ETHOS URBAN

30 August 2019

2190098

Carolyn McNally
Secretary
Submitted to the Department of Planning and Environment
via majorprojects.planning.nsw.gov.au

Dear Ms McNally,

SECTION 4.55(2) MODIFICATION – BUILDING C1, BARANGAROO SOUTH
INSTALLATION OF CO-GENERATOR

This application has been prepared by Ethos Urban on behalf of Lendlease (Millers Point) Pty Ltd pursuant to section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to modify Development Consent SSD 17_8529 relating to Building C1 at Barangaroo South.

The modification relates to the installation of a co-generator within the existing plant room across the ground and mezzanine levels of Building C1. The approved Building C1 SSD includes a plant room for a used cooking oil co-generator and this modification seeks approval for minor design refinements to accommodate the co-generator. This modification provides an assessment of the environmental impacts of the co-generator and demonstrates that the modification will result in a development that is substantially the same as that approved by SSD17_8529.

This application identifies the consent, describes the proposed modifications and provides a planning assessment of the relevant matters for consideration contained in section 4.55(2) of the EP&A Act and is accompanied by:

- Architectural Drawings prepared by Tzannes (Attachment A)
- Air Quality Assessment prepared by Northstar (Attachment B)
- Noise Assessment prepared by Wilkinson Murray (Attachment C).
- Fire Safety Assessment prepared by Warrington Fire (Attachment D).
- Sustainability Statement prepared by Lendlease Applied Insight (Attachment E).
- AS 1940 Assessment prepared by CETEC (Attachment F).

This statement should be read in conjunction with the Environmental Impact Statement prepared by Ethos Urban dated 1 November 2017 and Response to Submissions Report prepared by Ethos Urban dated 3 April 2018.

1.0 Consent proposed to be modified

Development Consent SSD17_8529 was granted by the Department of Planning and Environment for construction and use of a 7-storey retail/commercial building:

- A total GFA of 11,703m^2, comprising 10,995m^2 commercial floor area and 708m^2 retail GFA.
- Public domain works to match the existing Stage 1A public domain works (SSD 6303).
- Integration and minor alterations to the existing Stage 1A Basement (MP10_0023).
- Allocation of 18 car spaces, 40 bicycle spaces and 96 lockers within the existing Stage 1A Basement.
- Roof top planting and solar photo-voltaic installation.
- Commercial signage zones to level 6 to accommodate future business identification signage.

- A ground floor interpretation zone.

This is the third modification to the consent. A modification was recently approved for alterations to shopfront modules and awnings (Mod 1). Modification 2 is currently under assessment by the Department for Artwork installation and an Out of Hours request. Building C1 is currently under construction.

2.0 Description of co-generator plant

The proposed co-generator plant comprises two used cooking oil fired engines, which will be fuelled by refined cooking oil. The proposed co-generator supports the precinct-wide Barangaroo South sustainability initiatives and delivers on the Barangaroo Delivery Authority requirement to deliver an onsite energy generation solution, other than photovoltaic power, that achieves carbon savings of 1,706 tonnes of carbon dioxide-equivalent per year.

As a result, it is proposed to install and operate an onsite co-generation plant (two used cooking oil fired 270 kW Volvo Penta TAD1342GE engines) fuelled by refined used cooking oil (UCO). The engines will be used to generate electricity and heat for local consumption. The engines will operate solely on UCO and will not operate on diesel, or any other fuel, during any part of the operating cycle. Emissions from the co-generation plant will discharged via dedicated emission points located at roof level and which project a maximum of 1m above the plant enclosure. Four exhaust flues are proposed, however only two will be in use at any one time.

Refined UCO are oils that have been used for cooking or frying in the food processing industry, hotels, restaurants, catering and at a consumer level in households, and that have gone through a refining process. In Sydney the collection, transport, storage and processing of UCO is facilitated by a well-established industry with a number of businesses that carry out the collection and non-thermal treatment, regulated by the NSW EPA for transport of tractable waste and non-thermal treatment.

Refined UCO (LF100) to be used in the Barangaroo cogeneration plant will be supplied from Auscol's licenced processing facility located at Riverstone, Sydney NSW. The Refined UCO will be transported to the Barangaroo site in tankers under the supplier's waste transport licence. The fuel would be delivered to the site via the Stage 1A Basement.

