peak hour. The intersection of Hickson Road and Watermans Quay will operate as the primary access into the site. Traffic modelling has been undertaken to confirm that the proposed design will have adequate capacity to accommodate the expected level of traffic. The traffic modelling undertaken forecasts an average queue length of between 3 and 4 vehicles on Watermans Quay during peak periods. As a result of this, it is considered that the intersection will operate at an acceptable level of service. It is noted that the site can also be accessed from Barangaroo Avenue, providing an alternative access route for future residents and delivery vehicles. As described above, traffic modelling demonstrates that the average queue length at Watermans Quay will be between 3 and 4 vehicles during peak periods. Due to the small amount of queuing, this would not affect vehicles accessing the basement car park. In relation to queuing on Sussex Street during the PM peak hour, it is noted that this predominantly affects traffic travelling southbound. The majority of residents seeking to access the site by vehicle at this time would likely be travelling northbound along Hickson Road to turn left into Watermans Quay and therefore are considered unlikely to be significantly impacted by queuing on Sussex Street. Traffic modelling has considered the cumulative impacts of the Barangaroo precinct in addition to existing development in the area. A network traffic model was developed using LinSig traffic modelling software, which comprehensively considered the impacts of the proposal across the surrounding road network.

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All the traffic generation rates from the development should refer to the TDT 2013/04a for analysis. <u>Loading Docks</u> 5 service spaces are proposed to service the three towers. Adopting the rates of the Sydney Development Control Plan 2012, Building R4A would be required to have 5 spaces, Building R4B would require 4 spaces and Building R5 would require 5 spaces. The basements and loading docks should be designed for Council's waste service trucks to service the buildings. Trucks should be able to enter and leave the building and basement level in forward direction and should accommodate a 9.25 metre rigid vehicle <u>Bicycle Parking and End of Trip Facilities</u> The location and details of end-of-trip facilities for both residential and non-residential uses should be clarified. Residential bike parking should be Class 2 facilities (known as Class B in the latest Australian Standards, consolidated in one area, located at ground floor or first basement level and easily located and identified. Retail bike parking should be Class 2 facilities, separated from residential bike parking but located with similar amenity as residential facilities – at ground floor or first basement level, easily located and identified. Visitor bike parking should be Class 3 facilities, provided in an on-grade location near a major public entrance to the buildings and signposted.	As noted above, the rates recommended by RMS are average rates derived from surveys of a number of different sites across the Sydney metropolitan area. In the context of the proposed development, it is considered more appropriate to forecast traffic generation based on surveys of nearby similar sites that are subject to the same level of geographical constraints and access to public transport. As the basement is shared between the three proposed buildings, the number of service vehicle spaces has been consolidated to account for the efficiency achieved by having a single basement between all buildings. The proposed number of service vehicle spaces has also accounted for the likely demand for service vehicle parking. Waste deliveries are expected once daily during out-of-hours periods, with other deliveries anticipated to be approximately twice during the day. As a result of this anticipated demand, the amount of service vehicle parking provided is appropriate. The loading dock has been deliberately designed to accommodate a 9.25 metre rigid vehicle that can enter and exit the site in a forward direction. The Supplementary Design Report at Appendix C illustrates the location of the proposed bicycle storage and end-of-trip facilities for both residential and non-residential uses. All end-of-trip facilities will be located within the basement. Bicycle storage for residents will be provided in lockable cages in the basement, and have been designed to be consistent with Class A bicycle storage facilities. It is considered that this will achieve the requirement for Class B bicycle storage facilities. End-of-trip facilities for non-residential uses are provided in the basement at Level B0, as shown in the Supplementary Design Report. Bicycle parking for non-residential uses will be located in the public domain, consistent with the general approach adopted for Stage 1A retail facilities. Visitor bicycle parking will be provided consistent with the requirements for Class 3 facilities as part of the future public domain works.
Public Domain It is noted that the Strada between building R4A and R4B is proposed to be enclosed with a canopy. The reason for the canopy is not clear. It appears that the space is to be allocated for retail purposes rather than public domain usage. Outdoor dining at ground level in the Strada and along Barangaroo Avenue could impact on pedestrian circulation. It is considered that this could also place pressure on the adjacent park. No pedestrian connection has been proposed across the park. This could affect the park finishes and it is essential that a design for the park is prepared in conjunction with the application to make clear the use and circulation intentions.	Further detail relating to the proposed development's relationship with the public domain is provided in the covering Response to Submissions Report. Further, these comments have been addressed above as part of separate responses.

