

View and Visual Impact Analysis



Concept Plan Modification 8 and State Significant Site Amendment

Submitted to the Department of Planning and Environment
On Behalf of Lend Lease Development (Millers Point Pty Limited)

February 2015 ■ 10051

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This report has been prepared by:

A handwritten signature in blue ink, appearing to be 'Lesley Bull', written in a cursive style.

Lesley Bull

26/02/2015

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1.0 Introduction

This report provides a Visual and View Impact Analysis to accompany a proposed modification to the approved Concept Plan (MP06_0162) and amendment to the existing State Environmental Planning Policy (Major Development) 2005 (Major Development SEPP) controls for the Barangaroo site.

Lend Lease (Millers Point Pty Ltd) seeks to modify the existing Concept Plan approval as it currently applies to Barangaroo South (referred to herein as Concept Plan Mod 8). It also seeks to amend the planning controls that apply to Barangaroo South by amending the relevant provisions in Part 12 of Schedule 3 of the Major Development SEPP and Schedule 2 of State Environmental Planning Policy (State and Regional Development) 2011 (State and Regional Development SEPP).

The proposed Modification 8 application and SEPP Amendment proposals are the outcome of negotiations between Lend Lease and the NSW Government, including the Barangaroo Delivery Authority, to relocate the approved landmark hotel building on a pier into Sydney Harbour to a location on land elsewhere on the site. Modification 8 and the SEPP Amendment proposals incorporate both the physical relocation of the hotel, along with a number of consequent and related changes that are required to maintain an appropriate built form and public domain outcome for the Barangaroo South site.

In summary, the modification seeks to relocate the landmark building (Block Y), which is currently approved on a public pier extending into the harbour, back onto the area of the site in front the existing of Blocks 4A, B and C, which is currently zoned RE1 Public Domain. The relocation of the landmark building necessitates and is accompanied by a range of changes to the remainder of the site.

Lend Lease also proposes to amend Part 12 of Schedule 3 of the Major Development SEPP to reconcile the SEPP with the proposed modifications to the Concept Plan, including amending the layout of the RE1 and B4 Mixed Use zones; amending the maximum building height and gross floor area provisions. An amendment to the 'State Significant Development Sites – Barangaroo' called up in Schedule 2 of the State and Regional Development SEPP to reflect the amended site boundary.

This report provides a Visual and View Impact Analysis in support of the proposed modifications to the Concept Plan and SEPP Amendment proposals, as described above.

The analysis is made in comparison to those impacts previously analysed and approved as part of the Barangaroo Concept Plan.

The Director-General's Requirements (DGRs) dated 15 April 2014 for the project require that consideration be given to view corridors (item 3) and also that a visual impact assessment must be undertaken (item 6). Specifically, the DGRs provide for the following be addressed with respect to views and visual impacts:

"Visual Impact Assessment"

The Visual Impact Assessment, including focal lengths, must be done in accordance with Land and Environment Court requirements.

Visual assessment methodology

- *The consultant's methodology should be explicit. This may include a flow chart indicating how the methodology is to be undertaken, or a narrative description of the proposed sequence of activities.*
- *As part of the methodology, the consultant should provide, and explain, criteria for assessment relevant to the site, local context and proposed built*

form and public domain outcomes. A rationale should be provided for the choice of criteria. Criteria must include reference to the planning framework.

- *Visual catchment should be defined and explained (see below).*
- *An assessment matrix should be produced including number of viewers, period of view, distance of view, location of viewer to determine potential visual impact – i.e high, medium or low.*

Visual catchment

- *Potential visual catchments and view locations, including contours (areas from which the development is visible) should be identified. This must include, but is not limited to Hickson Road, Kent Street, Shelley Street, Lime Street, Gas Lane, High Street, Sydney Observatory, Sydney Observatory Park, Clyne Reserve, Munn Reserve, Sydney Harbour Bridge, Pyrmont Bridge, Ballart Park Darling Island, Jones Bay Wharf Pyrmont, East Balmain, Darling Harbour, Blues Point, Millers Point, Sydney Opera House, Cremorne Point, Watsons Bay and the Gladesville Bridge.*
- *Categories of views (eg from the water, from public open space, from key streets, from main buildings and from key heritage items) should be defined.*
- *Photos are required for representative view categories, plotted on a map.*

Visual material

- *Reference to be made to site analysis.*
- *Provide key plan indicating where viewpoints are located and narrative explaining why these have been selected.*
- *The modified and approved built form should be illustrated on a key plan and the choice of positions explained. The cross sections should be shown in the context of the visual catchment.*
- *Vertical exaggeration should provide an accurate rather than ‘flattened’ impression of buildings in the context of the visual catchment.*
- *A key plan must be provided for photomontages. In addition, the choice of locations should be explained. Photomontages should be provided for close as well as distant views.*
- *Assessment must benchmark against the existing situation and currently approved plans.*
- *Photomontages to be provided for key viewpoints from all directions, and from several positions within the visual catchment.*
- *As above, support visual evidence such as cross sections to be drawn to realistic scales and shown in context.*
- *A comparison of ‘before’, ‘approved’ and ‘proposed’ is fundamental to a visual impact assessment, therefore the visual impact assessment (A3 in size) should be undertaken using human eye focal lengths (50mm at 35 mm FX format and 46° angle of view) from long range, medium range and short range positions so that they can be assessed with respect to visibility, visual absorption capacity and visual impact rating, as well as a comparison analysis with the approved Concept Plan.”*

With respect to the DGRs, the Land and Environment Court of NSW has published requirements for photomontages that are proposed to be relied on as or as part of expert evidence in Class 1 appeals. In summary, the published LEC photomontage policy requires that any photomontage to be relied upon in an expert report is to be accompanied by:

- *An existing photograph showing the current, unchanged view of the location depicted in the photomontage from the same viewing point as that of the photomontage (the existing photograph);*
- *A copy of the existing photograph with the wire frame lines depicted so as to demonstrate the data from which the photomontage has been constructed;*
- *A 2D plan showing the location of the camera and target point that corresponds to the same location the existing photograph was taken.”*

This report analyses the visual and view impacts in relation to the DGRs. It is based upon and should be read in conjunction with the following documentation:

- Barangaroo Concept Plan Mod 8 Visual Impact Report September 2014 prepared by Virtual Ideas; and
- Barangaroo South Master Plan View Analysis prepared by Rogers Stirk Harbour + Partners.

A separate Night Sky Assessment has been prepared in relation to the impact of the proposed development on the night sky as viewed from the Sydney Observatory and is submitted under separate cover.

This report should also be read in conjunction with the Visual and View Impact Analysis material that was prepared, publicly exhibited and assessed as part of Concept Plan Modification 4 and the subsequent Concept Plan Modification 6 which establish the benchmark for consideration of the current proposal against the existing approval in relation to visual and view impacts as is required by the DGRs.

This View and Visual Impact Analysis should also be read together with Concept Plan Modification 8 and State Significant Site Amendment Insert Proposal Description Environmental Assessment Report prepared by JBA dated September 2014.

1.1 The Site

1.1.1 The Concept Plan Site

Barangaroo is located on the north western edge of the Sydney Central Business District (CBD), bounded by Sydney Harbour to the west and north; the historic precinct of Millers Point for the northern half, The Rocks and the Sydney Harbour Bridge approach to the east; and to the south by a range of new developments dominated by large CBD commercial tenants, and the King Street Wharf / Cockle Bay precinct.

The 22ha Barangaroo site is generally rectangular in shape and has a 1.4 kilometre harbour foreshore frontage, with an eastern street frontage to Hickson Road. An aerial photo of Barangaroo and its context is shown at **Figure 1**.

The Barangaroo site has been divided into three distinct redevelopment areas (from north to south) – the Barangaroo Point, Barangaroo Central and Barangaroo South – and has been subject to multiple investigations that detail the physical and natural characteristics of the Barangaroo site.



Figure 1 – Aerial Photo of Barangaroo

1.1.2 Concept Plan Modification Area

Concept Plan (Mod 8) only relates to Barangaroo South (the site). The land is identified in the approved Concept Plan as Blocks 1 – 4A-C, X and Y, and the immediately adjacent public recreation area. Prior to development commencing, the area predominantly comprised an open concrete apron which was largely reclaimed over water. The site as approved under the Concept Plan also extended beyond the western edge of the existing apron and includes an area within the existing waters of Darling Harbour to enable a public pier and landmark building.

The site boundary is proposed to be modified to reduce the size of, and modify the location of, the public pier and also to extent the foreshore promenade westwards in front of the proposed new hotel site. The approved and modified site boundary is shown in Figure 2.



Figure 2 – The approved and modified Concept Plan site boundary

1.2 The Concept Plan Mod 8 and SEPP Amendment Proposals

1.2.1 Concept Plan Amendment

The proposed Concept Plan Modification 8 proposal seeks to relocate the landmark building (Block Y), which is currently approved on a public pier extending into the harbour, back onto the area of the site in front the existing of Blocks 4A, B and C, which is currently zoned RE1 Public Domain. New development controls will be provided for Block Y in response to its proposed new location on the site, including providing for residential uses, increasing the tourism use, and increasing the total maximum GFA on the site for the hotel building.

In summary the proposed modifications comprise:

- Relocation of the landmark building (Block Y) extending into the harbour back onto the site in front of the existing Blocks 4A, B and C;
- Revision of the layout of Blocks 4A – C;
- Amendment of the size and location of the Southern Cove and public domain;
- Redistribution of the GFA, public domain and land uses across Development Blocks 1 – 3, 4A – C, X and Y;

- Increase in the maximum GFA on the site to provide for additional GFA within the hotel building and residential buildings;
- Increase in the height of the buildings within modified 'Block 4' and the relocated Block Y;
- Update of the Urban Design Controls to reflect the modified concept design; and
- Amendment of the conditions of the Concept Approval to reflect the modifications to development.

1.2.2 Major Development SEPP Amendment

The Barangaroo site is already listed as a State Significant Site in Part 12 of Schedule 3 of the Major Development SEPP. The Major Development SEPP zones the land part B4 Mixed Use and part RE1 Public Recreation.

Maximum building heights and GFA restrictions are established for nominated development blocks within the B4 Mixed Use zone.

The relocation of the landmark building necessitates a number of amendments to Part 12 of Schedule 3 of the Major Development SEPP as described in detail in the EAR.

1.2.3 State and Regional Development SEPP Amendment

The Barangaroo site as approved under Concept Plan (Mod 4) is shown on the 'State Significant Development Sites – Barangaroo' called up in Schedule 2 of the State and Regional Development SEPP. As the modification involves relocating the hotel out of the water and will change the Concept Plan site boundary, the boundary of the site shown on the SEPP map will need to be modified to reflect the amended boundary.

1.3 Methodology

1.3.1 Visual Analysis

To support the visual analysis, the relevant visual catchment of the Barangaroo site has been defined and key public domain views, view corridors and public vantage points within and surrounding the site have been identified.

Barangaroo is visible from a wide catchment within Sydney. From a large number of initial views and vistas identified, the key public domain views were determined based on a series of inspections of the site and its surrounds and also having regard to the visual catchment and the identification of important views and vistas as established by the State government at the time of the original East Darling Harbour Competition and subsequent Concept Plan approval. The selection of vantage points has also had regard to the location of existing heritage items in the vicinity of the site that are visible from the public domain.

The key public domain views generally accord with the public domain views that were selected and analysed as part of Concept Plan Modification 4, and later Concept Plan Modification 6 with some minor adjustments to take into consideration the most relevant view and vantage points arising with respect to the Modification 8 proposal, and also with the inclusion of seven (7) additional view / vantage points.

The key public domain views are also in accordance with the potential visual catchment and view locations identified in the DGRs which specify that the visual

catchment must include Hickson Road, Kent Street, Shelley Street, Lime Street, Gas Lane, High Street, Sydney Observatory, Sydney Observatory Park, Clyne Reserve, Munn Reserve, Sydney Harbour Bridge, Pyrmont Bridge, Ballart Park Darling Island, Jones Bay Wharf Pyrmont, East Balmain, Darling Harbour, Blues Point, Millers Point, Sydney Opera House, Cremorne Point, Watsons Bay and the Gladesville Bridge.

Photomontages of the proposed development have been prepared for a total of 21 public domain views and vantage points (as compared to 17 vantage points assessed at the time of analysis of Concept Plan Modifications 4 and 6). The locations of the photomontage images and direction of view are shown in **Figures 3 and 4** below.

The public domain vantage points selected for analysis provide representative views for three (3) categories of views as follows:

- **From the water:** Vantage points 11 (Darling Harbour (Pyrmont Bridge), 12 (Ballarat Park), 13 (Pyrmont Park Pier Jones Bay Wharf), 14 (Balmain East), 15 (Darling Harbour), 16 (Blues Point), 17 (Opera House Western Forecourt), 18 (Cremorne Point);
- **From public open space:** As above, an in addition Vantage points 7 (Millers Point Observatory Hill), 8 (Clyne Reserve), 9 (Munn Reserve), 20 (Watsons Bay), 21 (Sydney Observatory);
- **From key streets:** Vantage points 1 (Hickson Road), 2 (Ken Street, 3 (Shelly Street), 4 (Lime Street), 5 (High Street), 6 (Gas Lane), 10 (Sydney Harbour Bridge), 11 (Pyrmont Bridge), 19 (Gladesville Bridge).

The vantage points selected for analysis in each of the categories of views provide representative views from all relevant directions, and from several positions within the visual catchment in relation to each category of view. They also provide for close as well as distant views.

Views from main buildings have been separately analysed as part of the view analysis. Refer below.



Figure 3 – External Site Views

Source: Virtual Ideas

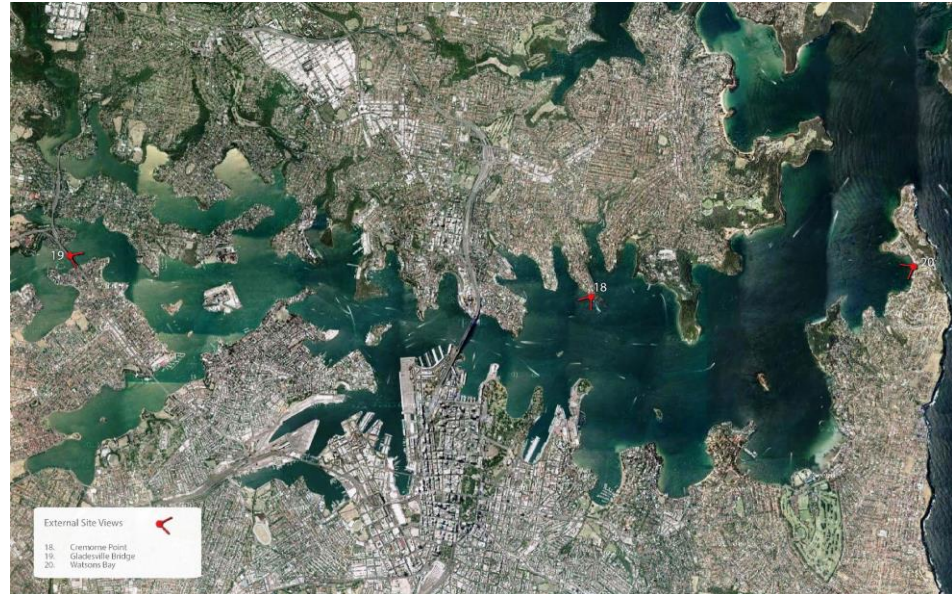


Figure 4 – External Site Views (cont.)

Source: Virtual Ideas

The photomontage images for each of the identified public domain views were taken at ground level (pedestrian eye level) to indicate what a pedestrian will see when travelling through or within the general vicinity of the site.

Photomontage images have been produced using a range of lens sizes between 17 and 40mm. Overlays (crop markers) showing longer lenses (35 mm and 50mm) have been included for each photomontage image to illustrate the effect of a longer lens. Using a 50mm lens as stated in the DGRs has the same effect as cropping the image presented using the selected lens.

It is not effective to use 50mm lenses in all circumstances as this would not produce a result where the buildings can be evaluated in respect to their surroundings. In addition, in most cases it has not been possible to take medium range and long range options for each view given the topography, vegetation and surrounding built form.

A Visual Impact Photomontage Methodology Report has been prepared by Virtual Ideas for Concept Plan Mod 8 and is provided at **Appendix A** of this report. The analysis concludes that the methodology adopted during the preparation of the exhibited photomontages is considered acceptable practice for the reasons summarised below; and it is consistent with the methodology used in the visual impact photomontage images submitted and approved as part of Concept Plan Modification 4 and 6.

