

Barangaroo – Commercial Building C3, C4 and C5 MP11_0044, MP10_0025 MOD1 and MP10_0227

Response to Environmental Assessments and Modification request
Submission to the Department of Planning 19 December 2011



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Fig 1. Commercial Building C4 – Photomontage looking east – EA Stage – November 2010



Fig 2. Commercial Building C4 – Photomontage looking east – PPR Stage – February 2011

1.0 Executive Summary

The City of Sydney (the City) is committed to high quality, sustainable redevelopment of Barangaroo as a natural and integrated extension of the city.

This submission presents the City of Sydney Council's (the City) further response to the Environmental Assessment Reports (EARs) for C3, C4 and C5 made by the Proponent through JBA Planning to the Department of Planning. The structure of this response is correlated with the 45 recommendations made in the City's submission on the Major Project 10_0025 on 17 December 2010 and as revised in the City's Response to the Preferred Project Report on 21 February 2011. It was requested in that submission that the proponent address all 45 recommendations in its PPR. A number of the recommendations were responded to and addressed in the *Terms of Approval* for Project Application MP10_0025. Recommendations that the City considers to have generally been satisfied are not reproduced. Recommendations that the City still holds concern with over the current three tower applications are expanded upon and explained where those issues are still considered to be significant. New recommendations are made where considered necessary.

While the City reconfirms its opposition to such large floor plates above RL60 and particularly above RL120 (refer Recommendation 9) the aesthetics of the three large buildings have been improved through the treatment of the facades compared to previous iterations.

The City's raises the following concerns and objects to the application unless amended to specifically address the following:

- The height of C5 should be reduced to RL 140 (5 floors)
- The podiums require redesign to address architecture, scale and height
- The resolution of wind impacts
- Take-up of GFA is tabulated and allocated prior to any approval
- Corrected visual images of the three towers together in context should be required before any determination is made
- Impact on views

Generally, the response set out on the following pages notes the following:

- recommendations which have been satisfied by the Proponent
- recommendations that have not been fully addressed by the Proponent; and
- new recommendations

The City has noted throughout this response where a condition of consent (or a revised statement of commitment) is required to address the area of concern.



Fig 3. Commercial Building C4 – Photomontage looking east – EA Stage – November 2011



Fig 4. Commercial Building C4 – Photomontage view from north – EA Stage – November 2010



Fig 5. Commercial Building C4 – Photomontage view from north – PPR Stage – February 2011



Fig 6. Commercial Building C4 – Photomontage view from North – EA Stage – November 2011

2.0 Adequacy of Documentation

Generally, the failure to show all buildings in their context with one another, and to model the climatic effects in relation to one another is bad practice and produces ineffectual assessments and a poor representation of the proposed built outcome. The applicant must be required to illustrate the project towers and buildings on Hickson Road in relation to each other. The following comments relate to our submission dated 21 February 2011.

2.1 Block and building location

Original Recommendation 1 (submission 21 February 2011)

- The Proponent must provide drawings that document the location of the building. For example, a dimensioned plan showing the Blocks relative to the site boundaries and a dimensioned plan showing C4 within Block 2. This is to include the location of Hickson Road, its kerb line and existing fig trees.

Comment: Generally satisfied, although Hickson Road details remain sketchy.

2.2 Proposed section

Original Recommendation 2 (submission 21 February 2011)

- The Proponent must provide sections which show how the forecourt successfully transitions from RL 3.6 to (average) RL 2.2, and document why this level change is required.

Comment: It is noted that as a result of design development, the RL at the lobby has been lowered to RL 3.5, which results in a grade change of 1.11 metres between the lobby and the level of Hickson Road. The Proponent notes that this level change is consistent with the site drainage expectations.

It is advised that the Department ensure that all alignment levels for new areas of public domain are designed to integrate with the existing public domain on all edges so that proposed finishes marry into existing surfaces along Hickson Road and Globe Street/ Lime Street. This may require setbacks. Car parks should be recessed so that they do not present blank surfaces or generate access problems. New roads should follow the ground plane to assist with overland flow paths.

2.3 Alignment with Concept Plan

Original Recommendation 3 (submission 21 February 2011)

- The Proponent must provide an overlay plan that demonstrates how the building fits into the Concept Plan (as approved) and Concept Plan as proposed to be amended.
- Corrected visual images of the three towers together in context should be required before any determination is made

Comment: The Department is to ensure consistency with the Concept Plan in relation to GFA/FSR, height and built form, ensuring that there is sufficient allocation of floor space area for low rise buildings (i.e. along Hickson Road).

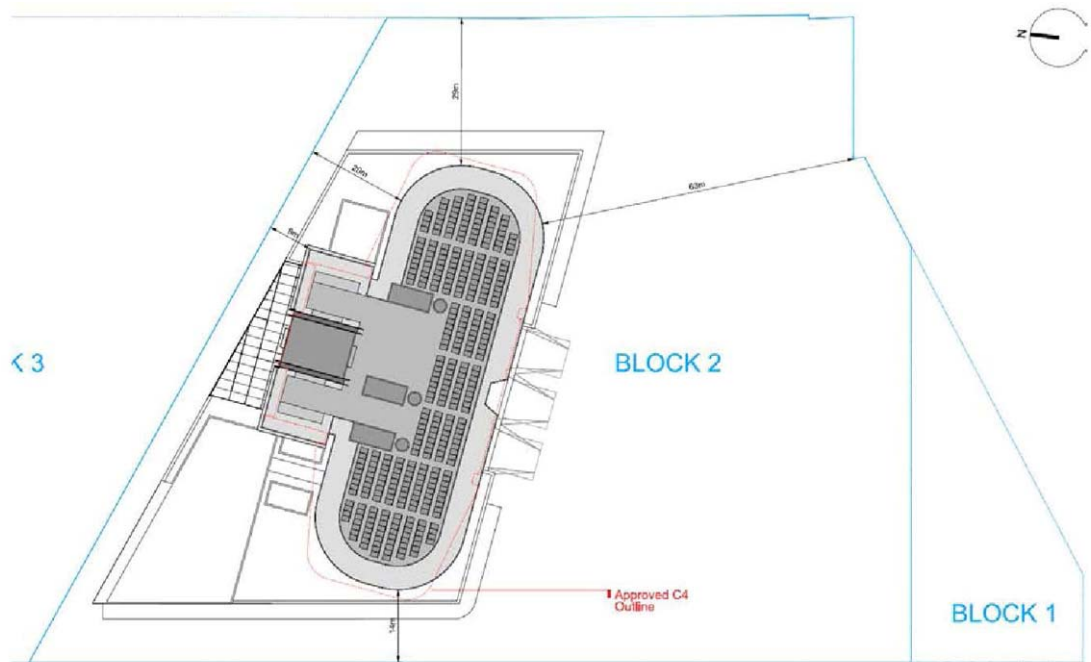


Fig 7. Commercial Building C4 – Site Plan – November 2011

The City has an ongoing concern regarding the total approved GFA under Concept Plan (Mod 4) and the Proponent's ability to comply with that quantum with each individual application assessed without reference to an allocation table.