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Health issues <u>Mechanical Ventilation</u> Retail fitouts for the ground floor should be subject to separate approvals once tenancies have been confirmed. There should be no horizontal discharge for mechanical ventilation servicing food outlets, mechanical ventilation should vent to the roof and enhanced filtration must be available for proposed solid fuel cooking outlets. <u>Construction Noise</u> Exceedances of construction noise criteria are predicted at three of the identified receivers. These exceedances highlight the importance of appropriate management of the construction in terms of community consultation and providing respite periods from intrusive works throughout the day. The most prominent being control of noise at the source and implementation of alternative work methodologies. <u>Operational Noise – Retail Tenancies</u> The first floor slabs should be at least 300mm thick to minimise noise transfer from commercial tenancies. It is recommended that the majority of patrons are housed internally on the ground floor tenancies with a manageable capacity of external patrons especially for late night trading premises. A noise masterplan should be developed for the new precinct as per the Barangaroo South Noise Masterplan with all tenancies given a maximum cumulative noise goal that each tenancy will contribute to. The traditional background +5dB approach is not appropriate in this instance as background creep will be a particular issue as tenancies begin to operate. <u>Noise impact on Child Care Centres</u> The noise management level of 65dBA Leq 15min when outdoor play areas are in use is considered excessive particularly for childcare centres. The city recommend an operational noise level of 60dBA Leq 15min and a temporary noise management level of 65dBA Leq 15min while construction works are ongoing. The City believes this will provide a level of protection for the vulnerable children affected by noise. It is strongly recommended these outdoor areas are not utilised at all during noisy works if possible. The submitted acoustic report predicts exceedances of between 1- 8dB of an already upper limit criteria. Additional noise mitigation measures should be introduced to reduce the noise levels to an acceptable level.	Noted. Fitout and use of the ground level retail tenancies will be subject to future separate approvals. Details of mechanical ventilation will be provided with these applications. Throughout construction of the precinct, Lendlease will adhere to the Noise and Vibration Management Sub-Plan Barangaroo South. This Sub-Plan includes a range of mitigation measures to reduce the impacts of construction noise and is continually updated to reflect the progress of the project and to respond to noise impacts as they occur. This detailed design element and restriction on outdoor dining will be further considered during the future separate approval processes for the ground level non-residential tenancies. As noted above the Noise and Vibration Management Sub-Plan Barangaroo South will manage the impact of noise on surrounding sensitive receivers through the implementation of mitigation measures and an appropriate procedure to respond to noise complaints.

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The noise from the R4A building will be below overall cumulative noise levels at the surrounding most affected receivers with the exception of residences on and around R8 residences where building R4A is closest. In this location noise from R4A will be of a similar magnitude to other construction noise sources. In the case of the internal areas of the Ku Lance Preschool, a relatively small exceedance of internal noise objectives by up to 1dBA is expected, if windows are open. This exceedance is considered acoustically insignificant. If noise levels are consider excessive by the operators, windows and doors can remain closed.	Noise mitigation measures will be implemented in accordance with the Construction and Operation Noise Report prepared by Wilkinson Murray submitted with the original SSDAs as well as the Noise and Vibration Management Sub-Plan Barangaroo South to minimise impacts on surrounding residences. Noted.
Public Safety issues Further detail in relation to Crime Prevention Through Environmental Design measures to be implanted throughout the development is to be provided, relating to safety and security measures for each building as well as the types of crimes which the design seeks to prevent. The proposal that the through site link between buildings R4A and R4B between Hickson Park and Waterman's Cove "may be closed from 11pm or midnight" for safety and security reasons is not supported as there is no evidence provided, including any consultation with Sydney City Police, about what specific safety and security issues are being referred to. It is recommended that a number of considerations are made. Detail outlining the type and location of proposed mail boxes to guard against mail box theft should be provided.	A Crime Prevention Through Environmental Design (CPTED) Report prepared by Harris Crime Prevention Services is provided at Appendix E of the covering Response to Submissions Report. Following a review of reported crime in the area of Barangaroo and Millers Point based on publicly available data provided by the NSW Police Force and the NSW Bureau of Crime Statistics and Research (BOSCAR), the CPTED report finds that the following safety and security issues may take place in the area surrounding the proposed development: ▪ Anti-social, intimidating and/or criminal behaviour towards individuals or groups. ▪ Internal or external criminal targeting of each tower and associated residential and/or retail property. ▪ Unauthorised access to buildings. ▪ Theft. ▪ Assault. Whilst the risk of these safety threats occurring is considered to be low to medium, it is found that limiting the hours that the Strada will be open will reduce the risk of anti-social or other criminal behaviour occurring in this area during night time hours when opportunities for passive surveillance are reduced. The CPTED Report outlines detailed security measures that will be implemented throughout the One Sydney Harbour precinct and includes recommendations for the preparations of a site-wide Crime Prevention Through Environmental Design Management Plan (CPTM) by the Barangaroo Delivery Authority. Mail boxes will be located in a dedicated room that will be secured in accordance with the overall secure access strategy for each building. Further details will be provided during the Construction Certificate phase, as is standard practice.