The methodology and reasons for selection of lens sizes was considered in detail by the Department at the time of determination of Concept Plan Modification 4, and a consistent methodology was adopted for the visual and view analysis provided as part of Concept Plan Modification 6.

The Director General's Environmental Assessment Report in relation to Modification 4 concluded (p.54) that *"the approach, rationale and methodology in the analysis undertaken and presented in the PPR are considered sound."*

The Field of View of the Human Eye

There are varying opinions as to the accepted field of view (FOV) of the eye, ranging from 17 – 24 mm, depending on the source of information referenced. Regardless, the human eye has quite a wide FOV and is influenced by proximity to the subject being viewed. That is, when standing close to an item (e.g.: a building), vision is focussed towards the top, sides and bottom of the item. In addition, the human eye changes focus and target direction regularly and quickly, allowing large structures to be viewed in very short periods of time, effectively making the perceived FOV even larger.

The Perspective of the Human Eye

It is difficult to accurately reproduce what the human eye sees by the means of a printed image. As the back of the human eye is curved and the sensors on cameras are flat, the perspective of a photograph can look quite different to how items are seen in the real world, especially with a larger FOV, or wider lens.

The use of longer lenses (approximately 50mm) reduces the amount of perspective in images and therefore replicates what the human eye would see in reality more closely. However, longer lenses do not consider the FOV of the eye (as discussed above). This means that if a photo taken with a 50mm lens was compared to a real view in the same location that the photo was taken from, it would become very clear that the human eye can see much more of the surrounding information than what is captured by the photo.

Changing the FOV on a Digital Camera

The main distinction between using longer rather than wider lenses is the amount of information that is displayed at the edges of the subject. Changing lenses to a smaller FOV produces the same result as cropping a wide angle image, providing that the position and the angle of the camera remains constant while taking the photographs. In short, a lens with a wider FOV does not create an image that has incorrect perspective, rather it simply means that the perspective is extended at the edges of the image showing more of the surrounds in the images.

In the context of the above, it is clear that there is no accepted 'one size fits all approach' for lens selection. Longer lenses produce images closer to the perspective of the human eye, however the entirety of subjects as large as whole buildings and contextual surroundings may not be able to be shown. Using only 17mm lenses would result in the subject being further away and small in the image, but with greater context, which is not always appropriate when assessing visual impact.

For these reasons, Virtual Ideas considers that lens selection for the purposes of undertaking visual impact assessment for Barangaroo South needs to strike a balance between the FOV of the human eye and perspective, while also accurately displaying the built form in its surroundings.

Although not part of this report, it is noted that Lend Lease has prepared an iPad app to demonstrate the visual impact of the proposed modified development as compared to the approved development.

1.3.2 View Analysis

Four (4) key buildings in the vicinity of the site have been identified as being impacted or potentially impacted on by the project in terms of private views. The key residential buildings are: Highgate, Georgia, Stamford Marque, and Stamford on Kent. The Sydney Observatory has been dealt with separately as part of the visual analysis and also in the Night Sky Assessment submitted under separate cover. Their locations are shown in **Figure 5** below.



Figure 5 – Locations of Key Buildings

The key buildings were selected based on the sensitivity of land use, and on the basis of both proximity to the site and the extent to which existing views, vistas and outlook are likely to be affected by the project. The analytical process in selecting the key buildings took into account the height and orientation of the existing buildings, their location and available view corridors down streets and/or across the top of other foreground development towards the Sydney CBD, Darling Harbour or Sydney Harbour.

The four selected residential buildings are the same four residential buildings for which a detailed view impact analysis was undertaken as part of Concept Plan Mods 4 and 6, as agreed by the Department. No new residential buildings that were not previously assessed will be impacted upon by the proposed modified development.

Consistent with the view impact methodology used in the assessment of Concept Plan Mods 4 and 6, orthogonal and oblique analysis has been undertaken by Rogers Stirk Harbour + Partners to determine view impacts on Kent Street residential buildings (see **Appendix B** of this report). In summary:

- Orthogonal – the projection of uninterrupted views were taken from the west looking east as orthogonal to the residential buildings to establish which views would be affected; and
- Oblique – the orthogonal assessment methodology is a simplistic method of assessing the views, and as such, a more comprehensive assessment of view sharing has been considered, using an oblique methodology.

Two heights were taken as a source for views from each of the residential buildings at levels of RL59 and RL90. To measure a reasonable level of uninterrupted views and no loss of amenity from the residential buildings, an angle that matched the view angles of the Approved Concept Plan (as modified) were used, which is an angle of 54° or greater than.

1.4 Structure of this Report

This report is structured as follows:

Section 2 identifies the various relevant and pre-existing planning principles with respect to views, view sharing and outlook including those established by the approved Concept Plan and those contained within the City of Sydney Council Development Control Plan 2012, Sydney Regional Environmental Plan 2005 and Sydney Harbour Foreshores and Waters Area Development Control Plan 2005.

Section 3 provides a visual impact analysis for the concept proposal in relation to the public views, view corridors and vantage points in and around the site.

Section 4 provides a view impact analysis for the concept proposal in relation to the private views for key neighbouring residential buildings in the vicinity of the site and the Sydney Observatory.

Section 5 provides a conclusion.

2.0 Planning Context and Relevant Planning Instruments

The environmental planning instruments (EPIs), policies or guidelines of particular relevance to the consideration of visual and view impacts are Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 – now a deemed SEPP, and its accompanying DCP; Sydney Development Control Plan 2012; and the established Barangaroo Views and Planning Principles. These documents are addressed in detail below.

With respect to potential impact on views and vistas to existing heritage items, all relevant heritage listings including those contained within Central Sydney LEP 2012 have been considered.

2.1 Sydney Development Control Plan 2012

Sydney Development Control Plan 2012 (DCP 2012) does not apply to the Barangaroo site.

Nonetheless the DCP 2012 provides a planning context with respect to the consideration of views and the visual impact of proposed development within the broader City of Sydney. It applies to all of the land surrounding the site, and to the buildings and public domain spaces in the vicinity of the site that are or are potentially impacted upon by the proposed development.

It has been a long standing strategic position of the City of Sydney Council that views, and view sharing, is a matter of specific and particular importance with respect to the potential impact of development on key views and vistas that are available at the street level and generally from or within the public domain.

Section 3.2.1.2 of the DCP 2012 acknowledges that:

- Buildings are not to impede views from the public domain to highly utilised public places, parks, Sydney Harbour, Alexandra Canal, Heritage Buildings and monuments including public statues, sculptures and art; and
- Development is to improve public views to parks, Sydney Harbour, Alexandra Canal, heritage buildings, and monuments by using buildings to frame views. Low level views of the sky along streets and from locations in parks are to be considered.

The DCP 2012 objectives and provisions identify significant views in the Sydney CBD that are to be protected from encroachment and/or enhanced by building design. The provisions of the DCP 2012 also encourage the siting and design of new buildings that maintain and open up significant views from the public domain to Sydney Harbour, parklands and significant objects as well as protecting silhouettes of the tops of major heritage buildings as seen against the sky.

It is noted that the Barangaroo site has not been identified as a contributory element to existing or desirable future significant public domain views.

The current planning objectives, strategies, principles and development controls for the Sydney CBD have also long recognised that ‘outlook’, as distinct from ‘views’ is the appropriate measure of residential amenity within a global CBD context.

Section 4.2.3.10 of DCP 2012 clearly articulates the following with respect to outlook and views in relation to the impact of development on existing and future residential amenity:

- “(1) Provide a pleasant outlook, **as** distinct from views from all apartments.
(2) Views and outlooks from existing residential development should be considered in the design of the form of the new development”*

Note: Outlook is a short range prospect, such as building to building, while views are more extensive or long range to particular objects or geographical features.”

2.2 Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 adopts the following principles for the purpose of achieving its aims for the Foreshores and Waterways Area:

- “(a) Sydney Harbour is to be recognised as a public resource, owned by the public, to be protected for the public good,*
- (b) The public good has precedence over the private good wherever and whatever change is proposed for Sydney Harbour or its foreshores,*
- (c) Protection of the natural assets of Sydney Harbour has precedence over all other interests.” (our emphasis)*

The site sits within the Foreshores and Waterways Area as identified in Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 (the Sydney Harbour REP). The specific clauses relevant to consideration of visual analysis or view impacts follow:

Clause 2(2)(b) – Aims of plan – the principle of precedence of public good over private good

With respect to views, the Sydney Harbour REP articulates that amongst other things, the public good (such as public views) will have precedence over private good (private views) where change is proposed on the harbour or within its foreshores.

While the genesis of this principle is largely rooted in ensuring continuous and unobstructed foreshore access to the public, the principle of view corridors tied to access to the foreshore is primary as compared to the secondary issues of private views. Impacts on private views (being those that may not or do not align with existing or proposed public view corridors over streets) will require further consideration when detailed building designs are resolved.

Clause 14(d) – Foreshores and Waterways Area

This sub-clause seeks to ensure “development along the foreshore and waterways should maintain, protect and emphasise the unique visual qualities of Sydney Harbour and its islands and foreshores”.

Clause 15(d) – Heritage Conservation

This sub-clause seeks to ensure heritage conservation protection of “the natural, scenic, environmental and cultural qualities of the Foreshores and Waterways Area.”

The boundary of the Foreshores and Waterways Area at and in the vicinity of Barangaroo South sits at the western edge of Hickson Road / Sussex Street. Under the Sydney Harbour REP there are no heritage items within the Foreshores and Waterways Area at Barangaroo.

Nonethelss, the impact on the scenic, environmental and cultural qualities of the area and its adjacent Millers Point Conservation Area and individual heritage items is not diminished by the proposal as the most significant heritage and conservation values are to be found towards the north of the Barangaroo site (ie outside of Barangaroo South). It is from this northern part of the site and from the Millers Point area and Observatory Hill that the most significant views to and of heritage and conservation areas are able to be enjoyed. The current proposal will largely preserve heritage views and views to heritage precincts.

Important heritage views to the site were established by City Plan Heritage in its report (March 2007) in support of the initially approved Concept Plan. These views included those to the Millers Point headland through the northern part of the Barangaroo site as well as:

- the panorama from Observatory Hill to the west and over the Barangaroo site;
- the view south along Hickson Road from Munn Street;
- a view west from the northern end of High Street over the Munn Street alignment;
- the view west from the centre of High Street; and
- the view from the southern end of High Street.

Heritage views will not be affected by the proposed Concept Plan Modification. Other views from around the Harbour's foreshores to the Millers Point area will continue due to the proposed urban structure of the Concept Plan Modification, as considered throughout this report.

Division 2 – Matters for Consideration for development - Clause 25 – Foreshores and waterways scenic quality

This clause requires consideration in relation to the maintenance, protection and enhancement of the scenic quality of foreshores and waterways including the scale, form, design and siting of any building. This should be based on an analysis of:

- the land on which it is to be erected;
- the adjoining land; and
- the likely future character of the locality.

The pre-existing decisions taken on the redevelopment of the Barangaroo site and the general form and spatial structure of the development has continued to inform the process of refining the development options for the site. The redevelopment of now redundant maritime foreshore land and the site's CBD context and backdrop has determined the scale and function of the development parcels and envelopes in the Concept Plan Modification.

Accordingly, the impact of the proposal on the scenic qualities of the Harbour and its foreshores must be seen in the balanced context of the approvals already granted, and the site's CBD location.

Division 2 – Matters for Consideration for development - Clause 26 – Maintenance, protection and enhancement of views

The matters to be taken into consideration in relation to the maintenance, protection of views include:

- development should maintain and protect views (including night views) to and from Sydney Harbour;
- development should minimise any adverse impacts on views and vistas to and from public places, landmarks and heritage items; and

- the cumulative impact of development on views should be minimised.

Each of these matters has been considered and are addressed in this report.

Clause 59 – Development in vicinity of heritage items

Clause 59 requires the consent authority to assess the impact of development on the setting of heritage items including the impact on any significant view to or from the item.

Having regard to the context of existing planning controls and requirements, a fundamental approach in relation to the project has been to protect, retain and enhance significant public domain views and view corridors.

2.3 Established Barangaroo Views and Planning Principles

2.3.1 Initial Principles

In 2005, the City of Sydney Council engaged Hill Thalys Architecture + Urban Projects Pty Ltd to undertake a contextual analysis of the then East Darling Harbour (now Barangaroo) site, and to work with the Council to develop principles to guide its future redevelopment.

The Darling Harbour Wharves Site Study prepared by Hill Thalys Architecture + Urban Projects Pty Ltd on behalf of the Council identified significant local views to, within and across the Barangaroo site.

This analysis was undertaken independently of the involvement of Hill Thalys Architecture in the then East Darling Harbour Competition process. The analysis culminated in the derivation of a set of planning principles for redevelopment of the site, which were endorsed by the Council on 27 July 2005.

Copies of the Hill Thalys Architecture + Urban Projects contextual analysis relating to views, and the Council-endorsed Site Potential and Principles diagram are reproduced at **Figures 6** and **7** below.

Of key importance to the consideration of appropriate planning and urban design principles for the site, the Study identifies that the important views are those local views available from the public domain spaces around the Barangaroo site, including from areas within Millers Point, Towns Place, Dalgety Road, Hickson Road, High Street, Munn Street, Argyle Street, Bettington Street and Napoleon Street.

The Study articulated the following planning principles relating to views and view sharing as being appropriate to guide the future redevelopment opportunities for the overall Barangaroo site, which are also applicable to Barangaroo South:

- retain significant views across the site to the waterfront;
- allow for public views across the Harbour from Millers Point (the northernmost part of the site) and Observatory Hill;
- consider the high visibility of the site from public places including the waterway, harbour edge parks, Sydney Harbour Bridge and Anzac Bridge;
- protect local views to the site and adjoining waterway from public domain areas in Millers Point and the western side of the city;
- place highest importance on axial views along streets to the waterfront; and

- allow views from the site and adjoining waterway to include natural features such as High Street / Hickson Road cliff faces and retaining walls.

The original Concept Plan prepared by Hill Thalys Architecture + Urban Projects Pty Ltd (in conjunction with others) fundamentally reflected this analysis and delivered an urban form outcome for the wider Barangaroo site that translated the above planning principles into a specific urban design outcome.

The recognition of significant views is illustrated on the site characteristics diagram prepared by the Hill Thalys Architecture + Urban Projects, Paul Berkemeier Architect and Jane Irwin Landscape Architecture winning team (IBT) reproduced at **Figure 8** below and is dealt with in further detail in the following sections of this report.