A potential excessive allocation of GFA results in a potential shortfall of GFA for the remaining buildings within the block and undermines their capacity to deliver the urban design principles. The total GFA for Block 2 is 209,213m². The allocation of

99,432m² to building C4 and 90,576m² to C5 leaves a residual 19,205m² for the remaining buildings, being two lower buildings to Hickson Road (C2 and C6).

Block 3 has a total GFA of 142,669m². The allocation of 115,291m² to C3 leaves a residual of 27,378m² for C1 and C7.

Any future proposition by the proponent that there is insufficient floor space to complete the remaining buildings (or blocks) does not justify any increases in the GFA for any block within Barangaroo South. This lack of documentation confirms the City's previous contentions that the disparity between the building envelopes, the urban design principles and the maximum GFA control may lead to uncertainty in what is actually being proposed.

It is essential that the Department double check all GFA calculations presented by the Proponent in light of the previous contentions raised regarding GFA and ability for this precinct to support the increased capacity and include the table in any approval. This should be consistent with the concept plan approval.

2.4 Temporary structures to mitigate wind impacts

Original Recommendation 4 (submission 21 February 2011)

- Plans should be submitted as part of the Preferred Project Report process detailing the final designs of the temporary wind mitigation measures associated with this project.

Comment: In addressing this issue, the Proponent has amended their *Statement of Commitments* committing to approval of the temporary wind structures, in terms of design and adequacy, prior to issue of a Construction Certificate. The City notes that the wording of the Proponent's commitment is inadequate. Condition **A6** requires that the detailed design of the temporary wind structures and temporary structures is to be submitted to the Director General for approval prior to the issue of the relevant Construction Certificate. It would be more appropriate if some proper indication of the size and scale of these structures was provided with the EARs.

The proponent's wind report for C4 states (emphasis added):

The strongest winds around the site are generally caused by downwash during winds blowing from either approximately the north or south as the large surface area of the façade perpendicular to these directions pushes the wind down toward ground level then accelerates flow around the tower base windward corners. This results in windy conditions along the east and west faces of the development, particularly at the corners. The curved ends of the tower floor plate tend to divert

more winds from the west and east around the tower at upper tower levels, encouraging the flow to remain horizontal and not directed to ground level. However, upon completion, the shape of the three large towers will tend to channel more flow during winds from the west through the east-west laneways.

In the isolated building case these wind conditions are considered manageable with additional amelioration measures, which can be confirmed with additional wind tunnel testing.

Winds from the south have the most significant influence on the wind amenity of this location. During winds from this direction, the small extent of the podium and the small, discontinuous awning along the south face does not significantly impede downwash from reaching ground level. From a wind engineering perspective, geometric changes to the southern awning during the isolated condition, such as making it continuous, may make it more effective at mitigating downwash. A suitable increase to the extent of the awning and/or podium arrangement, particularly along the south facade, is likely to improve wind amenity of this location to an environment suitable for business walking and able bodied pedestrians. Further improvement would require more substantial increases to awning cover and/or vertical screens. This can be confirmed with further wind tunnel testing.

The proponent's wind report for C5 states (emphasis added):

As the majority of the flow causing these exceedances is generated by downwash, 6m wide horizontal elements along the southern and eastern edge of the building were tested to ascertain their effectiveness. The results of an awning at Level 4 at the base of the tower, and at Level 3 at the top of the podium are presented in Figure 8 and Figure 9 respectively. It is evident that the awnings require additional measures such as extending the awning, large dense planting, and a 3m wide low level awning along the south face combined with a porous screen near kerb line to give local protection to pedestrians.

The suggested amelioration measures suggested for the east side of the development would work equally well on the west face.

In the short term it is recommended that the isolated configuration which incorporates a 6m awning at Level 4 would require additional measures in the form of temporary structures to ameliorate the wind conditions, such as a low level podium extension to the east of the development to prevent the downwash descending to ground level. Remedies to solve these issues would be investigated in the wind tunnel to ensure a suitable pedestrian environment around the development.

Wind testing was performed without planned trees, or other plantings to provide a worst case assessment. Well designed streetscape planting and trees will generally have a positive impact on the overall wind conditions.

These findings were predicted and are entirely consistent with the City's submission dated 24 September 2010 in section 5.5.2. These predicted problems are generated by a poor urban design process and the procurement process where more emphasis is placed on the size of the buildings rather than the quality of the public space that serves them. The predicted wind effects are generated by very large buildings which are essentially too big and too close together for both their road layout and their exposure to winds across Darling Harbour and from the south. This result is that the building designs cannot ensure that the ground level conditions will be fit for passive comfort without likely substantial overhead glazing, the details of which have not been provided.

It is considered that these adverse wind impacts would be improved by an increase to the height of the tower's podiums as detailed above. This is further discussed in the section **4.0 Architectural Language**. The City also recommends that the height of C5 be reduced to improve wind and shade impacts as it is likely to have the most detrimental impacts on Margaret Street extension and the high pedestrian flows to the ferry wharves.

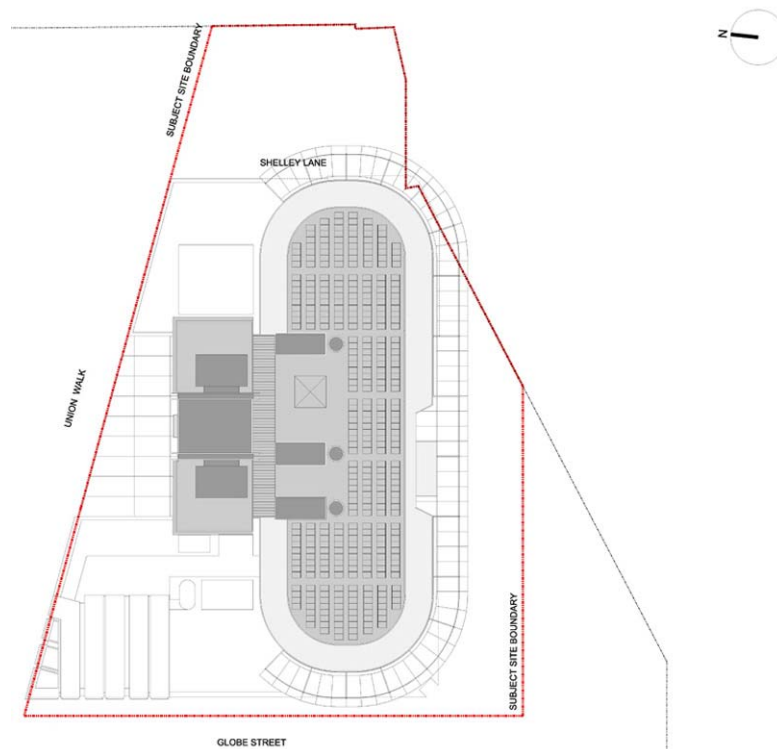


Figure 8 Plan showing extent of wind "apron"