The combustion of UCO will result in gaseous and particulate emissions which will be discharged through two emission points located 1 m above the roof on Building C1.

The cogeneration plant will provide low carbon heating and power generation for the entire Barangaroo South precinct, as illustrated at **Figure 1** below.

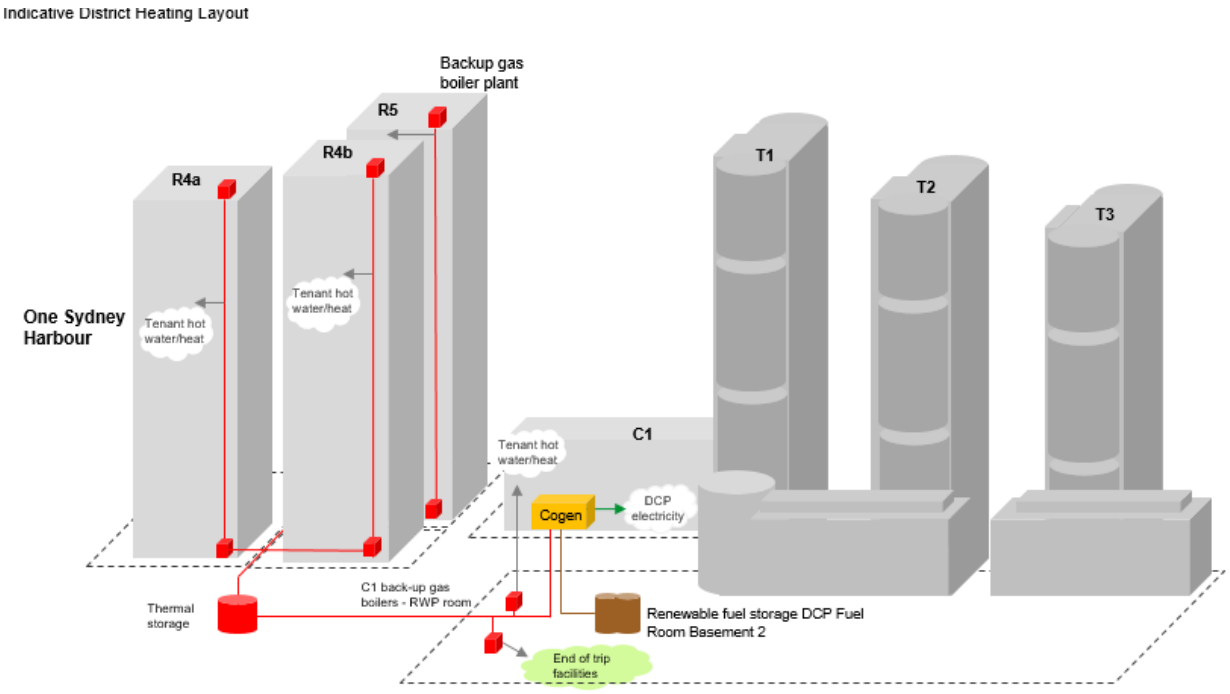

Figure 1 Heating and power distribution

Source: Lendlease

3.0 Proposed modifications to the consent

The proposed modification to the development consent comprises:

- Installation of a co-generator in the approved plant room at the ground and mezzanine levels.
- Modification of access to the approved plant room at the ground and mezzanine levels.
- Modification of rooftop plant to connect to the co-generator exhaust.

The proposed modifications are described in more detail below.

3.1 Modifications to the development

The following modifications are proposed to the approved development, as shown on the Architectural Drawings at **Appendix A**.

Co-generator plant

An onsite cogeneration plant comprised of two used cooking oil fired 270 kW Volvo Penta TAD1342GE engines will be installed at the ground and mezzanine levels within the existing plant room. The cogeneration plant will be fuelled by refined UCO and generate electricity and heat for local consumption and will operate 24 hours a day, 7 days a week. The location of the cogeneration plant is shown at **Figure 2**.