Figure 6 – Contextual View Analysis

Source: Darling Harbour Wharves Site Study

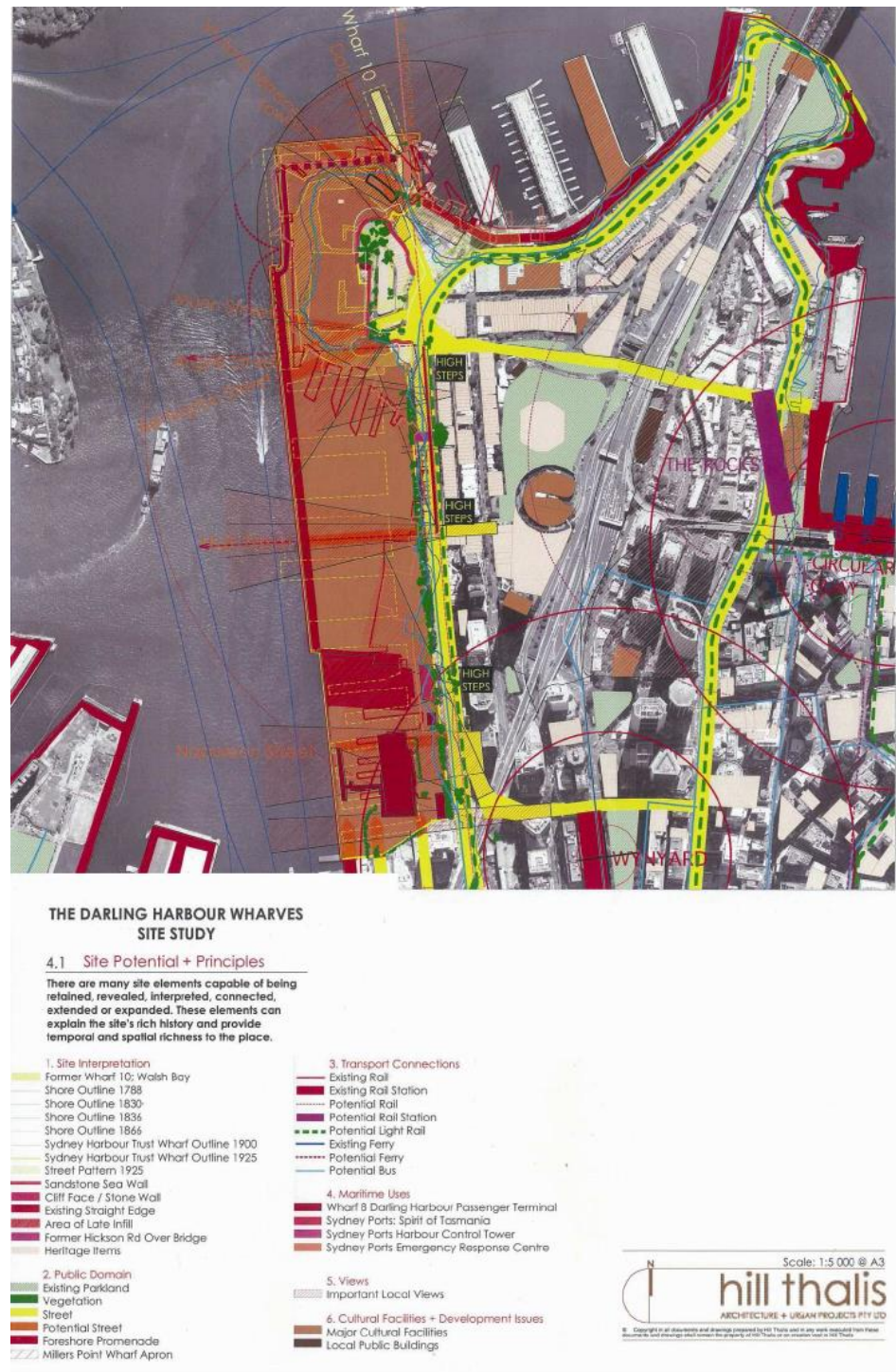


Figure 7 – Site and Principles Diagram

Source: Darling Harbour Wharves Site Study

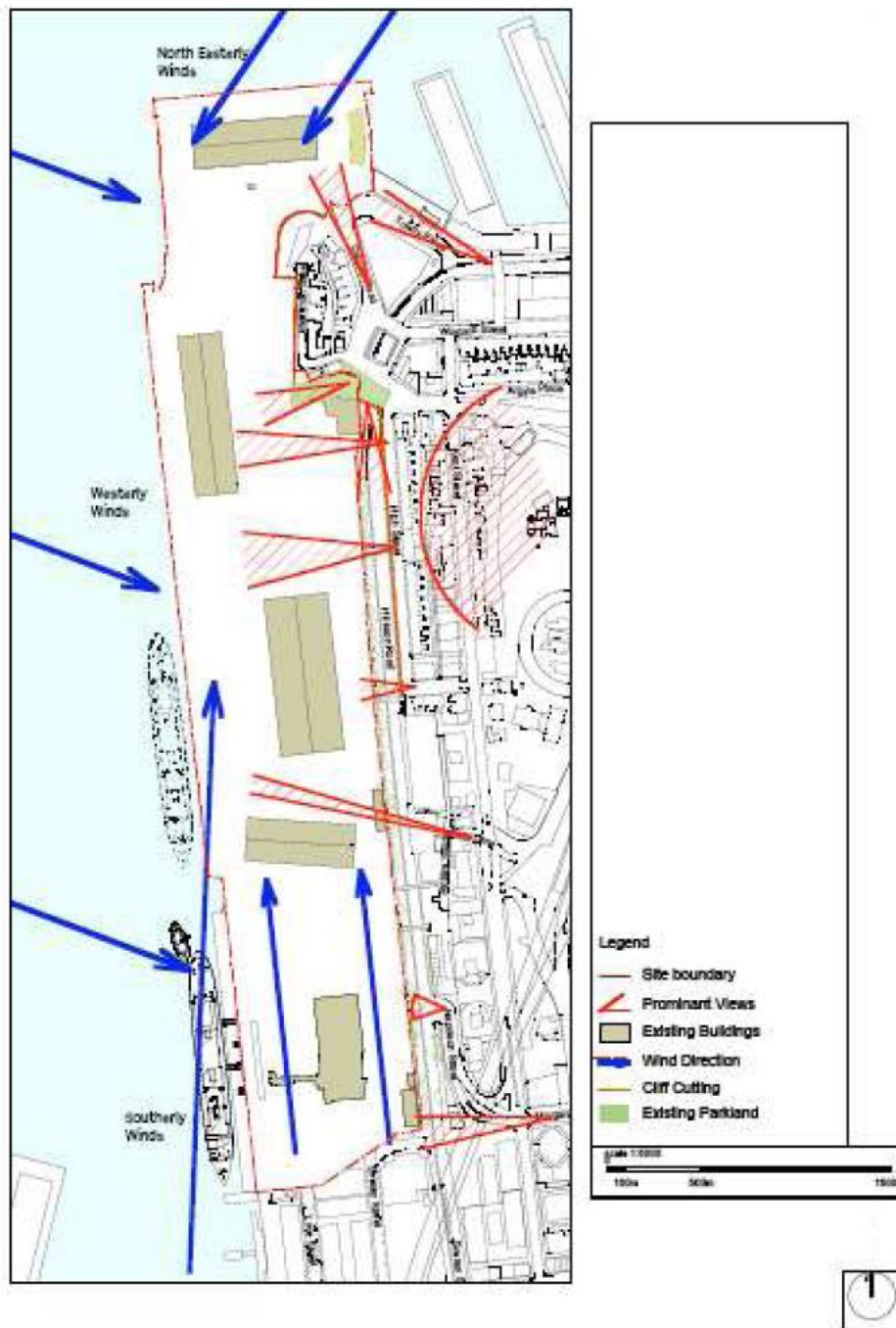


Figure 8 – Site Characteristics Diagram

Source: IBT

2.3.2 Consideration of Public Views in Concept Plan Modifications 4 and 6

The Barangaroo Concept Plan has been modified on seven separate occasions.

A summary of each of the modifications is provided in **Table 1** below.

Table 1 – Summary of Concept Plan Modifications

Modification	Status	Scope
Modification No. 1	Approved 25/09/2007	Correction of minor typographical errors in the concept plan Instrument of Approval and modification to design excellence requirements.
Modification No. 2	Approved 16/02/2009	Modification to seek an additional 120,000m ² of commercial floor space on the site distributed across Blocks 2, 3, 4 and 5.
Modification No. 3	Approved 11/11/2009	Amended design for the Barangaroo Point and Northern Cove, removal of Block 8 and part Block 7, reduction of floor space by 18,800m ² and removal of the Sydney Ports Harbour Control tower.
Modification No. 4	Approved 16/12/2010	Modification to allow for a mixed use development involving a maximum of 563,965m ² of GFA contained within 7 blocks on a total site area of 22 hectares, an increase in height of a number of the proposed towers within Barangaroo South, the establishment of the new pier and landmark building extending into the Harbour; and reconfiguration and activation of the public waterfront area through the introduction of uses including retail and residential to the west of Globe Street.
Modification No. 5	Withdrawn	Modification to clarify wording within the Concept Plan relating to the distribution of total gross floor area (GFA) within the Barangaroo site and to correct a number of minor typographical errors in the approval.
Modification No. 6	Approved 25/03/2014	Modification to realign several block boundaries, revise the approved urban design controls, modify several conditions relating to community floor space, and car and bicycle parking.
Modification No. 7	Approved 11/04/2014	Approval for the use of a temporary concrete batching plant across Barangaroo South.

To date Modifications 4 and 6 are the approved modifications that have required an analysis of the impact of the proposal on views and visual impacts. Modification 7 (the current Approved Concept Plan) did not alter the assessment of visual and view impacts as compared to Mod 7. Mod 7 is therefore the current approved benchmark for analysis.

The following is a synopsis of the relevant key issues and conclusions drawn from that planning process as set out in the Director General's Environmental Assessment Report for the Modification 4 proposal:

- As a first principle, and underpinning planning for the site as far back as the original design competition for Barangaroo, the public domain and street network should connect well with the City grid, open up views along streets to the Harbour and allow public access to and through the site;
- It is then relevant to consider the proposed building bulk as viewed from public places. This should also be considered in the wider context of the Barangaroo site, with the benefits to be gained from new large open space areas, foreshore access, a sloping Barangaroo Point and views generally to and from the northern part of the site, adjoining Millers Point Conservation Area;
- From further distances, it is considered the additional height is more apparent than the bulk of the buildings, due to the distance...In this regard it is important to note that Barangaroo is a CBD location and that tall buildings are an accepted feature of CBD locations;
- Generally, from more distant views to the west and north, the proposal is perceived as part of the city skyline behind the development, although the proposed increases in height are noticeable. The proposed higher and larger buildings have the effect of reading the site more as part of the CBD behind it;
- From closer views, along the foreshore promenade and Darling Harbour....Barangaroo South will appear dense, like areas of the CBD and significantly higher than buildings and the setting of Darling Harbour and King Street Wharf to the south, when viewed from those southern closer vantage points;
- The approved (and modified) Concept Plan establishes view sharing principles from private residences with a western outlook (Highgate, Georgia, Stamford Marqu and Stamford on Kent) and in particular through the proposed location of tall slimline towers around the Southern Cove, allowing views through to the Harbour and beyond;
- The proposal will result in some loss of view and outlook from commercial properties adjoining the Barangaroo site, particularly to the south from the KPMG building, Macquarie Bank building and the Aon building; and
- Private views cannot be guaranteed and protected, but need to be considered in determining the public benefits of the proposal. In this regard, view corridors and vistas along significant streets and pedestrian connections have been protected.

2.4 Urban Design Principles

The urban design philosophy underpinning Concept Plan Mod 8 is consistent with that articulated by the approved Concept Plan (as modified). Overall Concept Plan Mod 8 seeks to:

- place-make and create a sense of place;
- establish communities;
- promote and emphasise connections to the water;
- implement sustainable design; and
- create a dynamic and vibrant waterfront precinct.

The design philosophy is supported by:

- completing the City frame to book-end the City's western edge;

- creating the 'fan' – a radial arrangement of buildings that optimises solar access and emphasises view corridors;
- creating gateways, markers and place-making by establishing gateway buildings and spaces at strategic locations throughout the CBD and its edges;
- extending the City's natural north-west oriented grid into the site to reinforce already established east-west linkages; and
- connecting and extending the existing CBD into the Barangaroo South site with landmark buildings and markers along the foreshore through a series of street characters, widths, and proportions.

Outlook from the private domain (e.g. from surrounding residential and commercial development) has been taken into consideration in the formulation of the public domain framework and built form controls for the future development blocks within the site. Consideration of maximising opportunities for view sharing from adjoining development will continue to be an influence as the detailed design phase of the project progresses.

Notwithstanding the above, the planning outcomes that should take primary importance beyond the protection of local private domain views include:

- the creation of a public domain that is of significant amenity;
- the creation of a commercial precinct that integrates positively with the existing CBD; and
- the establishment of a vibrant new mixed use precinct with a critical mass that is capable of providing significant economic impetus to Sydney as Australia's trade gateway.

The CBD is characterised by a series of grids, high-rise towers along its spines and focused towards its core, and lower-rise development towards the edges with various landmark buildings and towers, often at the fringe. Barangaroo South offers an opportunity to complete and reinforce the grid and the City frame at its western edge as well as provide new locational markers.

Proposed Concept Plan Modification 8 continues the fan arrangement in Modification 6 including the new hotel, cultural building and public spaces such as the Northern Park and Southern Cove. The fan arrangement continues the principles established in Modification 6 and provides a funnel of space which opens up viewing corridors, and expands as it draws out towards the water.

The proposed fanning of the built form allows for optimal solar access and light penetration into public spaces, increased opportunity for more slender tower and built forms, and the development to open out towards the foreshore and the water. These openings will form the extension of existing east-west linkages towards the southern end of the site. From a view impact perspective, the urban design philosophy provides not only reinforcement of existing view corridors along the extended grid, but new wider more generous views at and from existing and new vantage points.

The consolidation of the residential towers to be located towards the commercial towers results in the replacement of the singular view corridor between the residential towers in Modification 6 with broader oblique views across Barangaroo Centre towards the water.

The changes proposed by Concept Plan Mod 8 build on existing view corridors and connections from east to west, and new (or changed) south to north connections and views. The development blocks significantly retain the established and recognised views and vistas to, through and over the site. The principle of slender towers and buildings adjacent to public streets in order to frame their view

corridors is therefore upheld and reinforced. The original design principles of equitable access to views towards the Harbour, built forms to define street corridors, and view corridors from existing private buildings to the east are all maintained and reinforced. This is discussed in the context of the DGRs in Section 5.

3.0 Visual Analysis – Public Domain Views

The location of the photomontage images for each of the identified key ground level public domain views, view corridors and vantage points are shown in **Figures 3 and 4** are:

- Hickson Road;
- Kent Street;
- Shelley Street;
- Lime Street;
- High Street;
- Gas Lane;
- Millers Point (Observatory Hill);
- Clyne Reserve;
- Munn Reserve;
- Sydney Harbour Bridge;
- Darling Harbour (Pyrmont Bridge);
- Ballaraat Park;
- Pyrmont Park Pier (Jones Bay Wharf);
- Balmain East;
- Darling Harbour;
- Blues Point;
- Opera House Western Forecourt;
- Cremorne Point;
- Gladesville Bridge;
- Watsons Bay;
- Sydney Observatory.

The following section provides a visual analysis in relation to each of these key vantage points in relation to the development proposed as part of the concept proposal. A full set of photomontages have been prepared by Virtual Ideas and are provided at **Appendix A** of this report.

The photomontage images show the current / existing view, the alignment of the 3D model, the massing and indicative design of the current approved development (i.e the benchmark as established by Concept Plan Mod 7) and also the massing and indicative design of the proposed Concept Plan Mod 8 development).

It should be noted that the indicative designs shown for both the Mod 7 and proposed Mod 8 developments are illustrations of possible design outcomes. They are provided for technical assessment purposes only and do not form part of Concept Plan Mod 8 development for which approval is sought.

3.1.1 Visual impact assessment matrix

The following table summarises the distance of view, extent of view, number of viewers and period of view to assist determine potential visual impact ie high, medium or low. All views selected are public domain locations. It is noted that potential visual impact arising from change to an existing view may be both positive and negative. With the redevelopment of a vacant urban renewal site a high degree of change to view is inevitable. The construction of high quality new buildings to create a new waterfront CBD precinct can make a positive contribution to the city edge and sky line.

Table 2 – Visual impact matrix

Reference	Public domain view	Distance	Extent of view	Number of viewers	Period of View	Potential Visual impact
1	Hickson Road	H	H	H	M	H
2	Kent Street	M	H	H	L	M
3	Shelly Street	L	L	M-H	L	L
4	Lime Street	L	L	M-H	L	L
5	High Street	M	H	L	H	M-H
6	Gas Lane	M	H	M	L	M
7	Millers Point (Observatory Hill)	M	H	M	H	H
8	Clyne Reserve	M	M	L	H	M
9	Munn Reserve	M	M	L	H	M
10	Sydney Harbour Bridge	M	M	H	L	M
11	Darling Harbour (Pymont Bridge)	M	M	H	M	M
12	Ballaraat Park	M	M	M	H	M
13	Pymont Park Pier	M	M	M	H	M
14	Balmain East	M	M	M	H	M
15	Darling Harbour	M	M	H	H	M-H
16	Blues Point	L	M	M	H	M
17	Opera House Western Forecourt	L	M	H	M	M
18	Cremorne Point	L	M	M	H	M
19	Gladesville Bridge	L	M	H	L	L
20	Watsons Bay	L	M	H	M	L
21	Sydney Observatory	M	H	M	M	M

Key to analysis

Distance:

Within 100 m – high
 Within 500 m – medium
 Over 500 m - low

Extent of view:

Direct view – high
 Direct view within a panoramic view – medium
 An oblique or filtered view - low

Number of viewers

More than 500 daily - high
 More than 100 daily - medium
 Less than 100 daily – low

Period of view

Long term (static) - High

Short term - Medium

Fleeting – Low

Potential visual impact – high, medium or low

3.1.2 Hickson Road

The photomontage image of the approved and proposed modified development from Hickson Road is taken at **Vantage Point 1** at a camera RL of 17.5 metres using a 24 mm lens. This is the view seen by a pedestrian standing on the overhead bridge.