3.0 Urban Design

3.1 Bulk and scale

Original Recommendation 5 (submission 21 February 2011)

- The bulk and scale of the tower should be reduced, including:
- The width and length of the tower being reduced;
- the floor area being reduced to at least align with the indicative drawings in previous applications; and
- the tower floors being reduced in area as the building increases in height

Comment: The City notes that the current designs have refined the width of the tower floor plates. The changes made are acknowledged by the City as an incremental improvement to the previously approved design. The modification to the approved tower footprint by incorporating the curved floor plates with a slight reduction in the overall width of the building reduces their angularity and shadow fall by removing the corners.

The tower at least from an east-west direction will appear thinner (than it is) and the removal of the so called 'structural bracing' from the roof top will also reduce the perceived height of the building and eliminate tenant branding and signage temptations. Changes to floor plate floor areas appear to be negligible. The Department needs to ensure compliance with the Concept Plan.

The City reiterates concerns previously identified in Recommendation 5 that the proposals do not go far enough in addressing the bulk and scale impacts. In particular, it is considered that C5 should have a maximum height of RL140 (5 floors) to improve ground plane conditions. The three main reasons being that this will help to improve wind impacts, improve overshadowing particularly to areas of the harbour and harbour foreshore and also to reduce the bulk of the building. This forms new Recommendation 5A below.

The City has noted that most of the photomontages view the buildings from above street level. One exception is Figure 9. The City rejects much of the photomontage methodology using wide angle lens (to replicate field of vision instead of human eye perspective) and recommends that new photomontages of all 3 towers together be requested, particularly as viewed through Union Walk.

Additional Recommendation 5A

- C5 should be lowered to a maximum height of RL140.



Figure 9 Artist's impression of Commercial Building C5

3.2 Critical impact on views

Original Recommendation 6 (submission 21 February 2011)

The length of the building should be reduced to:

- minimise the view disruption from Pyrmont Bridge which severs the historic visual connections across Darling Harbour from Pyrmont Bridge to Millers Point; and
- minimise the visual impact upon the foreshore, to improve the visual appreciation of Darling Harbour from foreshore areas of Pyrmont.

Original Recommendation 7 (submission 21 February 2011)

- The extent to which the footprint is reduced be informed by an aim to minimise the adverse impact upon views and vistas to and from public places, landmarks and heritage items around the foreshores of Darling Harbour and from Millers Point Heritage Conservation Area, particularly Observatory Hill.

Comment: The City notes that the current designs have refined the tower footprint to marginally address the issue of view disruption and visual impact. The changes made are acknowledged by the City as an increment design improvement to the designs.

Despite the Department's previous assessment, the City reiterates the points identified in recommendation 6 and 7 that the proposals do not go far enough in addressing the bulk and scale of the three towers in their context. The buildings should ideally be modified so that they have a maximum length of 60 metres above RL 60 and a maximum length of 50 metres above RL120.

3.3 Pedestrian amenity

Original Recommendation 8 (submission 21 February 2011)

- The awnings should be amended to comply with City of Sydney provisions for awnings to provide weather protection.

Comment: The Proponent details that awnings proposed at a higher height than those allowed under the City's controls permit greater activation of the ground plane by allowing double height windows to the ground floor tenancies. They also claim that these higher awnings will ensure wind amelioration.

Despite the Department's assessment, the City does not support this argument. The higher awnings simply allow for more advertising and branding at the expense of wind and rain protection during weather events and should be revised as evident in the recent Westfield development in the city.



Fig 10. Commercial Building C4 – Photomontage from Pyrmont Bridge looking north – EA Stage – November 2010



Fig 11. Commercial Building C4 – Photomontage from Pyrmont Bridge looking north – PPR Stage – February 2011



Fig 12. Commercial Building C4 – Photomontage from Pyrmont Bridge looking north – EA Stage – November 2011

3.4 Temporary works

Original Recommendation 9 (submission 21 February 2011)

- The Public Domain Plan should be completed prior to the approval of this Project Application so that the paving works are done once only and built to a suitably high standard. If this does not occur, a deferred commencement condition should be considered that the consent does not operate until the finalisation of the public domain plan. Alternatively,

permanent surfaces to City standards are to be in place around areas where access must be maintained and is unlikely to suffer damage due to restrictions on construction access must be maintained and is unlikely to suffer damage due to restrictions on construction access.

Comment: The City acknowledges that the Draft Public Domain Plan has been lodged with, and is being considered by, the Public Domain Technical Working Group, of which the City is represented.

Despite the imposition of Condition **B31**, the concerns raised by the City in regard to public domain details and the timing of works are reiterated. Recommendation 9 above still stands as a recommendation to the Department of Planning.

3.5 Active street frontages

Original Recommendation 10 (submission 21 February 2011)

- Increase the activity and permeability of the western facades.

Comment: Generally satisfied.

3.6 City Walk

Original Recommendation 11 (submission 21 February 2011)

- The plan should be amended to show the base of the pedestrian bridge and include details of surfaces, transitions and circulation that links City Walk with the pedestrian bridge, and the bridge shown to extend to Hickson Road despite the proposed boundaries.

Comment: The City reiterates its concerns highlighted in recommendation 11 above and requests that the Department ensure that this issue is adequately addressed at a later stage when the Project Applications for the bridge and the City Walk connections are lodged.

Concern is also raised at the relocation of the pedestrian bridge to Margaret Street West. The pedestrian bridge should link with City Walk as this is a central area and focal point for workers and visitors to Barangaroo South.

3.7 East of Globe Street

Original Recommendation 12 (submission 21 February 2011)

- Information is to be submitted as to the pedestrian access along Hickson Road or how access is proposed to be maintained to the surrounding area. Connections to Hickson Road including Napoleon Street and nearby destinations need to be considered.

Comment: Satisfactory.

4.0 Architectural language

4.1 Podium

Original Recommendation 13 (submission 21 February 2011)

- That one architect is responsible for the design of the entire building, or if two architects are to be retained, then either the architectural language should be consistent or a more apparent separation between tower and podium needs to occur.