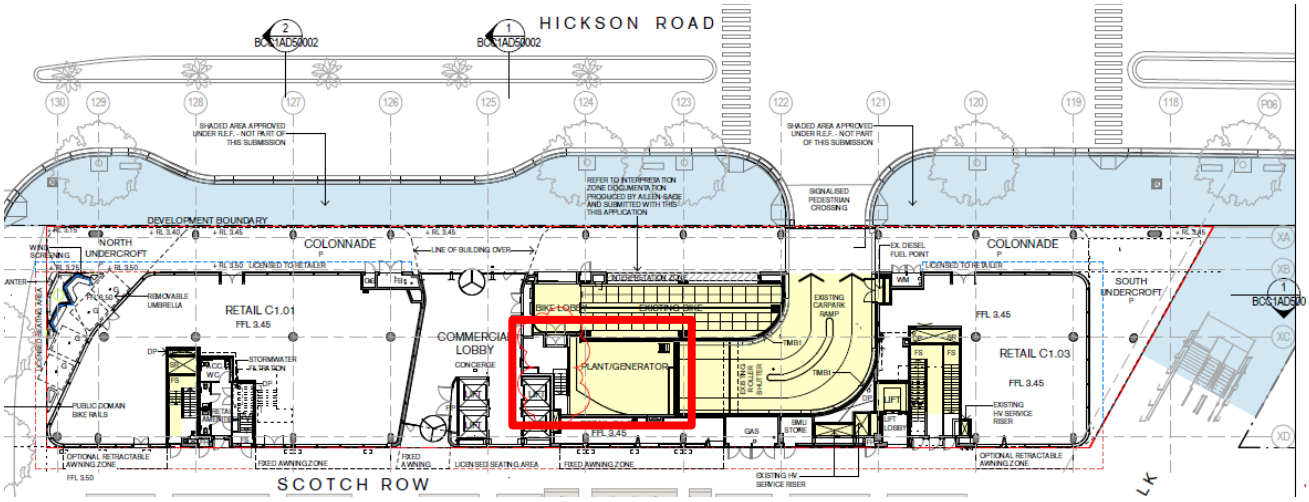

Figure 2 Location of cogeneration plant at ground level

Source: Tzannes

Roof level plant exhaust

A 1 metre high exhaust will be located within the existing plant area on the roof.

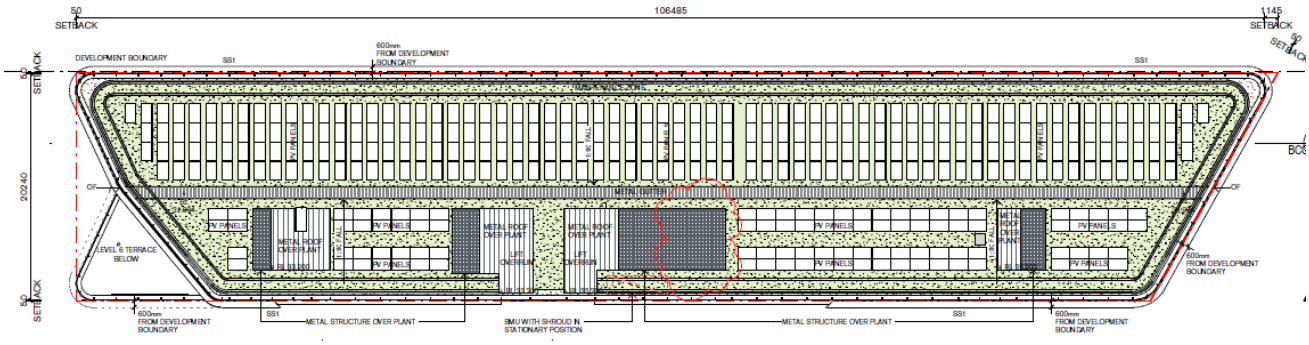

Figure 3 Location of cogeneration plant exhaust at roof level

Source: Tzannes

3.2 Modification to conditions

The proposed modifications described above necessitate amendments to the consent conditions which are identified below. Words proposed to be deleted are shown in ***~~bold strike through~~*** and words to be inserted are shown in ***bold italics.***

A3 Terms of Consent

The development may only be carried out:

a) In compliance with the conditions of this consent;
b) In accordance with all written directions of the Secretary;
c) Generally in accordance with the EIS and RTS; and
d) In accordance with the approved plans in the table below;

Architectural Plans prepared by Tzannes			
Drawing No.	**Revision**	**Name of Plan**	**Date**
General Plans			