Existing views along Hickson Road are presently framed to the east by the sandstone cutting at and along the High Street alignment and a generally continuous wall or urban form along Kent Street or lower-rise developments along the eastern edge of Hickson Road. The western edge is an open view only in part obstructed by various permanent and temporary structures and plantings. The existing trees along the western edge of Hickson Road block most views towards the water for pedestrians and motorists alike.

Currently, Hickson Road is not a major pedestrian thoroughfare. Public domain views across the Barangaroo site for pedestrians are therefore limited. Views across the site for drivers are equally limited in duration and extent.

Concept Plan Mod 8 maintains a framed edge to Hickson Road particularly at the southern end of Barangaroo South.

As is demonstrated by the comparison of the approved and proposed modified view from Vantage Point 1, proposed Modification 8 will have the effect of opening up views across the Barangaroo site from the pedestrian bridge over Hickson Road. With the concentration of taller, slimmer tower forms at the northern end of Barangaroo South, whilst the buildings are taller than those currently approved, there will be more space between built form elements providing sightlines through to the south. Views through the site will continue to be provided via the circulation network including the Margaret Street West extension, City Walk, and Globe Street and across Globe Harbour.

In general, while the proposal will marginally alter the direction of the at-grade views along Hickson Road, view corridors will be maintained to the west and north-west towards the harbour and to Pyrmont and Balmain East beyond.

The hotel development proposed at the northern end of Barangaroo South will alter the at-grade views from this part of Hickson Road, and will terminate the view from Hickson Road, through Hickson Park towards the harbour. To compensate for this through site view loss, a new adjacent view corridor has been created as a result of the separation between the northern end of Barangaroo South and the southern end of Barangaroo Central, providing views from Hickson Road west and north-west towards the public open space of Barangaroo Central and the harbour beyond.

All views along Hickson Road through to the southern CBD and the Darling Park development, which terminates this view, will be retained.

It is considered that the visual impact of the proposed modified development when viewed from Hickson Road is generally the same as that of the currently approved development. Whilst the built form elements are taller, and the proposed hotel building is a more dominant element in the foreground of the view due to its relocation within the site, a similar overall impact arises with the creation of a new, dense western edge to the CBD.

3.1.3 Kent Street

The photomontage image of the approved and proposed modified development from Kent Street (corner of Margaret Street) is taken at **Vantage Point 2** at a camera RL of 17.9 metres using a 20 mm lens.

There are currently only limited views to or over the Barangaroo site from Kent Street given the existing form of development along its western edge, and the limited openings created by streets intersecting it at a perpendicular angle. The most significant views to or through Barangaroo South occur at Margaret Street and Gas Lane. This section addresses the Margaret Street view while Gas Lane is addressed at **Section 3.1.5**.

The existing view westwards at the intersection of Kent Street and Margaret Street is one dominated by the Western Distributor viaduct which sits high within the view corridor. The experience of a sky view is cluttered and partially framed only by development both beneath and surrounding the viaduct. There are no major existing views of any significance to water or nearby foreshores from this location. There are some wider views to the ridgelines of Pyrmont and Balmain.

The approved (and under construction) Commercial Buildings C3, C4 and C5 sit within the view corridor and act to terminate the present view westwards from Kent Street. The proposed revised building envelope of the R4 residential tower and the proposed hotel development, both at the northern end of Barangaroo South, can now be seen on the far right-hand side of the view corridor. However, given the trees in the foreground and surrounding existing development which already partially blocks views westwards, the addition of the built form is considered to have minimal impact on the view corridor.

Views of the development from the view corridor will be tempered, and views of the sky through and between the potential buildings will vary depending upon location along Kent Street due to the fanned building footprint.

This view impact is considered acceptable in this context as the development principles for the entire Barangaroo site envisage the highest and densest development at and in front of Napoleon Street (which commences under the viaduct). Further, the existing views from this location are not considered significant. The framed sky views in this location are typical of the majority of views found in the CBD in a similar context.

It is considered that the visual impact of the proposed modified development when viewed from Kent Street is generally the same as that of the currently approved development when viewed from Kent Street.

3.1.4 Shelley Street and Lime Street

The photomontage image of the approved and proposed modified development from Shelly Street (from King Street bridge) is taken at **Vantage Point 3** at a camera RL of 11.8 metres using a 20 mm lens. The Lime Street view is taken at **Vantage Point 4** at a camera RL of 6.7 metres using a 22mm lens.

Shelley and Lime Streets are both located within the King Street Wharf precinct and principally run parallel in a north-south direction. At present these streets both allow for framed or open views to the north across the Barangaroo site.

The Shelley Street view corridor is framed and generally aligned to a direct view to the Sydney Ports Harbour Control tower. Views along Shelley Street will be terminated by the approved (and under construction) C5 commercial tower. However, the termination of this view is largely compensated by the creation of a new east-west view that generally aligns with Margaret Street and which leads directly to the foreshore, completing the King Street Wharf grid within Barangaroo South.

It is considered that the visual impact of the proposed modified development is generally the same as the currently approved development when viewed from Shelley Street.

The proposed hotel development at the northern end of Barangaroo South will be just visible on the left-hand side of the view corridor. However, the majority of the proposed hotel development sits behind the C5 tower, resulting in no significant change to this view corridor.

The proposed hotel development will be visible within the Lime Street view corridor as seen from Lime Street looking northwards, terminating views northwards to Barangaroo Central and the Barangaroo Point. The view will comprise an iconic building, representative of a design excellence process that has delivered world class benchmarks in urban design, public domain and sustainability, in accordance with the goals of the Barangaroo redevelopment.

The change in the view corridor along Lime Street between the proposed modified development and the currently approved development is considered to have a positive visual impact in so far as providing a view to a new significant building in the streetscape.

3.1.5 High Street

The photomontage image of the approved and proposed modified development from High Street is taken at **Vantage Point 5** at a camera RL of 16.0 metres using a 25 mm lens.

Views along High Street are presently framed only to the east by low-rise residential development. The western edge is an open view across the Barangaroo site towards the south and west, only in part obstructed by fencing and plantings. The waterway adjacent to the Barangaroo site is visible.

As with the approved Concept Plan Modification 6 development, the proposed Modification 8 development will change the view from High Street. The proposed massing of future residential development towards the northern end of Barangaroo South will result in a similar visual impact, notwithstanding that the buildings are slightly taller and closer together when viewed from this vantage point. The proposed hotel building will be highly visible in the foreground, but well separated in terms of massing from the remainder of the development providing a key view corridor through and across the site. The impact on water views, whilst slightly increased, is substantially similar to that of the approved Modification 6 development.

Views across and through the site will be provided as a result of the articulation of the hotel's built form above the podium level, which will also allow for sky views, and view corridors will be maintained to the west and north-west towards the harbour and to Pyrmont and Balmain East beyond.

3.1.6 Gas Lane

The photomontage image of the approved and proposed modified development from Gas Lane is taken at **Vantage Point 6** at a camera RL of 21.7 metres using a 17mm lens.

Gas Lane is a local street that runs in a north-westerly direction from Kent Street and which terminates at its lower level T-junction with Jenkins Street. The views enjoyed at Gas Lane change dependent upon the viewer's location. At its high point at the junction with Kent Street, existing views are framed by buildings and are generally across the harbour's waters towards White Bay, Jones Bay Wharf at Pyrmont, and distant views through to Rozelle. There is also a high degree of sky view. There is no view to the Barangaroo site's foreshore.

Views at the lane's termination are reduced as the lane descends. At Jenkins Street, as a result of existing development enveloping the viewer, a sky view is largely what remains. There are no existing available vistas through development through to the foreshore or the water.

The approved Concept Plan Modification 6 development establishes an envelope that terminated the Gas Lane view corridor. Similarly, the proposed Modification 8 envelope will terminate the view corridor. There is no additional loss of water or distance views arising as a consequence of the proposed modification.

The proposed hotel development can now be seen central to the view corridor and will terminate views along the length of Gas Lane with an iconic built form element. However, the distant view through to Rozelle will be maintained to the right-hand side of the view corridor, and additional sky views will be provided between the residential tower and the hotel development as a result of the articulation of the built form of both buildings, but in particular the distinction between the podium and tower of the hotel development.

It is considered that the visual impact of the proposed modified development is generally the same as that of the currently approved development when viewed from Gas Lane, with the benefit that the view corridor will now be terminated by a significant new built form element.

3.1.7 Millers Point (Observatory Hill)

The photomontage image of the approved and proposed modified development from Millers Point (Observatory Hill) is taken at **Vantage Point 7** at a camera RL of 43.2 metres using a 40mm lens.

At present, the best views and vistas enjoyed at Millers Point are those from Observatory Hill Park. The park's size and height allows for panoramic views to the south-west, from Pyrmont and White Bay around to East Balmain, Goat Island, and to the northern shores of Sydney Harbour. Much of this view includes water views, particularly from White Bay and to the north. There are only extremely minor glimpses to water in the vicinity of Pyrmont, where these views are dominated by that peninsula's new built form.

Significant water views, and views from White Bay around to the north, will not be altered by the approved or proposed modified development alike.

Rather the impact will be on views south-west towards Pyrmont and beyond. The building envelopes of the residential towers are proposed to be revised and the proposed hotel development will be a significant built form element in the foreground of views looking back across the Barangaroo site to the south west. The residential tower elements are taller, but also slimmer when viewed from this location.

As is illustrated by the indicative building forms, the placement of buildings seeks to achieve sky views between the buildings to break up the massing of development when viewed from this location.

The view corridor from Observatory Hill to the south-west will now comprise an iconic building, representative of world class benchmarks in urban design, public domain and sustainability, in accordance with the goals of the Barangaroo redevelopment. It is considered that the proposed hotel development within this view corridor will become a landmark, providing a marker to the southern end of the Barangaroo site, and distinguishing Barangaroo South from Barangaroo Central and the Barangaroo Point, views to which will not be altered by the proposal.

3.1.8 Sydney Observatory

The photomontage image of the approved and proposed modified development from Sydney Observatory is taken at **Vantage Point 21** at a camera RL of 43.43 metres using a 40mm lens.

The view quality from Sydney Observatory is similar to those described above for Observatory Hill. The significant mature fig trees surrounding the Sydney Observatory do restrict views available from this location, including south-west views towards the site. Views are however available under the canopy, as illustrated within the photomontage image prepared.

As with Vantage Point 7, the impact associated with the modified concept plan will be on views available to Pyrmont and beyond. In this regard, a greater extent of distant sky views and views towards buildings at Pyrmont will be reduced with the introduction of the hotel development at the southern end of the site.

The essence of the view will not materially change between the approved concept plan (as modified) and the proposed concept plan modification. The relationship between the Sydney Observatory and the historic Millers Point housing in the foreground of the view will remain. As illustrated within the indicative building massing forms, the residential towers are taller but they are also slimmer and support breaks/gaps between buildings enabling view corridors through to Pyrmont to be retained.

3.1.9 Clyde Reserve

The photomontage image of the approved and proposed modified development from Clyde Reserve is taken at **Vantage Point 8** at a camera RL of 20.78 metres using a 25mm lens.

Views south from Clyde Reserve are presently sky views only, framed on the east by low-rise residential development and on the west by chain-link fencing. Plantings of various sizes can be seen on both sides. However, views are dominated by the communications tower located on the western side of Merriman Street.

A comparison of the approved development with the proposed modified development shows that the proposed hotel development will be visible from Clyde Reserve along with the future residential towers. All built forms are taller in the proposed scheme making them more visible from Clyde Reserve when compared to the approved scheme, however they also establish a better stepping in height between the communications tower and Barangaroo development. While some sky view is lost, the articulation of the proposed built form ensures sky views are provided between the buildings.

Given the scale and dominance of the exiting communications tower in views to the south, the proposed hotel development, which can now be seen from Clyde Reserve, does not appear out of scale.

3.1.10 Munn Reserve

The photomontage image of the approved and proposed modified development from Munn Reserve is taken at **Vantage Point 9** at a camera RL of 18.12 metres using a 25 mm lens.

Views south from Munn Reserve are presently of development to the south including the western edge of the CBD, and Darling Harbour and Pyrmont. Sky views are also provided. Views are framed on the east by a generally continuous wall of urban form along Kent Street and lower-rise residential development along the eastern edge of High Street. On the west views are framed in the foreground by the heritage-listed Dalgety Bond Store, which has been converted into commercial offices. Views from Munn Reserve are in part obstructed by fencing and plantings.

A comparison of the approved development with the proposed modified development shows that the proposed hotel development is now more dominant in the foreground view from Munn Reserve. The residential buildings are also taller in the proposed scheme making them more dominant in views from Munn Reserve when compared to the approved scheme. While some sky view is lost as a result of the relocation of the hotel, the articulation of the proposed built form ensures sky views are provided between the buildings.

Given views to the south-west are already dominated by the Dalgety Bond Store and that the landmark building was visible in the approved scheme, the impact of the hotel's new location as a result of the proposed scheme will primarily be to sky views only.

It is considered that the visual impact of the proposed modified development when viewed from Munn Reserve is generally consistent with that of the currently approved development.

3.1.11 Sydney Harbour Bridge

The photomontage image of the approved and proposed modified development from the Sydney Harbour Bridge is taken at **Vantage Point 10** at a camera RL of 47.63 metres using a 25mm lens.

Views south from the Sydney Harbour Bridge typically take in the existing Kent Street commercial and residential buildings, Observatory Hill, and panoramic sky and water views from Pyrmont and White Bay to East Balmain, Goat Island, and the northern shores of Sydney Harbour.

The approved Concept Plan (as modified) includes built form south of the existing Kent Street commercial and residential buildings. Concept Plan Mod 8 proposes to revise the layout of the built form and relocate the proposed hotel development onto the site. As a result, views south from the Sydney Harbour Bridge now include the proposed hotel development, where previously it was hidden behind the tower buildings. Given their similar aesthetic, in context, the tower buildings of Barangaroo South will read as a continuation of the Kent Street commercial and residential buildings. While the proposed hotel development bookends this group of buildings, which increase in height from Kent Street in the east to Barangaroo South in the west, to a maximum height set by the proposed hotel development.

Concept Plan Mod 8, including the relocated hotel development, continues to retain views to and of Observatory Hill, consistent with the approved Concept Plan (as modified); and will not impact on the panoramic sky and water views to the south and south west.

It is considered that the visual impact of the proposed modified development, although more built form is visible, is generally consistent with that of the currently approved development when viewed from the Sydney Harbour Bridge.

3.1.12 Darling Harbour and Pyrmont Bridge

The photomontage image of the approved and proposed modified development from Pyrmont Bridge is taken at **Vantage Point 11** at a camera RL of 13.6 metres using a 22mm lens. The photomontage image of the approved and proposed modified development from Darling Harbour is taken at **Vantage Point 15** at a camera RL of 1.93m using a 22mm lens.

Views from Darling Harbour and Pyrmont Bridge can vary greatly depending on the viewer's location. As an example, northerly and north-eastern views from Pyrmont Bridge are presently framed and dominated by developments in the CBD and cultural buildings at Pyrmont's foreshore. The CBD generally steps to the foreshore with its topography when viewed from certain locations. In part the view highlights a wall-like form to the CBD and amplifies underdeveloped reclaimed land as a key opportunity. Views may in part also be enjoyed through to the northern shore of Sydney Harbour and its silhouette and markers, such as North Sydney and Royal North Shore Hospital.

The proposed development of Barangaroo South will transform the present void into a silhouette that articulates a high level of activity and interest. The presentation of the envelopes and potential built form from the south-west is one where the landmark hotel building serves as a marker. The relocation of the proposed hotel development back onto the site, as part of the Concept Plan Mod 8 proposal, opens up views to the north, which were previously obstructed by the hotel's location on the harbour. As a result, views to the north shore will remain, while the articulation of the built form above the hotels' podium level, will allow for sky views between the buildings.

The separation of the Barangaroo South site from the CBD is highlighted in views from Darling Harbour and Pyrmont Bridge as a result of the Hickson Road and Western Distributor alignments and widths. The proposed development, the subject of Concept Plan Mod 8, does not alter the ability to discern the existing CBD from the Barangaroo South site.

While there is a long-standing principle of development heights emphasising the change in topography, it should be remembered that the former East Darling Harbour is also reclaimed land that has been transformed on numerous occasions. The proposed scheme, in accordance with the Concept Plan, acts to further transform the site and provide for a new drama to the silhouette of the CBD's skyline and emphasise the new level and range of activities at the completion of the CBD grid.