Original Recommendation 14 (submission 21 February 2011)

- In light of known tenant expectations for buildings to be without corporate colours, the proponent should provide montages of the buildings with the yellow components shown in alternative colours in order to assess the architectural/urban design outcome.

Comment: Recommendation 14 has been generally satisfied.

Whilst the City's contentions in regards to bulk, scale and view impacts still largely remain, the amendments made particularly in relation to podium forms and building facades, are considered a positive direction in terms of mitigating the impacts of the large building and improving the quality of the pedestrian experience. However, the podium design should be one floor higher.

Despite the Department's assessment, the City considers the podiums remain too low to be effective in wind mitigation and street wall. The podiums are considered to be significantly out of proportion with the towers and do not give a sense of enclosure for pedestrians or provide an appropriate human scale for the development. Higher podiums will assist to disguise the height of the towers from pedestrian level.

The proponent's wind reports also suggest that higher podiums are likely to assist in ameliorating wind impacts upon pedestrians.

Additional Recommendation 13A

- The City's control standard of a minimum street frontage height of 22-24 metres should be applied as a minimum to this significant development.

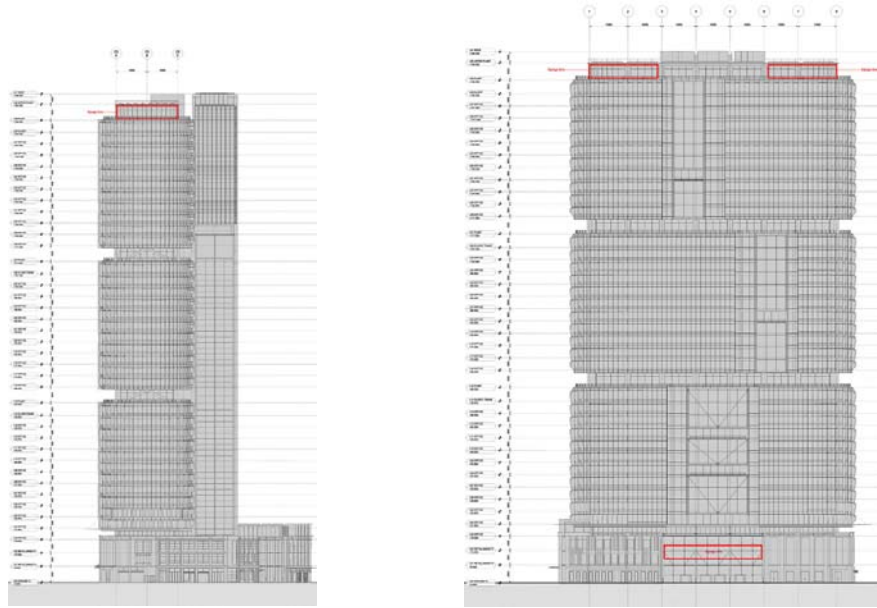


Figure 13 Required increase in height to the podium as shown in red to address wind wash

4.2 Towers

Comment: The City's previous comment has been partly resolved. However the City has a concern that the roof features to C3 remains and may become an additional signage zone in the future.

The signage zones that are proposed are excessive. Signage is used to brand tenants rather than identify building names. Only one 'building sign' per tower should only be permitted. The drawings below indicate the proponent's application.



Figures 14 & 15 Signage Zone East Elevation and South Elevation



Fig 16. Commercial Building C4 – Photomontage – Podium detail – Globe Street looking north east – EA Stage – November 2010



Fig 17. Commercial Building C4 – Photomontage – Podium detail – Globe Street looking north east – PPR Stage – February 2011



Figure 18. Commercial Building C4 – Photomontage – Podium detail – Globe Street looking north east – EA Stage – November 2011

5.0 Heritage

5.1 Results of archaeological testing not submitted

Original Recommendation 15 (submission 21 February 2011)

- The testing report 'Archaeological Testing Barangaroo South' should be submitted as part of the PPR so that the extent of the testing and whether this was satisfactory can be assessed.

Comment: Potentially satisfied by Conditions **D17** and **D18**.

6.0 Health

6.1 Air quality assessment and construction hours

Original Recommendation 16 (submission 21 February 2011)

- The proponent should commit to, and be required by conditions of consent to provide further modelling to assess the impacts of potential changes on local air quality should there be any substantial changes to pollutant emitting activities proposed during construction.

Original Recommendation 17 (submission 21 February 2011)

- The Construction Environmental Management Plan (CEMP) should be adjusted to include the potential impacts of traffic movements once the site is operational and all associated plant and equipment within and around the building, and should be continually updated to reflect the cumulative impacts as further Project Applications are progressed.

Comment: Potentially satisfied by Condition **D14** and **B18**.

The cumulative impact of construction traffic is an ongoing concern with this development site and the size of the stages. Each application addresses proposed construction traffic and that of those already submitted. This approach however raises significant concerns in regards to the programme of works for the site, making it difficult to assess the cumulative impact of the construction traffic.

The City's previous recommendation is reiterated that a construction management route be established in consultation with the City of Sydney for the entire

Barangaroo site. This will allow for better enforcement for all construction traffic on the site.

6.2 Land remediation

Original Recommendation 18 (submission 21 February 2011)

- A condition of consent should be imposed that ensures upon finalisation of the project a separate Site Audit Statement from a NSW DECCW accredited Site Auditor is submitted to Council.

Comment: Whilst this recommendation has been satisfied by Conditions **A7** and **C6**, the City wishes to reiterate this recommendation.

An overarching Remediation Action Plan has been prepared for the Barangaroo Site which specified that site specific RAP's be prepared for the DECCW declaration area and other development sites. In accordance with these requirements a Human Health Environmental Risk Assessment (HHERA) and a site specific Remediation Action Plan known as the Amended Remediation Action Plan– Barangaroo - Other Remediation Works (south) Area (ORWS RAP) has been prepared for this site which has been peer reviewed by NSW EPA accredited Site Auditor Graeme Nyland of Environ Australia Pty Ltd on the 14th July 2011.

A Site Audit Statement (ref GN 439B-1, dated 14.07.11) has been submitted by the Site Auditor which confirms that the RAP is appropriate and that the site (southern portions of Lot 3, Lot 5 and Lot 6 in DP 876514) can be made suitable for residential use with minimal access to soils, including units, park, recreational open space and playing fields, and commercial/industrial use.

The Environmental Assessment Report states that the amended RAP was approved by the Minister for Planning and Infrastructure on the 17th August 2011. However, the recommendations of the Barangaroo Independent Remediation Review Panel Report dated 8 December 2011 and the Government's commitment that SEPP 55 will apply as though it had not been removed from its jurisdiction, needs to be reflected in all approval conditions issued by the Department.