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Heritage Council	
The building envelope for Building R4A, R4B and R5 was approved through Concept Plan Modification No 8. The heritage impacts of this proposal are the same as previously assessed for Concept Plan Modification No 8. Any assessment of heritage impacts should consider the context of the broader development and how these components as a group will cumulatively impact on Sydney Observatory and its setting within Observatory Park which is significant for its elevated site and spectacular vistas towards the harbour. The archaeological potential of this area was investigated as part of Block 4 Remediation consent (SSD 5897) and was concluded to have no archaeological potential or significance. Therefore, further archaeological assessment is not required. If approved, it is recommended that interpretation is incorporated into the detailed design in accordance with the Outline Interpretation Plan prepared for Barangaroo South.	The Statement of Heritage Impact prepared by TKD Architects submitted with the original SSDA applications considered the heritage impact of the proposal in the context of existing and future development at Barangaroo. In particular, the assessment considered the impact on Sydney Observatory and its setting within Observatory Park and found that the proposal would have a minor impact on views to the Observatory from the north, north-east, south and south-east but that other features of the Observatory's heritage significance would not be affected. Following submission of each SSDA, there has been no change to the heritage impacts that were assessed as part of the original application.
Transport for NSW	
The Sydney Light Rail Project was determined by the Department of Planning and Environment (DP&E) on 4 June 2014. TfNSW advises that construction has now commenced and will be carried out in accordance with the existing approvals and any modifications subsequently approved.	Noted.
Several construction projects, including the Sydney Light Rail Project are likely to occur at the same time as this development within the Barangaroo and Wynyard precincts. The cumulative increase in construction vehicle movements from these projects could have the potential to impact on general traffic and bus operations within the Barangaroo and Wynyard precincts, as well as the safety of pedestrians and cyclists particularly during commuter peak periods. TfNSW requests a number of conditions relating to the preparation of a Construction Pedestrian and Traffic Management Plan (CPTMP).	A Construction Pedestrian and Traffic Management Plan (CPTMP) will be prepared in consultation with the CBD Coordination Office and Sydney Light Rail team prior to commencement of construction on the site.
Vehicular access to the basement car park and loading dock is proposed to be via a single driveway entry/ exit towards the western end of Waterman Quay. Any queuing in the loading dock area would have the potential to impact on car park operation as well as the operation of the road network	A Loading Dock Management Plan will be prepared prior to the commencement of construction on the site.

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adjacent to the proposed dock. TfNSW requests that the applicant be conditioned to prepare a loading dock management plan in consultation with the CBD Coordination Office within TfNSW. TfNSW requests that the applicant consults with the CBD Coordination Office within TfNSW in relation to the above issues. TfNSW would be pleased to consider any further material forwarded from the applicant.	
Environment Protection Authority	
No objections. The EPA notes that Buildings R4A, R4B and R5 sit within the Declared Block 4 Remediation Area and the Stage 1B Basement footprint at Barangaroo. A separate development consent (SSD 5897) has been granted for remediation of the Block 4 Remediation Area/ Stage 1B Basement site, and the relevant EISs state that no additional excavation or bulk earthworks are proposed for construction of residential buildings R4A, R4B and R5. Under SSD 5897 a Site Auditor's Statement will be required upon completion of remediation works to verify that the site is suitable for the proposed uses under the above applications Based on the information provided, the proposals do not constitute a scheduled activity under schedule 1 of the Protection of the Environment Operations Act 1997, and the EPA has no comment on the applications.	-
Department of Family and Community Services	
No objection.	-
Foreshores and Waterways Planning and Development Advisory Committee	
No objection. The proposed 3 buildings are generally consistent with the overall vision of the Barangaroo development.	-