It is considered that the visual impact of the proposed modified development is generally consistent with that of the currently approved development when viewed from Darling Harbour and Pyrmont Bridge.

3.1.13 Ballaraat Park, Pyrmont Park Pier (Jones Bay Wharf) and Balmain East

The photomontage image of the approved and proposed modified development from Ballaraat Park is taken at **Vantage Point 12** at a camera RL of 3.9 metres using a 17mm lens. The photomontage image of the approved and proposed modified development from Pyrmont Park Pier (Jones Bay Wharf) is taken at **Vantage Point 13** at a camera RL of 4.2 m using a 14mm lens. The photomontage image of the approved and proposed modified development from Balmain East is taken at **Vantage Point 14** at a camera RL of 11.6 m using a 17m lens.

When viewed from Ballaraat Park, Pyrmont Park Pier and Balmain East, the existing Barangaroo site presently sits as a partially vacant construction site on the foreshore of the western CBD. The Kent Street tower buildings are a significant wall to the north-western edge of the CBD with few discernable gaps. Some views of Observatory Hill Park and the terraces at Millers Point are available.

The approved Barangaroo South development will significantly change this existing view, creating an entirely new western edge to the CBD on the waters edge. The Concept Plan Modification 8 proposal will bring the existing hotel building into the site and will change the massing of the development by establishing a much taller building form at the northern end of Barangaroo South. The future residential buildings will also be taller and more slender providing a gradation in height from the approved commercial towers in the south to the future hotel building.

Notwithstanding, the proposed modified development will continue to create a new western edge to the CBD comprising substantial new buildings presenting to the water. The arrangement and composition of the massing of the proposed development continues to provide for view corridors through the site to the remainder of the CBD.

Specifically, the fanning of the built form across Barangaroo South creates visual access through the site, and provides relief from a potential wall-like appearance of development. The proposed hotel development bookends the group of buildings, which now increases in height from south to north.

The Concept Plan Mod 8 proposal provides a preferred urban design outcome where separation between buildings is increased, the built forms are more slender and the mass further articulated, and the proposed hotel development defines the extent of the tower buildings at Barangaroo South, while simultaneously standing alone as an icon of modern architecture. Overall, the proposal will redefine the western face of the CBD as viewed from Ballaraat Park, Pyrmont Park Pier and Balmain East, and present a new silhouette which signifies a new activity hub.

3.1.14 Blues Point

The photomontage image of the approved and proposed modified development from Blues Point is taken at **Vantage Point 16** at a camera RL of 14.5 metres using a 21mm lens.

The views presently enjoyed from Blues Point towards the site are generally the reciprocal of those from Darling Harbour, albeit the significant views of Walsh Bay and Observatory Hill are available, where they are presently only partially discernable or blocked from the south and south-west by existing development.

The effect of the new built form of Barangaroo South from Blues Point is solely to complete the east-west silhouette of the CBD. The proposal will not impact upon any views to (or the quality of those views) Millers Point, Walsh Bay or

Observatory Hill. At present these landmarks and locations are already nestled into the form and fabric of the existing CBD silhouette. The proposal will act to complete the CBD's form, which is presently sharply punctuated by the row of towers along the northern end of Kent Street.

In comparison to the approved scheme, the proposed scheme groups the buildings, which signifies the extent of high-rise development to the west, and is particularly evident by the relocated hotel, which is the tallest and now most westerly building.

It is considered that the visual impact of the proposed modified development, although presenting taller massing, is generally consistent with that of the currently approved development.

3.1.15 Opera House Western Forecourt

The photomontage image of the approved and proposed modified development from the Opera House Western Forecourt is taken at **Vantage Point 17** at a camera RL of 4.68 metres using a 25mm lens.

Under the approved Concept Plan (as modified), development at Barangaroo South would generally be located behind existing northern and western CBD buildings. Circular Quay buildings such as the AMP building, Goldfields House and Grosvenor Place dominate views to the south and west. The low scale Rocks area and Harbour Bridge approach provide expansive sky views. The proposal for Barangaroo South will not significantly affect this view.

A comparison with the approved Concept Plan (as modified) illustrates that the proposed development block envelopes will extend further north. However, the extension is marginal and when the scheme is viewed from the Opera House western forecourt the new buildings read as a continuation of the existing CBD's western edge. Furthermore, the now taller buildings more closely reflect the height of the existing CBD buildings, and in particular the proposed hotel development bookends the buildings at the western end in much the same way as the AMP building does at the eastern end.

The proposed hotel development represents the northern extent of high-rise development at Barangaroo South, which protects the heritage listed Rocks and ensures the proposed development does not detract from the Sydney Harbour Bridge's southern approach. Overall, the proposal has minimal visual impact from the Opera House western forecourt.

It is considered that the visual impact of the proposed modified development when viewed from the Opera House Forecourt is generally consistent with that of the approved development.

3.1.16 Cremorne Point

The photomontage image of the approved and proposed modified development from Cremorne Point is taken at **Vantage Point 18** at a camera RL of 6.5 metres using a 40mm lens.

The views presently enjoyed from Cremorne Point towards the site are generally panoramic, encompassing the Sydney CBD (from east to west), Sydney Tower, the Opera House, and further west, the Sydney Harbour Bridge and North Shore.

The effect of the new built form of Barangaroo South from Cremorne Point is solely to complete the east-west silhouette of the CBD. The proposal will not impact upon any views to (or the quality of those views) the Opera House and Sydney Harbour Bridge, which sit in the foreground of these views. Albeit, views of Sydney Harbour Bridge are in part obscured by residential development of the North Shore. Rather, the proposal will act to complete the CBD's form, which is presently sharply punctuated by the row of towers along the northern end of Kent Street.

In comparison to the approved scheme, the buildings of the proposed scheme are taller and more slender, which reflects the built form of the adjacent CBD. The relocated hotel, which is the tallest and now most westerly building, signifies the extent of high-rise development to the west. The proposed scheme, in accordance with the Concept Plan, has no impact on views from this location, which take in Sydney's iconic landmarks.

It is considered that the visual impact of the proposed modified development when viewed from Cremorne Point is generally consistent with that of the approved development.

3.1.17 Gladesville Bridge

The photomontage image of the approved and proposed modified development from Gladesville Bridge is taken at **Vantage Point 19** at a camera RL of 41.57 metres using a 40mm lens.

The views presently enjoyed from Gladesville Bridge towards the site are generally panoramic, encompassing the North Shore, Sydney Harbour Bridge, the Sydney CBD (from north to south), Sydney Tower and ANZAC Bridge. In the foreground the view is dominated by local residential development of low and medium scale.

Given the distance of views from Gladesville Bridge to the site, the effect of the new built form of Barangaroo South is solely to increase the perceived density of the CBD. Importantly, the proposal will not impact upon any views to (or the quality of those views) the Sydney Harbour Bridge in the north, Sydney Tower or ANZAC Bridge in the south.

In comparison to the approved scheme, the buildings of the proposed scheme are taller and more slender, and the hotel has been relocated back on to the site. These amendments to the approved Concept Plan (as modified) have negligible impact on views from Gladesville Bridge. Rather, the relocation of the hotel further north, and its increased height, as well as the articulation of the built form, provide Sydney with a new landmark, one that is now visible in views from Gladesville Bridge.

It is considered that the visual impact of the proposed modified development when viewed from Gladesville Bridge is generally consistent with that of the approved development.

3.1.18 Watsons Bay

The photomontage image of the approved and proposed modified development from Watsons Bay is taken at **Vantage Point 20** at a camera RL of 1.85 metres using a 40mm lens.

The views presently enjoyed from Watsons Bay to the west are generally panoramic, framed by the southern and northern headlands. The Sydney CBD, including Sydney Tower, is located to the centre of the view, and the top of the Sydney Harbour Bridge is visible over the northern headland. In the foreground the view is dominated by the waters of Watsons Bay.

Given the distance of views from Watsons Bay to the site, the effect of the new built form of Barangaroo South is solely to increase the perceived density of the northern end of the CBD. From this view, Barangaroo South is behind the CBD, and as a result the proposal will not impact upon any views to (or the quality of those views) Sydney Tower. The existing, partial views of the Sydney Harbour Bridge, to the right of the field of view, will not be altered in any way as a result of the proposal.

In comparison to the approved scheme, the buildings of the proposed scheme are taller and more slender, and the hotel has been relocated back on to the site. These amendments to the approved Concept Plan (as modified) have negligible impact on views from Watsons Bay. Rather, the relocation of the hotel further north, and its increased height, as well as the articulation of the built form, provide Sydney with a new landmark, one that is partially discernable in views from Watsons Bay.

It is considered that the visual impact of the proposed modified development when viewed from Watsons Bay is generally consistent with that of the approved development.

4.0 Visual Analysis – Private Domain Views

The locations of the key buildings that are impacted or potentially impacted by the development in terms of private views are shown in **Figure 5**. The buildings are:

- Observatory Tower (168 Kent Street);
- Westpac Place;
- Highgate (127 Kent Street);
- Georgia at (155 Kent Street);
- Stamford Marque at (161 Kent Street); and
- Stamford on Kent at (187 Kent Street).

There is a range of other buildings on Kent Street, and within the King Street Wharf and Shelley / Lime Street precincts that will also have some impact in terms of views and outlook.

An orthogonal and oblique view analysis has been undertaken by Rogers Stirk Harbour + Partners (see **Appendix B** of this report) to determine the extent of the view impact to the four Kent Street residential buildings (as listed above) which are likely to have the greatest impact. This analysis demonstrates:

- change in views compared to the approved Concept Plan (as modified);
- retention of the views as established in the approved Concept Plan (as modified); and
- gain in views compared to the approved Concept Plan (as modified).

The oblique view analysis also demonstrates view sharing will be achieved from the majority of levels of the adjacent residential buildings rather than maximising views from the upper levels (see **Appendix B** of this report).

The following section provides a view impact analysis in relation to these key buildings in relation to the development proposed as part of the concept proposal.

Previous view studies have addressed impacts upon private views, view sharing and outlook. This has focused on the most significant and most-densely occupied buildings along Kent Street which presently enjoy largely unobstructed views. A review of anticipated impacts upon these buildings is again addressed below, with reference to the approved Concept Plan (as modified) and the Concept Plan Mod 8 proposal.

In addition to this analysis, Lend Lease has prepared an iPad app for the public exhibition process to assist demonstrate the changes in visual and view impact between the approved and proposed modified developments.

4.1 Views from Key Residential Apartment Buildings

Rogers Stirk Harbour + Partners has prepared a View Analysis Report (see **Appendix B** of this report) to specifically assess the impacts of the building envelopes proposed within Block 4 as well as the new hotel location within Block Y, on views from residential units on Kent Street.

The visual analysis consisted of the scheme being orthogonally projected onto the residential elevation of four apartment buildings on Kent Street (Highgate, Georgia, Stamford Marque and Stamford on Kent) to compare the visual impact of the approved Concept Plan as modified with the Concept Plan Mod 8 proposal. For Highgate and Stamford on Kent, more apartments are impacted across all levels; for Georgia there is no change to the number or location of apartments impacted; and for Stamford Marque there is an improvement in the number of apartments receiving views particularly at the mid and upper levels. However, this approach does not assess oblique views, and so disregards the improved view sharing outcomes achieved by Concept Plan Mod 8. As such, an oblique view analysis has also been undertaken from the residential units on Kent Street.

The oblique view analysis demonstrates that view sharing will be achieved under Concept Plan Mod 8 by having taller buildings than the approved Concept Plan (as modified) with larger spaces between them, thereby enabling more generous oblique views and view corridors. While the oblique views for Highgate, Georgia and Stamford Marque have decreased, the increased distance between these buildings and the proposed development provides a significantly improved wider field of view. For Stamford on Kent, the proposal increases the oblique views, improving the outlook for residents.

Table 3 provides a comparison of the total view angle achieved by the approved Concept Plan (as modified) and the Concept Plan Mod 8.

Table 3 – Comparison of existing and approved view angles

Level	Highgate	Georgia	Stamford Marque	Stamford on Kent
Lower Levels – Level 15 (RL 59.699)				
Total View Angle under approved Concept Plan (as modified)	93°	88°	87°	62°
Total View Angle under Concept Plan Mod 8	91°	85°	79°	67°
Upper Levels – Level 25 (RL90.187)				
Total View Angle under approved Concept Plan (as modified)	93°	88°	86°	66°
Total View Angle under Concept Plan Mod 8	91°	85°	79°	67°

While the Concept Plan Mod 8 reduces the oblique views (for all buildings except Stamford on Kent), the original Concept Plan established a benchmark viewing angle that was considered to offer a reasonable level of uninterrupted views with no loss of amenity, in particular consideration of the most impacted building, the Stamford Marque. The angle was 54° and as demonstrated in **Table 3** all buildings have view angles greater than the benchmark viewing angle.

The distance consolidation of the future residential towers results in the replacement of the singular view corridor between the residential towers in the approved development with broader oblique views across Barangaroo Central towards the water. The distance between the proposed tower forms to Highgate, Georgia and Stamford Marque has also increased from 100 m to 192 m thus significantly improving each tower's wider field of view.

The view impact on each of the apartment buildings is described in detail below.

4.1.1 Highgate

- The zone of potential view impact from Highgate at 127 Kent Street principally affects the west facing elevation of that building only, relating solely to views to the west and south-west. Views to the north-west, north, east and south from Highgate will be unaffected by Concept Plan Mod 8 as compared to the approved development.
- The analysis in **Table 3** shows that the total view angles for Highgate, the most northerly building, are reduced by some 2° as a result of the modification. However, while the reduction impacts on westerly views, the proposed development, which is now taller and more slender, provides two view corridors between the buildings to the south-west rather than the single corridor established under the approved scheme.
- Highgate is located north of the alignment of Gas Lane, and therefore north of proposed development Blocks 4(A – B). While the proposed hotel will result in a more northerly intrusion on views to the north-west, significant northerly views will be retained by the proposed development from both the lower and upper levels of this building given the development on Barangaroo Central is restricted to a maximum height of RL 34, and development further to the north on Block 5 is restricted to a maximum height of RL 29.
- Direct westerly and south-westerly views from the western elevation of Highgate across proposed development Blocks 4 and 5 towards Darling Harbour will be those most significantly affected by the proposed development as is the case arising under the approved Concept Plan scheme. While this impact will remain, view corridors have been created between the buildings offering some additional sky and water views.
- While views to the west are impacted, the modification includes new public open space to the east of the built form at Barangaroo South, increasing the separation between Highgate and the proposed development, and thus improving foreground outlook from all levels of the building.

4.1.2 Georgia

- The zone of potential view impact from Georgia at 155 Kent Street principally affects the west facing elevation of that building only, and is related solely to views to the west. Views to the north, north-west, east and south from Georgia will be unaffected by Concept Plan Mod 8 as compared to the approved development.
- The analysis in **Table 3** shows that the total view angles for Georgia are reduced by some 3° as a result of the modification. Views to the north are maintained, and views between buildings to the south-west are largely unaffected.
- Georgia is located north of the alignment of Gas Lane, and therefore north of proposed development Blocks 4(A – B). While the proposed hotel will result in a more northerly intrusion on views to the north-west, significant northerly views will be retained by the proposed development from the lower and upper levels of this building given the development on Barangaroo Central is restricted to a maximum height of RL 34, and development further to the north on Block 5 is restricted to a maximum height of RL 29.
- Direct westerly and south-westerly views from the western elevation of Georgia across proposed development Blocks 4(A – B) and 5 towards Darling Harbour will be those most significantly affected by the proposed development as is the case from all levels of Georgia under the approved Concept Plan. While this impact will remain, an additional view corridor has been created between the buildings offering alternative views to that available under the current approval.

- While views to the west are impacted, the modification includes new public open space to the east of Barangaroo South, increasing the separation between Georgia and the proposed development, and thus improving foreground outlook from all levels of the building. With the change to the configuration of the southern cove, the foreground water outlook that was to be created under the approved Concept plan is replaced with built form / parkland.