The City of Sydney requests that approval conditions require the applicant to concurrently notify the City of Sydney under the notification procedures of SEPP 55 as though it remained the local consent authority. The reason for this request is to maintain public confidence and trust in the project in relation to public health issues.

Replacement Recommendation 18

- A condition of consent should be imposed that states that the final site validation reports should be reviewed by the Site Auditor; and a Site Audit Statement, Site Audit and validation report be issued following completion of the site remediation works and prior to commencement of the built form of the development confirming that the land is suitable for the proposed land use as required under condition A7 of the approval. Conditions of consent should also include other recommendations in the Barangaroo Independent Remediation Review Panel Report dated 8 December 2011.

6.3 Building services

Original Recommendation 19 (submission 21 February 2011)

- Further details of the blackwater treatment plant should be submitted including source water, method of catchment, storage and treatment, and the proposed end use.

Comment: This recommendation has largely been satisfied by Condition **B32** however the City requests to be involved in any future considerations of such building services.

6.4 Co-generation and tri-generation

Original Recommendation 20 (submission 21 February 2011)

- The plans should be amended to include tri-generation or further justification is required as to why it will not be incorporated into this development. The application should demonstrate that plant areas are adequately sized, located and serviced (eg ventilation etc) to allow for future adaptation to tri-gen, even if not proposed under this application.

Comment: The Proponent has adequately addressed this recommendation by restating their commitments in regards to ESD.

6.5 Construction noise and vibration assessment

Original Recommendation 21 (submission 21 February 2011)

- Details should be submitted of how the construction noise criteria will be achieved at the Billabong Childcare Centre given that they rely on natural ventilation and will be unable to close windows as is recommended in the Wilkinson Murray Construction Management Report.

Original Recommendation 22 (submission 21 February 2011)

- The Noise and Vibration Management Plan that has been prepared for the Bulk Excavation and Basement Car Park should be incorporated into the Environmental Management Plan for this project.

Original Recommendation 23 (submission 21 February 2011)

- As highly intrusive appliances will be used the proponent should strongly consider restricting the hours of use of such equipment, following discussion with stakeholders, and implementing respite periods.

Original Recommendation 24 (submission 21 February 2011)

- The proponent should give consideration to adequate provision of mechanical ventilation to the proposed retail area to ensure any future retail tenancies can satisfy the requirements of AS1668.1-1998 and AS1668.2-1991, with these details submitted as part of the PPR.

Original Recommendation 26 (submission 21 February 2011)

- Any condition of consent for construction hours should be in accordance with the standard construction hours for the City of Sydney.

Original Recommendation 27 (submission 21 February 2011)

- The recommendations outlined in Section 10 of the Wilkinson Murray report should be implemented during the construction works and a condition of any consent be imposed to ensure this occurs.

Original Recommendation 28 (submission 21 February 2011)

- The proponent should detail the potential to restrict the hours of use of highly intrusive equipment and implement regular and daily

respite periods during prolonged periods of continued use of these appliances. An assessment should be provided of the potential to use alternative equipment to address potential excess noise levels through the use of such equipment. The Construction and Vibration Assessment should be updated to reflect how noise emissions from highly intrusive appliances will be dealt with in more detail.

Comment: These recommendations are generally satisfied by the imposition of Conditions **D12**, **D13** and **AN10**. The city makes the following comment in regard to the amended and new EARs.

6.6 Operation Noise Control

An operational noise assessment has been undertaken by Wilkinson Murray (report no 10232-05, dated October 2011) which addresses operational noise from building C5 once the building has been completed.

The report has set project specific noise criteria for mechanical plant associated with the development such as air handling units and exhaust fans taking into account the intrusive and amenity noise criteria defined within the NSW Industrial Noise Policy, the location of the nearest noise sensitive receivers and existing ambient/background noise levels which have been determined following long term noise monitoring conducted onsite. Predicted resultant operational noise levels from the proposed plant located at Building C5 and the entire Barangaroo development are shown to be in compliance with the noise criteria.

Noise criteria for road traffic have been assessed using the assessment criteria for residences set out within the NSW Government's NSW Road Policy and it is proposed that the building structure be further assessed and acoustically treated to ensure internal noise levels are in compliance with AS 2017 and other applicable standards. Reference has not however been made to the Central Sydney DCP 1996 which sets out in part 6.1 relevant internal acoustic amenity criteria for bedrooms and living rooms in residential buildings and serviced apartments.

Internal noise criteria have been obtained from AS 2107 Acoustics – Recommended Design Sound Levels and Reverberation Times for Building Interiors.

Replacement Recommendation 21

Internal acoustic amenity – Residential buildings and serviced apartments

- The submitted operational noise assessment should take into account the internal acoustic amenity criteria for residential buildings and serviced apartments as set out in part 6.1 of the City of Sydney Central Sydney DCP.

Replacement Recommendation 22

Acoustic verification report

- An acoustic verification report should be obtained from a suitably qualified acoustic consultant prior to Occupation Certificate outlining the extent of the mechanical services provided within the development and confirming that resultant maximum individual and combined operational noise levels complies with the City of Sydney “Noise Use” condition stated below when assessed at the property boundary of neighbouring noise sensitive receivers including adjoining buildings within the Barangaroo development. Should the report indicate that resultant noise levels are in exceedance of this criterion then further acoustic controls must be implemented as recommended by the acoustic consultant to ensure ultimate compliance.

Noise Use Condition

The emission of noise associated with the use of the premises including the operation of any mechanical plant and equipment shall comply with the following criteria:

- i) The LAeq, 15minute noise level emitted from the use must not exceed the background noise level LA90, 15minute by more than 5dB when assessed at the boundary of any affected residence.
- ii) The background noise level shall be measured in the absence of noise emitted from the use in accordance with *Australian Standard AS 1055.1-1997-Description and measurement of environmental noise*.
- iii) The LAeq, 15minute noise level shall be adjusted to account for any applicable modifying factors in accordance with Part 4 of the EPA NSW Industrial Noise Policy.
- iv) The use of the premises shall be controlled so that any emitted noise is at a level so as not to create an "offensive noise" as defined in the *Protection of the Environment Operations Act 1997* to any affected residence.
- v) In this clause, the term “noise level emitted from the use” means the contributing noise level from the use in isolation to any other ambient noise and account must therefore be taken of the LAeq, 15minute when the use is not in operation.
- vi) In circumstances where this development application refers to a modification or addition to an existing use, the background noise level referred to in this clause pertains to the LA90, 15minute noise level

measured in the absence of all noise from the site.