Architectural Plans prepared by Tzannes			
BCC1AD00007	5	GFA Summary	13/03/2018
Floor Plans			
BCC1AD20000	~~***11***~~ ***15***	GA Plan – Ground Floor	~~***1/03/2018***~~ ***25/10/2018***
BCC1AD30700	7	GA Plan – Roof	31/01/2018
Elevation Plans			
BCC1AD41000	3	South Elevation	23/01/2018
BCC1AD42000	6	West Elevation	8/02/2018
BCC1AD43000	3	North Elevation	23/01/2018
BCC1AD44000	7	East Elevation	31/01/2018

3.3 Reason for modification

The approved Building C1 SSD includes a plant room at mezzanine level. The proposed modification includes minor design changes to support the operation of the co-generator plant.

4.0 Substantially the same development

Section 4.55(2)(a) of the EP&A Act states that a consent authority may modify a development consent if *"it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all)*".

The development, as proposed to be modified, is substantially the same development as that originally approved in that it:

- Maintains the inclusion of a co-generator plant located at the ground and mezzanine level, as described in the approved SSD application.
- Does not result in any change to the approved height or GFA of the approved Building C1.
- Does not result in any external changes to the appearance of Building C1, with the exception of a minor modification for a 1 metre high exhaust at roof level.
- Does not result in any adverse environmental impacts that cannot be appropriately managed or mitigated.

5.0 Planning assessment

Section 4.55(3) of the EP&A Act requires a consent authority to take into consideration such of the matters referred to in section 4.15(1) as are of relevance to the development the subject of the application and the reasons given by the consent authority for the grant of the original consent.

The planning assessment of the proposed modified development remains generally unchanged from the environmental issues assessed as part of the EIS. The following matters however warrant further assessment.

5.1 Statutory and legislative requirements

5.1.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) sets out the framework for preventing pollution in NSW. The proposed co-generator is an 'energy recovery activity' as described by Clause 18 of Schedule 1 of the

POEO Act and would be classified as a 'scheduled activity', which would normally require an Environmental Protection Licence (EPL). Following consultation with the EPA, an application for a Resource Recovery Order and Exemption will be submitted pursuant to Section 92 of the POEO (Waste) Regulation and an EPL will not be required, once the Order and Exemption has been issued.

There are also a range of regulations that relate to specific aspects of the proposed development.

- *Protection of the Environment Operations (Clean Air) Regulation 2010* specifies emission standards for plant and equipment. The co-generator will produce air emissions, but which will comply with the specified emissions standards (see Section 5.3).
- *Protection of the Environment Operations (Waste) Regulation 2014* specifies specific standards and procedures in relation to the handling and transporting of certain types of waste. Any waste generated by the cogeneration plant will be removed during storage tank cleaning and removed to a process plant by the licenced waste contractor. Refer to Section 5.6.

5.1.2 State Environmental Planning Policy (State and Regional Development) 2011

The site is zoned B4 Mixed Use under *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) and is subject to maximum height and gross floor area controls as set out in the Barangaroo Concept Plan (MP06_0162). The proposed co-generator will not affect compliance with the SRD SEPP.

5.1.3 Barangaroo Concept Plan MP06_0162

The Barangaroo Concept Plan identifies maximum GFA and height controls for each development block within Barangaroo South. The proposed modifications do not result in any changes to GFA or height. Specifically, the four proposed exhaust flues at the roof are excluded from the measurement of building height. In addition, the Concept Plan requires future applications to demonstrate consistency with the Built Form and Urban Design Guidelines in accordance with Condition B5 of the Concept Plan approval (MOD 8). The approved Commercial Building C1 is consistent with the Concept Plan planning controls and guidelines and the proposed modification does not result in any changes that would impact on compliance.

Barangaroo South Built Form and Urban Design Guidelines

Under Condition B5 of the Concept Plan (MOD 8), applications in Barangaroo South are also required to demonstrate consistency with the Built Form Principles and Urban Design Guidelines (the Guidelines). Detailed assessment against the Guidelines was completed as part of the approved SSD and the proposed modification does not result in any change to this assessment.

5.2 Reasons given for granting consent

The Department's assessment report provided the following key reasons for approval of the application:

- Contribute to Barangaroo South precinct.
- Consistent with strategic intent for the area.
- Compliance with the location, height and floor space controls in the SSP SEPP and Barangaroo Concept Plan.
- Exhibit design excellence and positively contribute to the character of Barangaroo.
- The impacts of the development can be suitably managed.