4.1.3 Stamford Marque

- The zone of potential view impact from Stamford Marque at 161 Kent Street affects the west facing elevations of that building, with the principal impact being to the western façade. Views to the north, east and south will be unaffected by Concept Plan Mod 8 as compared to the approved development.
- The analysis in **Table 3** shows that the total view angles for Stamford Marque are reduced by some 8° as a result of the modification, with the most significant impact being on views to the south-west. However, while these views are reduced, the proposed development, which is now taller and more slender, provides view corridors between the buildings to the south-west.
- Stamford Marque is located north of the alignment of Gas Lane, and therefore north of proposed development Blocks 4(A – B). While the proposed hotel will result in a greater intrusion on views to the north-west, significant northerly views will be retained by the proposed development from the lower and upper levels of this building given the development on Barangaroo Central is restricted to a maximum height of RL 34, and development further to the north on Block 5 is restricted to a maximum height of RL 29.
- Direct westerly views from the western elevation of Stamford Marque across proposed development Blocks 4(A – B) towards Darling Harbour will be those most significantly affected by the proposal as is the case with the current approval. While this position will remain, views corridors have been created between the buildings offering some sky views.
- While views to the west are impacted, the modification includes new public open space to the east of Barangaroo South, increasing the separation between Stamford Marque and the proposed development, and thus improving the foreground outlook from all levels of the building. With the change to the configuration of the southern cove, the foreground water outlook that was to be created under the approved Concept plan is replaced with built form / parkland.

4.1.4 Stamford on Kent

- The zone of potential view impact from Stamford on Kent at 187 Kent Street affects the north, south and west facing elevations of that building, with the principal impact being to the western façade. Views to the north, east and south will be unaffected by Concept Plan Mod 8 as compared to the approved development.
- The analysis in **Table 3** shows that the total view angles for Stamford on Kent, the most southerly building, are increased by some 5° at the lower levels and 1° at the upper levels as a result of the modification. The increase results from the increased setback of buildings and the introduction of public open space to the east of Barangaroo South, opening up views to the north-west. The view corridors are concentrated into two sections as compared to the approved development which has a narrower corridor to the north, but provides for two corridors to the west and south-west.

- With respect to north-westerly views, significant views north of the alignment of Gas Lane will be largely retained given the restriction of maximum building height within Barangaroo Central, RL 34. Stamford on Kent is understood to have a maximum height of RL 102, and its elevated position means that views from the mid and upper levels in this direction, including views to the harbour's edge to the north-west, will remain substantially unaffected across the top of new buildings.
- Direct westerly views from the western elevation of Stamford on Kent across proposed development Blocks 4 (A – B) towards Darling Harbour will be those most significantly affected by the modified proposal, as is the case with the approved development. With the change in configuration of the southern cove and consolidation of residential buildings and the hotel the proposed modified development will result in some additional loss of foreground water views as compared to the approved development. However, view corridors through to the water between the new residential and hotel buildings have been retained to achieve view sharing principles. As identified the view corridor to the north is opened up as compared to the approved development.

4.2 Observatory Tower

- The zone of potential view impact from Observatory Tower at 168 Kent Street is restricted to the north-west and south-west facing elevations of that building only, and to views from those elevations to the west and south-west only. Views to the north-west, north, east and south will be unaffected by the proposal. The change in height of the proposed development, which is now taller and more slender, as well as the relocation of the proposed hotel, has the potential to affect additional floors of Observatory Tower.
- With respect to the north-west facing elevations, views north of the alignment of Gas Lane will remain largely unaffected by the proposed development. The elevated position of Observatory Tower means that views from the mid and upper levels will remain substantially unaffected across the top of new buildings proposed for Barangaroo Central, where the maximum height is RL 34.
- Views from the south-western elevation of Observatory Tower across Blocks 4 (A – B), X and Y towards Darling Harbour will be interrupted by the proposed development. However, these views are already interrupted by the existing development along Kent Street and Jenkins Street, including Highgate and Stamford on Kent. Further south, these views are interrupted by the Maritime Trade buildings, and high rise development along the western edge of the CBD.
- The increased distance between the built form of the western edge of the CBD and the proposed development provides a significantly improved wider field of view, which benefits Observatory Tower and views west from its north-western and south-western elevations.

4.3 Westpac Place

- The zone of potential view impact from Westpac Place principally affects the north facing elevations of that building only, relating to views to the north-west. Views to the north, east, west and south from Westpac Place will be unaffected by Concept Plan Mod 8.
- Westpac Place is located south of the alignment of the Western Distributor. The development on Blocks 1 – 4 (A – B) will substantially interrupt north-westerly views from this building. Nevertheless, given that Westpac Place will continue to enjoy significant westerly views across Darling Harbour, this impact is not considered to be such that a significant loss in amenity to this commercial development will result.

4.4 Other Kent Street Buildings

In addition to the above buildings, the view impacts on other Kent Street residential buildings (including, but not limited to, 115 – 125 Kent Street, and 187 and 219 Kent Street) have also been considered and it has been determined that the potential impacts are comparable to the impacts identified for the approved development. The overall approach to views, vistas and view sharing embodied within the Concept Plan and Concept Plan Mod 8 has been to preserve significant public view corridors to, from and within the site. Ongoing assessment and the preparation of detailed Project Applications will continue to address the visual impacts of the development.

4.5 King Street Wharf

The zone of potential private view impacts to existing buildings within the King Street Wharf precinct principally affects the north facing elevations of those buildings only, relating to views to the north and partially to the north-west. Views to the east, west and south from King Street Wharf will be unaffected by Concept Plan Mod 8 as compared to the approved scheme.

King Street Wharf is located to the immediate south of Barangaroo. The development of the site to achieve significant urban renewal consistent with its global CBD context would result in a loss of direct northerly views from King Street Wharf regardless of the manner in which it was determined to distribute the floor space across the site. This is particularly the case given the principle of locating the majority of height and density to the south of Barangaroo. While the impact on existing views from King Street Wharf is acknowledged, the impact is not considered to be unreasonable in the context of the established view impacts under the approved Concept Plan (as modified). It is also noted that views from King Street wharf to the north and north-west will be improved as a result of the proposal which relocates the proposed hotel back onto the site, therefore removing the intrusion into water views in this direction.

The overall approach to views, vistas and view sharing embodied within the Concept Plan and Concept Plan Mod 8 has been to preserve, enhance and create significant public domain view corridors to, from and within the site.

4.6 Other Shelley Street and Lime Street Buildings

The view impacts on other Shelley Street and Lime Street residential buildings (including but not limited to Nos. 23, 29, 35, 45 and 49 Shelley Street) have also been considered and it has been determined that the potential impacts are comparable to the impacts identified for the approved Concept Plan.

5.0 Conclusion

The urban design principles for the project have sought to preserve significant public domain street corridors, as well as to protect and reinforce views to and from key public domain open spaces, and significant heritage buildings and structures within the public domain.

The urban and architectural design approach has been to both ensure that important views to public buildings, along major streets and to the harbour are not obscured, and to enrich the existing public domain through improvements in visual connectivity within and to the site and maintaining lines of sight wherever possible.

In the planning for the project design emphasis has been placed on the retention and protection of key views and vistas at the street level and generally from or within the public domain from encroachment by the new building forms, and also to the siting and design of the new buildings in terms of maintaining and opening up views from the public domain to Sydney Harbour. Consideration has also been given to views and outlook available from existing private residences and other adjoining private development.

With respect to the street level public domain:

- Existing important views from the public domain at street level to the most significant and highly utilised public domain spaces within and in close proximity to the site are retained;
- Existing public domain views to key heritage buildings and places are retained;
- The proposed new buildings will frame existing public domain views and enclose streets. They will also contribute to a new western CBD skyline;
- Continuous and unobstructed sightlines to the foreshore are maintained to the public, and views to, through and over the site are retained such that the public / pedestrians will continue to enjoy the visual qualities of the harbour and its foreshores. The principle east west public domain view corridors providing both physical and visual access to the foreshore are retained; and
- The continuation of existing streets into and through the site will establish new sightlines, visual permeability and views and vistas throughout the precinct.

Where the proposed new modified built form does encroach within or reduce partial existing public domain views as compared to the approved development, these impacts are considered to be minor. They will not detract from the overall visual connectivity for pedestrians in the public domain nor result in any significant adverse impact. Generally, the wide range of different viewing points available within the precinct and its approaches will continue to provide for variety and interest in the different views, vistas and sightlines available to pedestrians approaching and moving through the precinct from the north, south, east and west.

Low, medium and high level views of the sky along streets and from public domain places (squares, parks etc) are retained, created or enhanced in a variety of contexts. The siting and design of the new buildings has sought to preserve important views of the Sydney CBD from encroachment and to both maintain and open up significant views from the public domain.

It is considered that the proposed modified concept proposal continues to achieve a reasonable balance between the protection of private views and the protection of public domain views in the delivery of a new urban precinct on the foreshore of Sydney Harbour.

The Concept Plan Modification will deliver a built form that is appropriate to the site's context and to the desired urban form and scale for the western part of the Sydney CBD. It is of an appropriate density and height to capitalise on the site's attributes and opportunities.

The proposed Concept Plan Modification has been developed with a number of view principles in mind:

- views to Sydney Harbour and parks are to be maintained from as many points as possible at street level;
- new significant views should be opened-up where possible including those that terminate at Sydney Harbour, parklands, low level sky, or a publicly significant object;
- vistas along streets that are terminated by buildings, can be emphasised with design of the visually prominent buildings that terminate them;
- the siting and design of new buildings should maintain existing vistas along streets to places of architectural, landscape, or cultural significance; and
- support view sharing for buildings with a western outlook from Kent Street by proposing taller buildings than the Concept Plan as modified, with larger spaces between them, achieving oblique views and additional view corridors.

To support these principles, further consideration was given to:

- retaining significant views across the site to the waterfront;
- allowing for public views across the Harbour from Millers Point (the northernmost part of the site) and Observatory Hill;
- consideration of the high visibility of the site from public places including the waterway, harbour edge parks, Sydney Harbour Bridge and Anzac Bridge;
- protection of local views to the site and adjoining waterways from public domain areas in Millers Point and the western side of the city;
- the primacy of axial views along streets to the waterfront; and
- allowing views from the site and adjoining waterways and foreshores to natural features including the High Street / Hickson Road cliff faces and retaining walls and significant cultural or heritage items at Millers Point and Observatory Hill (where they are visible and discernible).

The proposed built form reinforces the landmark significance of the site, maintains significant view corridors within the site and from the public domain surrounding the site towards Sydney Harbour, and applies view sharing principles with respect to existing surrounding development. Future Project Applications will also need to consider the potential impacts on public and private views and apply the principles established within this report. The urban structure of the site, including the street layout and urban form, has been designed to reflect the surrounding street pattern and 'urban grain', and to preserve existing view corridors to the water from key vantage points and public domain.

The Concept Plan Modification seeks to meet a variety of planning and urban design objectives and can therefore be accommodated without resulting in significant view impacts beyond those recognised (and approved) under the approved Concept Plan (as modified). Furthermore, the Supplementary Urban Design Statement (refer to Appendix C of the Concept Plan Modification PPR) seeks to generally retain and strengthen the approved view sharing design principles and urban design controls to ensure the future built form appropriately responds to established views.

On balance, the proposal is able to achieve all relevant and appropriate view, vista, outlook and visual impact objectives.

Visual Impact Photomontage Methodology

BACKGROUND

This document was prepared by Virtual Ideas to describe the processes used to create the visual impact photomontages and illustrate the accuracy of the results.

Virtual Ideas is a highly experienced 3D visualisation company, which commonly prepares material for both development application and court use, and is familiar with requirements to provide 3D visualisation media that will communicate the visual impact of proposed developments. Our methodologies and results have been inspected by various court appointed experts in a variety of cases and have always been found to be accurate and acceptable.

OVERVIEW

The process of creating accurate photomontage renderings begins with the creation of an accurate, real world scale digital 3D model. We then take site photographs from known locations and place cameras in the digital 3D model that match the real world position of the site photography.

By matching the lens properties of the cameras in the digital 3D software, to that of the real world photography, and rotating the cameras in the software so that surveyed points in 3D space align with the corresponding points on the photograph, we can create a rendering that is accurate in terms of position, scale, rotation, and perspective. Time and data information is also recorded during the site photography so that accurate lighting conditions can be reproduced in the 3D rendering.

A digital image is then rendered from the camera in the 3D software application, that is then superimposed into the real world photo to generate an image that represents accurate form and visual impact.

DESCRIPTION OF COLLECTED DATA

To create the 3D model and establish accurate reference points for alignment to the photography, a variety of information was collected. This includes the following:

- 1) Proposed Concept plan (Mod 8) drawings
 - Created by: RHSP Architects
 - Supplied by: Lend Lease
 - Format: DWG file
 - Content: Plan and elevation of proposed concept plan with RL's indicated

2) Approved Concept plan (Mod 6) drawings
 - Created by: RSHP
 - Supplied by: Lend Lease
 - Format: DWG file
 - Content: Plan and elevation of approved concept plan with RL's indicated

3) Ortho-corrected aerial photography of the city of Sydney and surrounds
 - Created by: Department of Lands
 - Supplied by: Department of Lands
 - Format: ecw
 - Content: Ortho-corrected aerial photography

4) Digital terrain model of the city of Sydney and surrounding suburbs
 - Created by: Department of Lands
 - Supplied by: Department of Lands
 - Format: DWG
 - Content: 3D contours of the ground plane only (no buildings)

5) Surveyed 3D model of the city of Sydney buildings and ground plane
 - Created by: AAM Hatch
 - Supplied by: Lend Lease
 - Format: DWG
 - Content: 3D model of the city of Sydney buildings and ground plane
- 6) 3D model of the Proposed Concept Plan Amendment (Mod 6) Indicative Design
 - Created by: RHSP Architects
 - Supplied by: Lend Lease
 - Format: DWG
 - Content: 3D model of the Barangaroo buildings

7) Site photography
 - Created by: Luke Kolln and Rick Mansfield of Virtual Ideas (VI Photos)
 - Format: JPEG file
 - Content: High resolution photo

8) 3D model of the Proposed Concept Plan Amendment (Mod 6) Indicative Design
 - Supplied by: Lend Lease
 - Format: DWG
 - Content: 3D model of the Barangaroo buildings

9) 3D model of the Proposed Concept Plan Amendment (Mod 8) Indicative Design
 - Created by: RHSP Architects
 - Supplied by: Lend Lease
 - Format: DWG
 - Content: 3D model of the Barangaroo buildings

CREATION OF THE DIGITAL 3D MODEL

Creating the surrounding terrain model

Using our software application (3D Studio Max), we imported the Lands 3D topographical CAD data and created a three dimensional terrain model at real world scale. This model was referenced back to MGA co-ordinates using a common reference point that all project drawings are being referenced to. The ortho-corrected aerial photography was then mapped to this model giving us a relatively accurate source for referencing camera positions in both position and height.

Creating the Sydney city buildings 3D model

To have sufficient survey data that would allow us to accurately align the 3D model to the photography, a surveyed 3D model was purchased from AAM hatch and positioned into the 3D scene using the common MGA reference point as the origin. In addition, a surveyed ground plane from AAM Hatch was also purchased and positioned under the buildings.

The building survey was created by AAM Hatch using photogrammetric mapping equipment and techniques.

Creating the Barangaroo buildings 3D model

The Barangaroo massing and building models were created with information supplied by RHSP and Lend Lease. At all points in the creation of these models, careful attention was taken to ensure that the footprint and heights of the buildings were correct.

SITE PHOTOGRAPHY

Site photography was taken from the positions agreed with the Lend Lease. The positions were selected to fulfil the Director General Requirements provided by the Department of Planning and Environment. Additional locations for photomontages were requested by the city of Sydney, and subsequently photographed.

The DGR requirements for photomontage photography have been defined as follows: “using human eye focal lengths (50mm at 35mm FX format and 46 angle of view) from long range, medium range and short range positions so that they can be assessed with respect to visibility, visual absorption capacity and visual impact rating, as well as a comparison analysis with the approved Concept Plan.”

This request was reviewed during the Mod 4 application and it was determined that due to the scale of the Barangaroo buildings and the specific locations of the DGR photomontages, it was not effective to use 50mm lenses in all circumstances as this would not produce a result where the buildings could be evaluated in respect to the surroundings. In addition in most cases it was not possible to take medium range and long range options for each view as the topography vegetation, and surrounding built form did not accomodate.

The specific requirment for the lens selection for each shot was based on the following criteria that was agreed to with Lend Lease and the Department of Planning and Environment, and was deemed acceptable by the Department of Planning for all previous Barangaroo concept plan application,.

- All photographs should be taken with a Canon 5D, which is 35mm FX format.
- The on-site location for the photograph should be as close as possible to the instructed location.
- The entirety of the proposed buildings, including the approved concept plan envelope should be in view in each photo where possible.
- Surrounding existing buildings should also be visible in each photomontage to allow for fair and accurate comparison to existing built form.