6.7 Construction Noise

A Construction Noise and Vibration Assessment Report has been undertaken by Wilkinson Murray (Report no 10232-C5, dated November 2011) and has been submitted which sets out various recommendations in order to keep noise impacts on neighbouring noise sensitive receivers to a minimum. In support of this, an Environmental Construction and Noise Management Plan has been prepared and submitted (Lend Lease document no10-0347, Nov 2011) which sets out procedures to be adopted in relation to community liaison and complaints management.

Replacement Recommendation 23

The works associated with the development must be undertaken in accordance with the recommendations given in the submitted Construction Noise and Vibration Assessment Report (page 39) prepared by Wilkinson Murray (report no 10232-C5, dated November 2011) and the Environmental Construction and Noise Management Plan prepared by Lend Lease report no 10-0347, dated Nov 2011.

Approved construction hours be set in accordance with the City of Sydney standard approved construction hours for the CBD area as outlined below.

HOURS OF WORK AND NOISE – CBD

The hours of construction and work on the development must be as follows:

- (a) All work, including demolition, excavation and building work, and activities in the vicinity of the site generating noise associated with preparation for the commencement of work (e.g. loading and unloading of goods, transferring of tools etc) in connection with the proposed development must only be carried out between the hours of 7.00am and 7.00pm on Mondays to Fridays, inclusive, and 7.00am and 5.00pm on Saturdays, and no work must be carried out on Sundays or public holidays.

6.6 Childcare Centre

Original Recommendation 25 (submission 21 February 2011)

- The proponent should ensure that the requirements of the City of Sydney's Childcare DCP have been addressed and can be met as part of the PPR.

Comment: The City acknowledges that the detailed fitout and use of the Childcare Centre will be considered under a separate application.

The Department is to ensure that a childcare centre in this location however is capable of compliance with the Childcare Centre DCP, especially in relation to vehicular access and traffic and parking. All drop off and pick up for the child care centre must be provided within the development site's basement car park. It is recommended that a rate in line with the requirements set out in the City's Child Care DCP is used. The spaces must be contained within the basement as a sufficient number of dedicated spaces can not be contained at the street level, and all spaces work more satisfactory if they are all located together.

7.0 Traffic, transport and parking

7.1 New roads outside of the subject area

Original Recommendation 29 (submission 21 February 2011)

- As per the City's previous recommendations, Globe Street is to be aligned with Lime Street and the public domain elements including the kerb alignments and heights are to be consistent.

Original Recommendation 30 (submission 21 February 2011)

- The proposed Lime Street, Shelley Street and Margaret Street road redesigns must be completed prior to any occupation of the building known as building C4. The realignment of these roads must be approved by the City, and must be referred to the Sydney Traffic Committee for their concurrence. All costs for the design and construction of these roads must be met by the developer.

Comment: Despite Conditions **B5** and **B6**, the above recommendations are reiterated by the City as per previous submissions.

7.2 Pedestrian crossings

Original Recommendation 31 (submission 21 February 2011)

- The applicant should prepare a pedestrian connection study to review the expected pedestrian desire lines across Hickson Road. The study is to ensure that pedestrian facilities are provided for all desire lines and not just rely on the existing facilities and hope that all pedestrians will deviate from

their path to make use of them.

OR

The proponent must apply to the RTA for the signalisation of Napoleon Street. All arms of the signals must have pedestrian crossings. All costs associated with the design and installation of the signals must be met by the applicant.

If approved by the RTA the signalised intersection must be installed prior to any occupation of the C4 building. If the signalised crossing is not approved by the RTA the applicant must undertake a review of all pedestrian desire lines to the site and recommend alternative crossing arrangements as per the above recommendation.

Comment: Condition **A6** generally satisfies the City's previous recommendation.

7.3 Temporary bicycle parking spaces

Original Recommendation 32 (submission 21 February 2011)

- The opportunity for providing smaller groups of bicycle parking around the site in their proposed final positions is to be considered.

Comment: Condition **B24** satisfies the above Recommendation.

7.4 Management and parking

Original Recommendation 33 (submission 21 February 2011)

- A parking management strategy should be submitted as part of the Preferred Project Report for this application.

Original Recommendation 34 (submission 21 February 2011)

- That a condition be imposed that:

A separate submission must be made to the Sydney Traffic Operations Unit seeking the City's approval for any kerb side parking restrictions. The submission must include a plan showing the proposed kerb side parking restriction signs and stems with changes to all signs and stems from the kerb line of the nearest intersection. All costs associated with the changes to sign posting will be at no cost to Council.

Original Recommendation 35 (submission 21 February 2011)

- That a Green Travel Plan is prepared as part of the Preferred Project Report process.

Original Recommendation 36 (submission 21 February 2011)

- That the TMAP Supplementary Report (Attachment D of the Environmental Assessment) be amended to include further information and clarification on the traffic and transport aspects of the development as discussed above as part of the Preferred Project Report process.

Original Recommendation 37 (submission 21 February 2011)

- That the Environmental Assessment be amended to include further information and clarification on the traffic and transport aspects of the development as discussed above as part of the Preferred Project Report process.

Original Recommendation 38 (submission 21 February 2011)

- That the above comments raised in relation to the CTMP inform an amendment of the Plan to be required by the Department of Planning as part of the Preferred Project Report process.

Original Recommendation 39 (submission 21 February 2011)

- That the above comments raised in relation to the Travel Demand Management Plan inform an amendment of the Plan to be required by the Department of Planning as part of the Preferred Project Report process.

Original Recommendation 40 (submission 21 February 2011)

- That the Impact Assessment and Construction Traffic Management Plan for this application and all other project applications appropriately consider the cumulative impacts of the various concurrent works proposed on the site.

Comment: The above recommendations still stand. The City's concerns in regards to construction traffic management and the cumulative impact of traffic remains. The Department should ensure that the above is address in their assessment and by conditions of consent where required.

It is essential the pedestrian desire lines to the C4 building are completed prior to the occupation of the C4 building. A commitment from the applicant should be made to addressing this issue.

It should also be made clear if the proposed pedestrian links are to be open at all times or controlled via gates (or the like).

Further detail of the City's review of the current applications to inform those Recommendations follows:

7.5 Staged delivery within basement

The car park is due to be constructed as a whole but buildings will only be entitled to use their own selection of parking spaces. The applicant has previously assured that car parking spaces to be assigned to the next buildings will not be made available for use. This is important as an individual's travel to work pattern is often made early and can be hard to change. Therefore providing extra parking up front which is then removed or reassigned once further development is completed, can create long term parking problems.

7.6 Staged delivery of road network

The previous C4 approval provided a shorter section of Globe Street with the inclusion of a temporary vehicle turning area, which was proposed to be removed as the road extended. With this application there is no proposed turning area. The road does extend to the proposed (in the basement modification EA being assessed concurrently) secondary car park driveway, which is proposed to be connected to Hickson Road via a driveway. The City is concerned with having two public roads being connected by a private driveway, and no area to turn around. Therefore all vehicles will have to use the private driveway and will this be constructed to the standards of a temporary road.