The co-generator will not result in any change to these reasons for granting consent. In particular, the assessment set out in this application demonstrates that the impacts of the co-generator can be suitably managed.

5.3 Air Quality

The Air Quality Assessment at **Appendix B** details that air quality emissions testing has been carried out in accordance with POEO (Clean Air) Regulation.

The predicted incremental impacts and cumulative impact predictions do not exceed the respective air quality standards, with the exception of particulates (as $PM_{2.5}$), assuming that the co-generator plant emits at the regulatory emission limit prescribed in the Protection of the Environment (Clean Air) Regulation. The co-generator plant has measured emission concentrations that are below 10 percent of this value. It is recommended that the emission limit value prescribed in the Protection of the Environment (Clean Air) Regulation is not adopted for the proposed co-generator plant as it is not stringent enough.

In terms of the Interim Nitrogen Dioxide Policy for Cogeneration in Sydney and the Illawarra, the measured nitrogen dioxide emission concentrations do not meet the emission limit values prescribed in that draft guidance document. As such, it is a recommendation of this report that the engines are fitted with selective catalytic reduction controls that are shown to reduce nitrogen dioxide emissions by over 90 percent and would represent 'Best Available Technology' for air pollution control of nitrogen dioxide for the engines.

The assessment of cumulative impacts ('Proposal + Background + Concurrent) predicts potential exceedance of the relevant air quality standard for both particulates (as $PM_{2.5}$) and nitrogen dioxide. Analysis of the data derived from the modelling shows that the incremental change associated with the operation of the engines to that aggregated impact is small and does not lead to a situation where the frequency of breaching the standards would increase. For clarity, the Background + Concurrent impacts are predicted to cause exceedances in their own right, irrespective of the operation of the used cooking oil engines. The operation of the engines contributes a small incremental change and does not lead to any additional exceedances of the air quality standards.

5.4 Odour

The Air Quality Assessment at **Attachment B** considers the potential for odour impacts. Due to the thermal oxidation process, the routine operational emissions are anticipated to result in an insignificant emission of odour.

The delivery of the UCO will be directly pumped from the tanker fitted with a reciprocating delivery pipe, resulting in no significant emission of odour during normal operation. To manage the potential risk from accidental spillage, spill kits will be provided at the filling points to minimise the potential for odour impacts.

5.5 Noise

The Noise Assessment at **Attachment C** considers the potential for noise impacts based on an assessment against the noise criteria established by the approved SSD. The assessment finds that the noise impacts of the proposed co-generator comply with the noise criteria at all identified surrounding receivers. In particular, the proposed co-generator is located within an acoustically treated room, which will minimise noise impacts.

5.6 Waste

There will not be any residual ash from combustion in the Barangaroo cogeneration plant engines. Very small amounts of fine sludge may form in the holdings tanks over time, which is food waste particulate. However, this is extremely unlikely as the LF100 processing involves ultra fine filtration of an already settled UCO product. The potential waste, if formed will be removed during storage tank cleaning & maintenance and removed to Auscol UCO Processing Plant for disposal with other sludge material by the contracted fuel supplier.

5.7 Compliance with Australian Standards

An assessment against the requirements of AS 1940 'Storage and Handling of Flammable and Combustible Liquids' has been undertaken by CETEC and confirms that the design of the system is compliant with the relevant requirements, subject to verification of design requirements relating to fire requirements and access and egress. The assessment recommends that an emergency response plan is prepared prior to commencement of operation. This can be suitably conditioned. Further detail is provided at **Attachment F**.

5.8 Access and Loading

The UCO will be delivered to the site by road tanker, which will discharge the UCO into an underground storage cell with a capacity of 20,000 litres (L), which will provide sufficient fuel for operation for 10-14 days. The delivery of the UCO will be directly pumped from the tanker fitted with a reciprocating delivery pipe,

5.9 Fire Safety

A Fire Safety Assessment is provided at **Attachment D** and confirms that the proposed modification will not impact on the approved fire engineering arrangements for Building C1.