The lens size selected for each shot ranges from 17-40mm, and in additon crop markes have been added to the photographs to illustrate the extents of longer lens sizes.

For further explanation of digital photography and the human eye refer to Appendix A.

In most cases, we consider that a 17-24mm lens is a fair representation of the focal length of the human eye. It is difficult to define the exact focal length of the eye as we have to consider the distance to the subject and peripheral vision. There are many studies to support that 17mm is acceptable. Also many scientists consider 20-24mm acceptable when looking at a specific item in the distance - please see appendix A.

METHODOLOGY OF THIS REPORT

This report has been prepared in accordance with the methodology set-out and agreed by Lend Lease and the Department of Planning throughout the Barangaroo Concept Plan Mod 4 Application process.

CREATION OF PHOTOMONTAGES

The positions of the real world photography were located in the 3D scene using the lands and AAM Hatch 3D models, and the ortho-corrected photography.

Cameras were then created in the 3D scene to match the locations and height of where the photographs were taken from. The lens data stored in the metadata of the photograph was also used for accuracy. The cameras were then aligned in rotation so that the points of the 3D model aligned with their corresponding objects that are visible in the photograph.

A realistic sun and skylight light system was then created in the 3D scene and matched to the precise time and date of when each photograph was taken.

3D renderings of the indicative new buildings were then created from the selected cameras at the exact pixel dimensions and aspect ratio of the original digital photograph (4368 x 2912 pixels and 5616 x 3744 pixels).

The 3D renderings were then placed into the digital photography, and masked-out where existing form appeared in front of the buildings.

In conclusion, it is my opinion, as an experienced 3D architectural visualisation professional, that the images included in this assessment accurately portray the level of visibility and impact of the indicative built form under the proposed concept plan Mod 8 with respect to the surrounds.

Yours sincerely

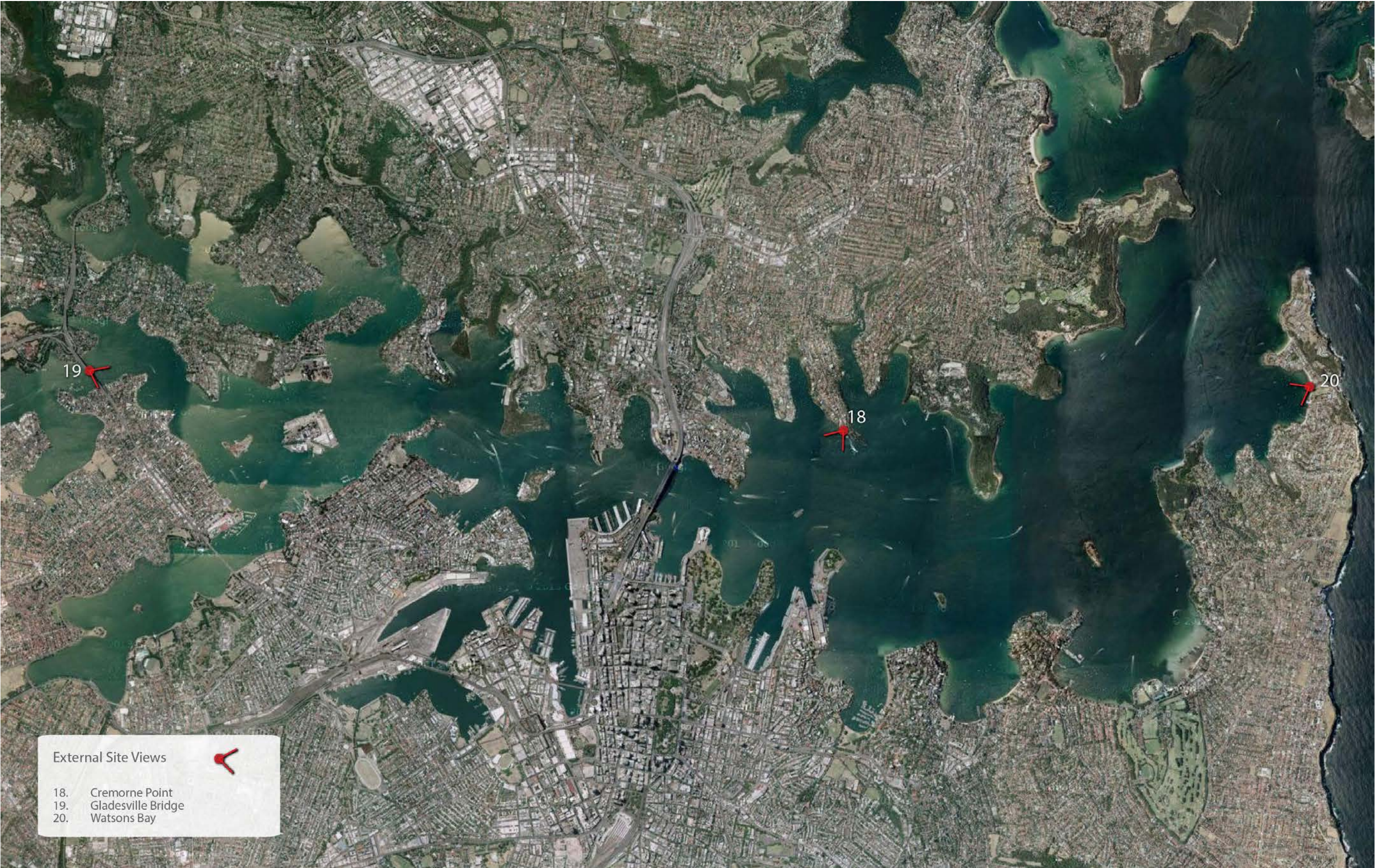
Grant Kolln,
Director - Virtual Ideas

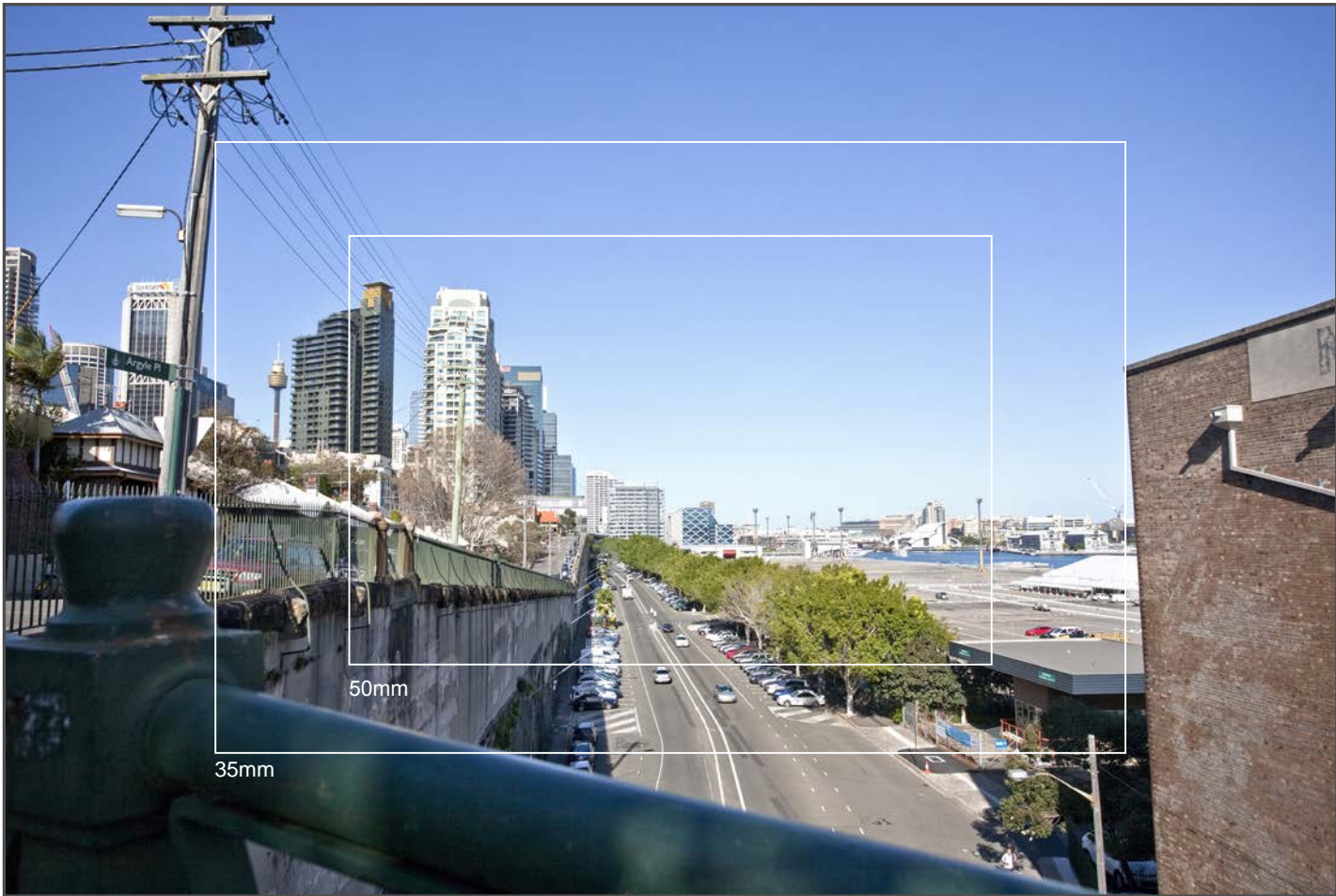


MAP SHOWING CAMERA LOCATIONS



MAP SHOWING CAMERA LOCATIONS





Original photo with crop marks to identify the field of view of longer lens sizes.

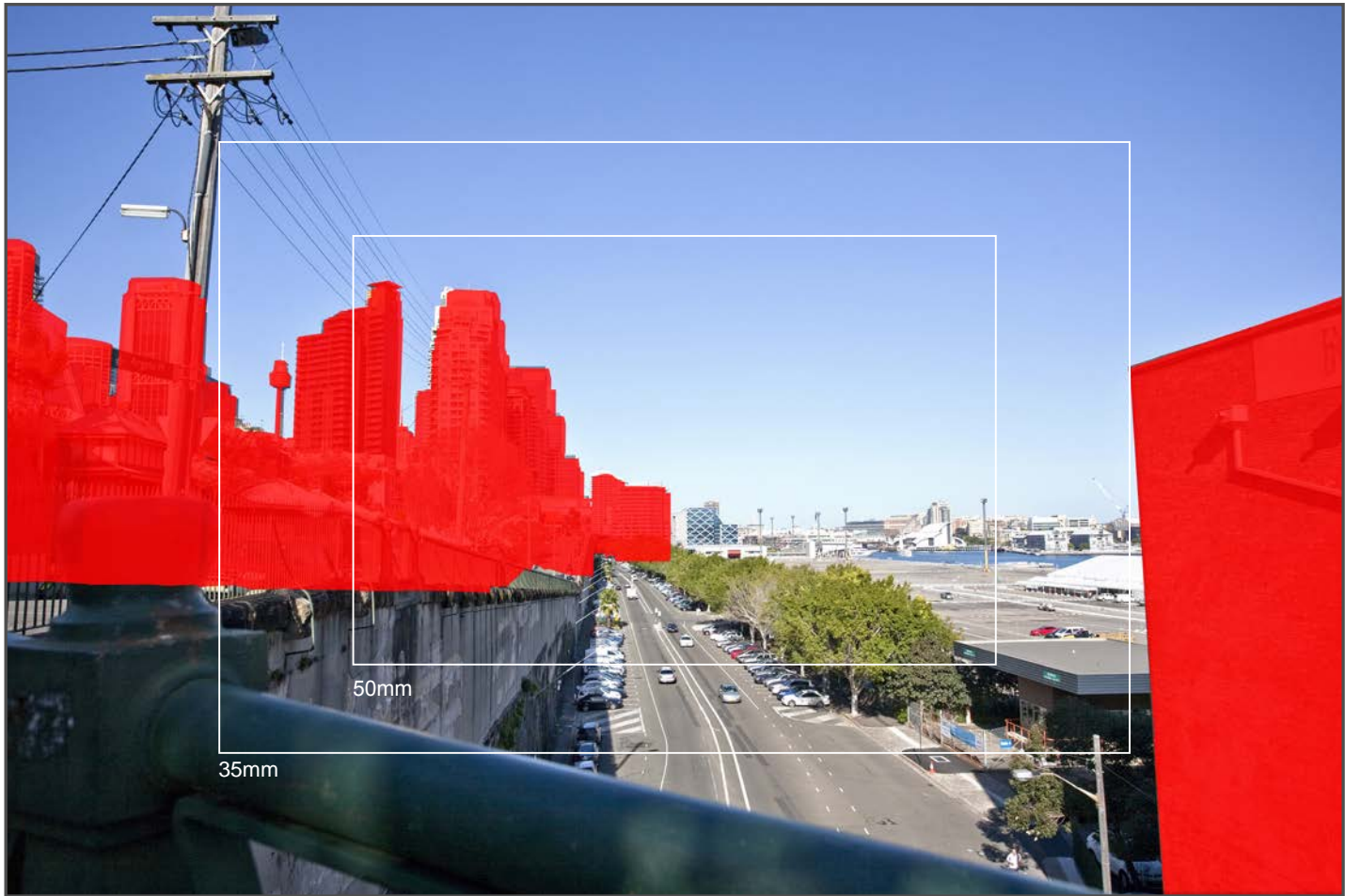


Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: HICKSON ROAD
Camera R.L. 17.5m
MGA coords: X: 333734.347, Y: 6252097.407
Lens: 24mm
Dimensions: 4368 x 2912
Date: 18/06/2010 12:30 PM
Camera: Canon EOS 5D

Rationale for lens selection

The rationale for using a 24mm lens was to capture the heights of several existing city buildings to the left of the image, and also show the building immediately to the right of the viewer. Including the handrail in this image also visually describes that the viewer is standing on the bridge.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

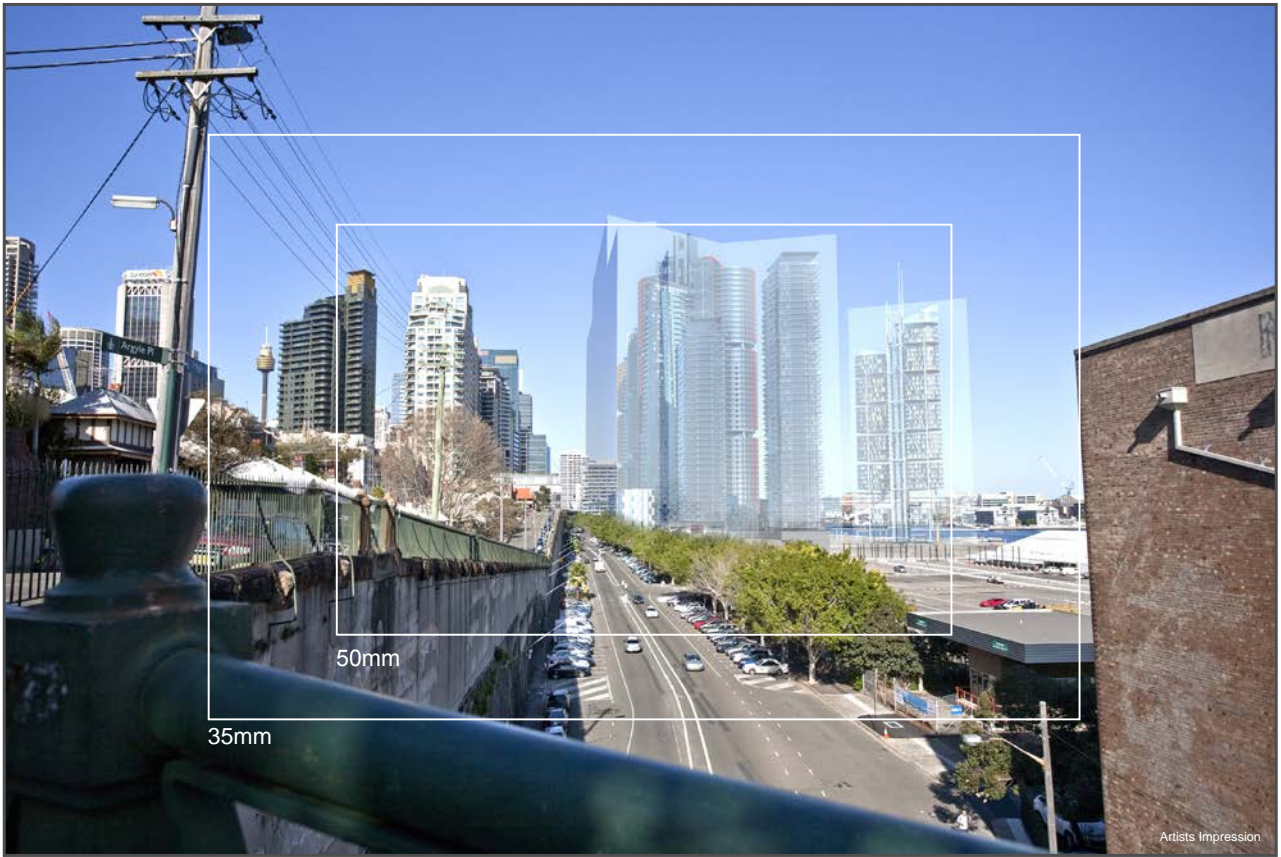


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.