7.7 Loading

The basement plans show which car spaces are to become available at the time of each development but there is no similar information relating to the loading docks. All loading and unloading for each of the buildings must be provided within the basement in time for the occupation of that building.

7.8 Construction Traffic Management Plans - Project Applications C3 & C5 LINSIG Intersection Modelling

Intersections

The City is concerned about the LINSIG modelling and the exclusion of the Sussex St / King Street intersection. This intersection is a major intersection in the area and causes other intersections in the area to fail. While the reports state that they have been done as a network without the King Street intersection, the City feels that the results are not truly reflective of the actual conditions in the area. Several recent meetings with the State Government and Lend Lease have discussed that the intersection of Sussex Street / Erskine Street is already operating beyond capacity particularly in the PM peak period but is showing as a Level of Service B.

The City would like to understand where the assumed 120 and 60 second cycle times have come from. Transport Management Centre, who is responsible for all

signalised intersections, should be able to provide exact cycle lengths including each of the phases.

Closure of Shelley Street

There are now proposals to close Shelley Street (Margaret Street West) completely as part of the Wynyard Walk connection. Modelling for this intersection is being undertaken separately but the idea of this closure needs to be considered in the project applications. The City understands from Lend Lease that there will be a single lane eastbound available out of Shelley Street while the Wynyard Walk Bridge is being constructed. Once Globe Street connects to Hickson Road (The Hungry Mile) this temporary eastbound lane will be removed.

Truck Access Routes

While it is acknowledged that the route from the north is not accessible in the AM peak period, an alternative using Grosvenor Street is mentioned. This will not be accepted by the City of Sydney as these trucks would still need to access York Street during the AM peak period. The City has been working very closely with Transport for NSW over bus operations in the Wynyard precinct and does not want to encourage additional traffic in the area. The other proposed alternative using the western distributor is more acceptable to the City.

7.9 Transport Management And Accessibility Plan (Tmap) Supplementary - Project Applications C3 & C5

Traffic Generation

The City wants to understand how the Traffic Generation rates have been calculated. More detail needs to be provided so that the traffic generation rates can be checked.

Light Rail

The State Government has recently announced that the preferred route for light rail in the City Centre will be along George Street. It is likely that the first stage will be from Central to Circular Quay and then further extended to Barangaroo. It is essential to consider the provision of light rail as part of a network, with or without the stop at Barangaroo. It is possible that people will walk from Barangaroo through to George Street in order to catch the light rail through to Central and other destinations.

Closure of Shelley Street

See comments above.

LINSIG Intersection Modelling

A statement has been made that "queuing back from the Harbour Bridge approach does constrain traffic operations in the vicinity of the site in both commuter peaks.

Southbound flow on Sussex Street is also constrained in the PM peak as a result of queuing from the Sussex Street / King Street intersection." An explanation of how these constraints have been considered in the LINSIG modelling needs to be shown.

7.10 Travel Demand Management Plan - Project Application C3

There doesn't appear to be a similar document for C5. However this document should apply to the entire site rather than be building specific. A lot of thought has been put into this document.

7.11 Cycling Access & Cycling

Any cycling strategy for the entire Barangaroo Site should be done in consultation with the City of Sydney.

The City has recently adopted a policy for the use of a bike fleet for City staff. It should be noted that in order to satisfy some of the OHS concerns, all staff using the bikes needed to undertake a cycling confidence course. The City in conjunction with BikeWise has developed a course which can also be used by other organisations for a small cost.

7.12 Light Rail

See comments above.

7.13 Travel During The Day

While the use of TravelTens for buses is relevant, it should be noted that at present there are very limited bus services to the Barangaroo Area.

7.14 Public Transport

A 131500 widget is available from the 131500 website that can be placed on any other website. This widget links directly back to the 131500 trip planner.

7.15 Pool Cars etc

As there is very limited parking on the site, it might be an idea to dedicate the available parking to car pool vehicles.

7.16 Promotion

Any staff relocating to this site will also need to be aware of the Workplace Travel Plan before alternative habits are formed.

Additional Recommendation 40A

The City recommends that the following conditions be imposed:

(1) ALLOCATION FOR CAR WASH BAYS

If car wash bays are provided, spaces must not at any time be allocated, sold or leased to an individual owner/occupier and must be strictly retained as common property by the Owners Corporation for use by all tenants.

(2) ALLOCATION FOR VISITOR PARKING

Visitor parking spaces must not at any time be allocated sold or leased to an individual owner/occupier and must be strictly retained as common property by the Owners Corporation for use by building visitors.

(3) ASSOCIATED ROADWAY COSTS

All costs associated with the construction of any new road works including kerb and gutter, road pavement, drainage system and footway shall be borne by the developer. The new road works must be designed and constructed in accordance with the City's "Development Specification for Civil Works Design and Construction".

(4) BICYCLE FACILITIES

A bicycle facilities room must be provided close to staff / employee bicycle parking and include:

- (a) [insert number] showers with change area; and*
- (b) [insert number] personal lockers.*

(5) BICYCLE PARKING

The layout, design and security of bicycle facilities either on-street or off-street must comply with the minimum requirements of Australian Standard AS 2890.3 – 1993 Parking Facilities Part 3: Bicycle Parking Facilities except that:

- (a) all bicycle parking for occupants of residential buildings must be Class 1 bicycle lockers, and*
- (b) all bicycle parking for staff / employees of any land uses must be Class*

2 bicycle facilities, and

- (c) *all bicycle parking for visitors of any land uses must be Class 3 bicycle rails.*

(6) CAR PARKING SPACES AND DIMENSIONS

A maximum of [insert] off-street car parking spaces must be provided. The design, layout, signage, line marking, lighting and physical controls of all off-street parking facilities must comply with the minimum requirements of Australian Standard AS/NZS 2890.1 - 2004 Parking facilities Part 1: Off-street car parking and Council's Development Control Plan. The details must be submitted to and approved by the Principal Certifying Authority prior to a Construction Certificate being issued.

(7) CHILD CARE DROP OFFS

A minimum of [insert number] off street childcare drop-off and pickup parking spaces must be provided. The design, layout, signage, line marking, lighting and physical controls of all off-street parking facilities must comply with the minimum requirements of 'Australian Standard AS/NZS 2890.1 - 2004 Parking facilities Part 1: Off-street car parking' and Council's Development Control Plan. The details must be submitted to and approved by the Certifying Authority prior to a Construction Certificate being issued.