5.10 Sustainability

A Sustainability Assessment is provided at **Attachment E** and confirms that the proposed modification will continue to meet the sustainability targets for Building C1 and the Barangaroo South precinct. Given that the cogeneration system will be driven by a renewable fuel source there will be an improvement to the sustainability outcome of the project that is significantly greater than an equivalent natural gas fuelled cogeneration system. Electricity produced by the system will be contributing towards powering the Barangaroo South district cooling plant resulting in chilled water being provided to the project with a reduced carbon content. Heat produced by the system is proposed to be used as part of a district heating plant that will service One Sydney Harbour, the end of trip facilities within the existing Stage 1A basement and this project. Given the provision of heating hot water from the district system, the project's reliance on gas is reduced further increasing the positive sustainability outcome for the project.

5.11 Visual Impact

The co-generator is contained within the plant room located on the ground and mezzanine levels of Building C1 and will not be visible from the public domain. The addition of a 1 metre high exhaust flue is located within the approved plant location on the roof and will not significantly alter the appearance of this area, as shown at **Figure 4**.

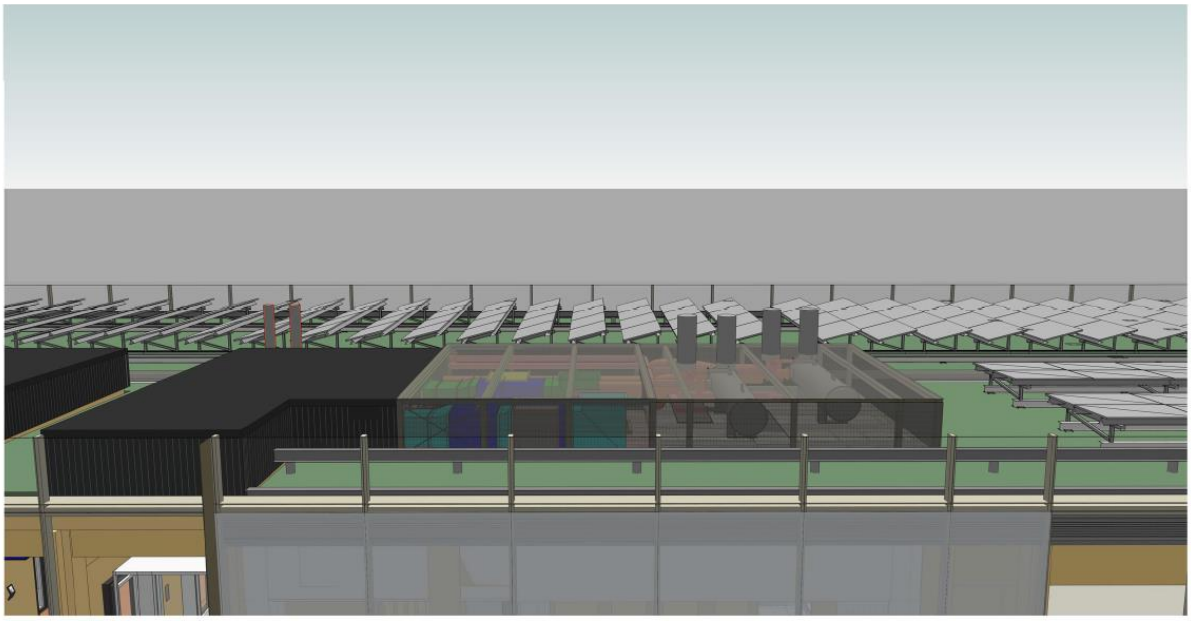

Figure 4 Proposed exhaust flues at roof level

Source: Tzannes

6.0 Conclusion

The proposed modification relate to the installation of a co-generator across the ground and mezzanine levels of Building C1.

In accordance with section 4.55(2) of the EP&A Act, Council may modify the consent as:

- The consent, as proposed to be modified, is substantially the same development as that originally approved.
- The co-generator will not result in any adverse environmental impacts that cannot be appropriately managed.
- The co-generator will support the achievement of the environmental sustainability objectives of the Barangaroo South precinct.
- The co-generator does not impact on compliance with the development standards set by the Barangaroo South Concept Plan.

In light of the above, we therefore recommend that the proposed modification is supported by Council.

We trust that this information is sufficient to enable a prompt assessment of the proposed modification.

Yours sincerely,

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