(8) COST OF SIGNPOSTING

All costs associated with signposting for any kerbside parking restrictions and traffic management measures associated with the development shall be borne by the developer.

(9) INTERCOM FOR VISITORS

Where a boom gate or barrier control is in place the visitor spaces must be accessible to visitors by the location of an intercom (or card controller system) at the car park entry and at least 6m clear of the property boundary, wired to all units (prior to an Occupation Certificate being issued or the use commencing, whichever is earlier).

The intercom must comply with 'Australian Standard AS 1428.2- 1992: Design for access and mobility – Enhance and additional requirements – Building and facilities Sections 22 and 23.

(10) LOADING WITHIN SITE

All loading and unloading operations associated with servicing the site must

be carried out within the confines of the site, at all times and must not obstruct other properties/units or the public way.

(11) LOADING/PARKING KEPT CLEAR

At all times the service vehicle docks, car parking spaces and access driveways must be kept clear of goods and must not be used for storage purposes, including garbage storage.

(12) LOCATION OF ACCESSIBLE CAR PARKING SPACES

Where a car park is serviced by lifts, accessible spaces for people with mobility impairment are to be located to be close to lifts. Where a car park is not serviced by lifts, accessible spaces for people with mobility impairment are to be located at ground level, or accessible to ground level by a continually accessible path of travel, preferably under cover.

(13) LOCATION OF VISITOR PARKING

All visitor parking spaces must be grouped together, and located at the most convenient location to the car parking entrance. All spaces must be clearly marked 'visitor' prior to the issue of an occupation certificate or the use commencing, whichever is earlier. All signs must be maintained in good order at all times.

(14) SECURITY GATES

Where a car park is accessed by a security gate, that gate must be located at least 6 metres within the site from the street front property boundary.

(15) SERVICE VEHICLES

Adequate space must be provided to allow manoeuvring and turning of the different sized vehicles. The design, layout, signage, line marking, lighting and physical controls for all service vehicles must comply with the minimum requirements of Australian Standard AS 2890.2 – 2002 Off-Street Parking Part 2: Commercial vehicle facilities. Details must be submitted to and approved by the Certifying Authority prior to a Construction Certificate being issued.

(16) SIGNS AT EGRESS

The following signs must be provided and maintained within the site at the point(s) of vehicular egress:

- (a) Compelling drivers to stop before proceeding onto the public way*

- (b) *Compelling drivers to “Give Way to Pedestrians” before crossing the footway; or compelling drivers to “Give Way to Pedestrians and Bicycles” before crossing a footway on an existing or identified shared path route.*

(17) TRAFFIC WORKS

Any proposals for alterations to the public road, involving traffic and parking arrangements, must be designed in accordance with RTA Technical Directives and must be referred to and agreed to by the Sydney Traffic Committee prior to any work commencing on site.

(18) VEHICLES ACCESS

The site must be configured to allow all vehicles to be driven onto and off the site in a forward direction.

(19) PARKING RESTRICTIONS

All parking signs need to be referred to the Pedestrian Cycling and Traffic Calming committee before being installed. All signs must be installed prior to the road being opened. It is recommended the entire site has a strategic plan for the location of all the parking restrictions.

(20) ACCESSIBLE PARKING SPACE

The design, layout, signage, line marking, lighting and physical controls of all off-street accessible parking facilities must comply with the minimum requirements of Australian Standard AS/NZS 2890.6 - 2009 Parking facilities Part 6: Off-street parking for people with disabilities. The details must be submitted to and approved by the Principal Certifying Authority prior to a Construction Certificate being issued.

8.0 Landscaping and Trees

8.1 Street tree protection along Hickson Road

Original Recommendation 41 (submission 21 February 2011)

- The proponent should submit an Arboriculture Implications Statement that details post construction impacts on the Hickson Road trees.

Comment: Generally satisfied.

8.2 Landscape details

Original Recommendation 42 (submission 21 February 2011)

- The proponent is to ensure that the Landscape Design Statement considers the final environment of areas where plantings are proposed, including factors relating to the construction of surrounding buildings, to ensure they are suitable.

Comment: Generally satisfied, except for the design of Hickson Road.

8.3 Temporary Public Domain Treatment

Original Recommendation 43 (submission 21 February 2011)

- The Temporary Public Domain Treatment should be amended to incorporate the City's existing line of Fig trees into this open space area.

Original Recommendation 44 (submission 21 February 2011)

- The proposed temporary street tree planting along Globe Street should be reviewed and additional information provided, such as, how long is temporary and how will the applicant address the impacts to soil quality in tree pits? The City suggests the temporary planting of trees to be reconsidered.

Comment: The City suggests additional recommendation 44A noting the following. Larger planted trees suffer reduced vandalism rates, increasing successful tree establishment in the environment. The availability of advanced quality stock is a frequent industry problem. In most instances, a supply order is forwarded for stock to be grown on by supplier. This should be planned now to ensure stock is available.

Additional Recommendation 44A

- With regards to future planting opportunities within the development, it is recommended that where possible large trees should be considered for planting on the site. However, given the limited setbacks within the development area, it is recommended that palm trees (*Livistona* sp.) be considered.
- In the case of continuous avenue street tree planting, it is preferred that individual tree pits be linked to form continuous trenches, thereby maximising the soil volume available to the trees.

- Provision for drainage of such systems is an important aspect of the design and needs to be carefully considered.
- The use of advanced tree stock in all public domain areas is recommended.
- New tree planting would include but not be limited to the following:
 - Excavation of subgrade for continuous tree trenches
 - Installation of subsoil drainage, imported soil mixes and structural soil
 - Supplied trees grown to NATSPEC Guidelines for Specifying Trees to ensure quality trees and more successful establishment
 - At the time of planting, the container size is to be a minimum of 400 litres with a minimum height of four (4) metres and calliper of 100mm
 - Establishment and maintenance of trees for 2 years from completion of planting.

8.4 Arborist report

Original Recommendation 45 (submission 21 February 2011)

- Tree protection measures are required for the Hickson Road Fig trees. This information should be provided within a Tree Management Plan and must be prepared by qualified Arborist with a minimum Australian Qualification Framework (AQF) of Level 5 in Arboriculture and be in accordance with AS 4970 (Protection of trees on Development Sites) and AS 4373 (Pruning of amenity trees). The Plan should be required as part of the Preferred Project Report process to allow sufficient assessment, or less favourably as a condition of consent.

Comment: Satisfied by Condition **D9** however please see the City's submission to the Basement Carpark and Bulk Excavation MOD 3 dated 19 December 2011 for further information in relation to the Hickson Road Fig trees.

The City suggests that the above conditions be equally applied to the applications for C3, C4 and C5 in order that all environmental impacts are comprehensively addressed.

End of Submission