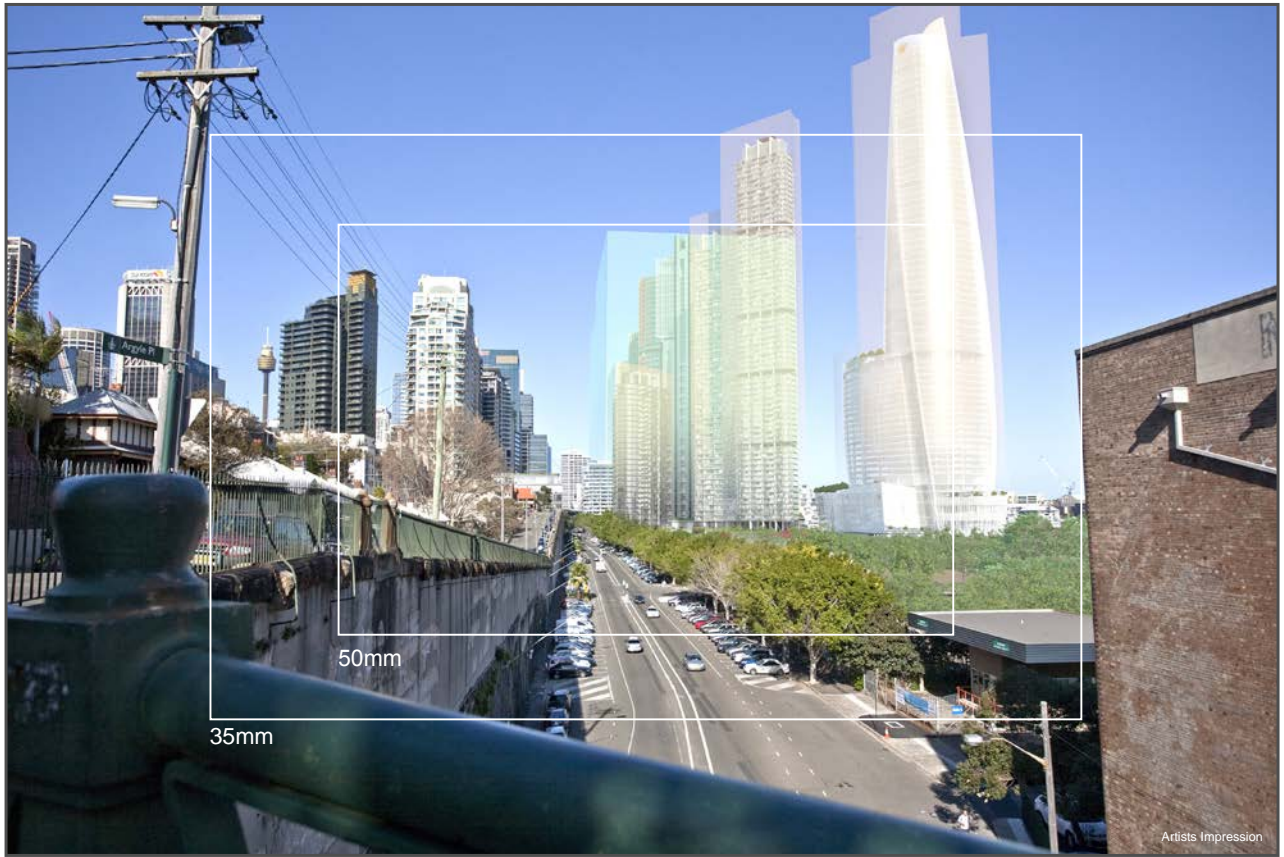


Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: KENT ST (CNR MARGARET ST)
Camera R.L. 17.9m
MGA coords: X: 333899.463, Y: 6251329.789
Lens: 20mm
Dimensions: 4368 x 2912
Date: 2/06/2010 2:19 PM
Camera: Canon EOS 5D

Rationale for lens selection

The rationale for using a 20mm lens was to capture the heights of the Westpac building, while also providing enough room to see the extent of the future Barangaroo buildings and the approved concept plan.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)

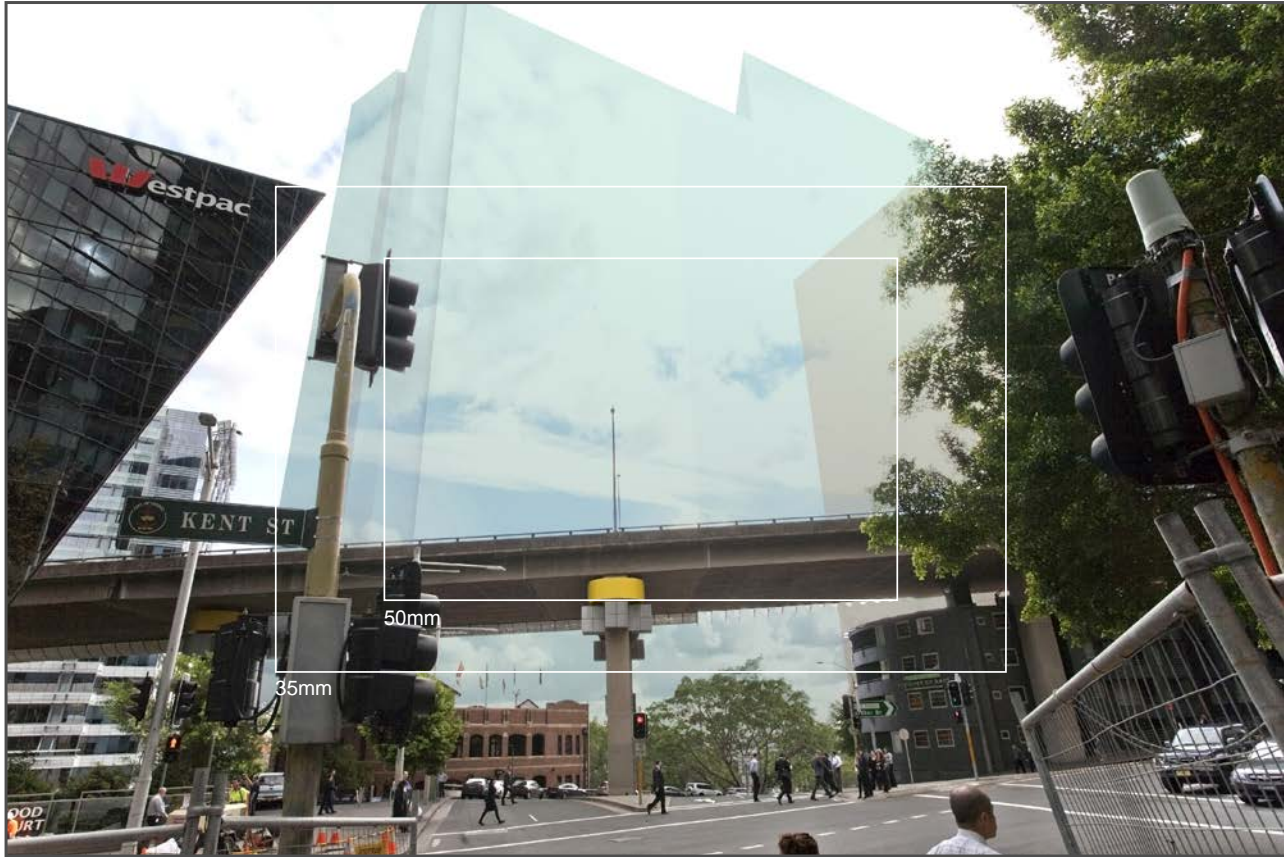


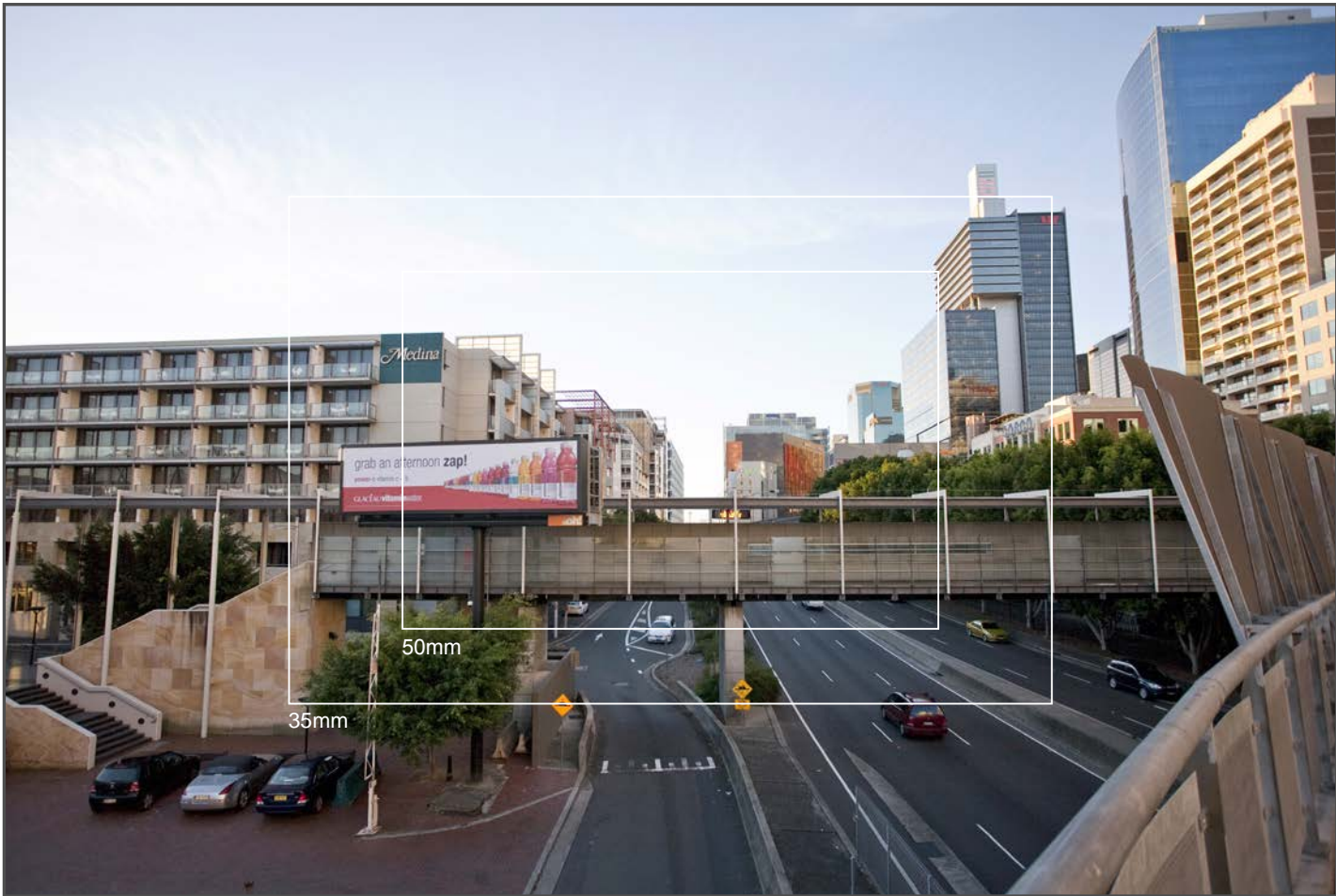
Image showing massing of the Proposed Concept Plan Amendment (Mod 8)



Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.

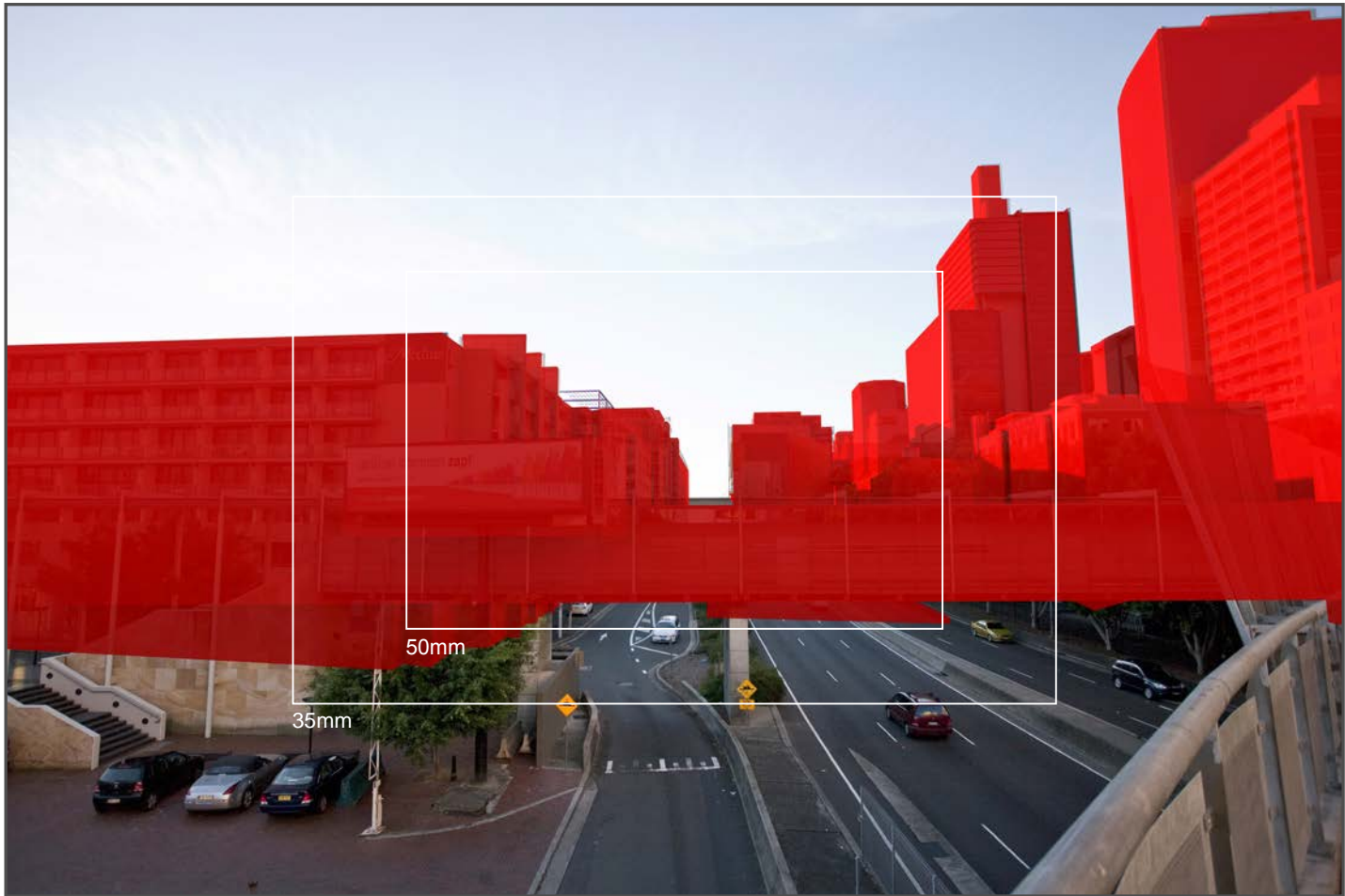


Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: SHELLEY ST FROM KING ST BRIDGE
Camera R.L. 11.8m
MGA coords: X: 333775.939, Y: 6250899.372
Lens: 20mm
Dimensions: 4368 x 2912
Date: 8/06/2010 5:41 PM
Camera: Canon EOS 5D

Rationale for lens selection

The rationale for using a 20mm lens was to capture the heights of several existing city buildings to the right of the image, and also show some of the built form to the left of the viewer. Including the handrail in this image also visually describes that the viewer is standing on the bridge.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

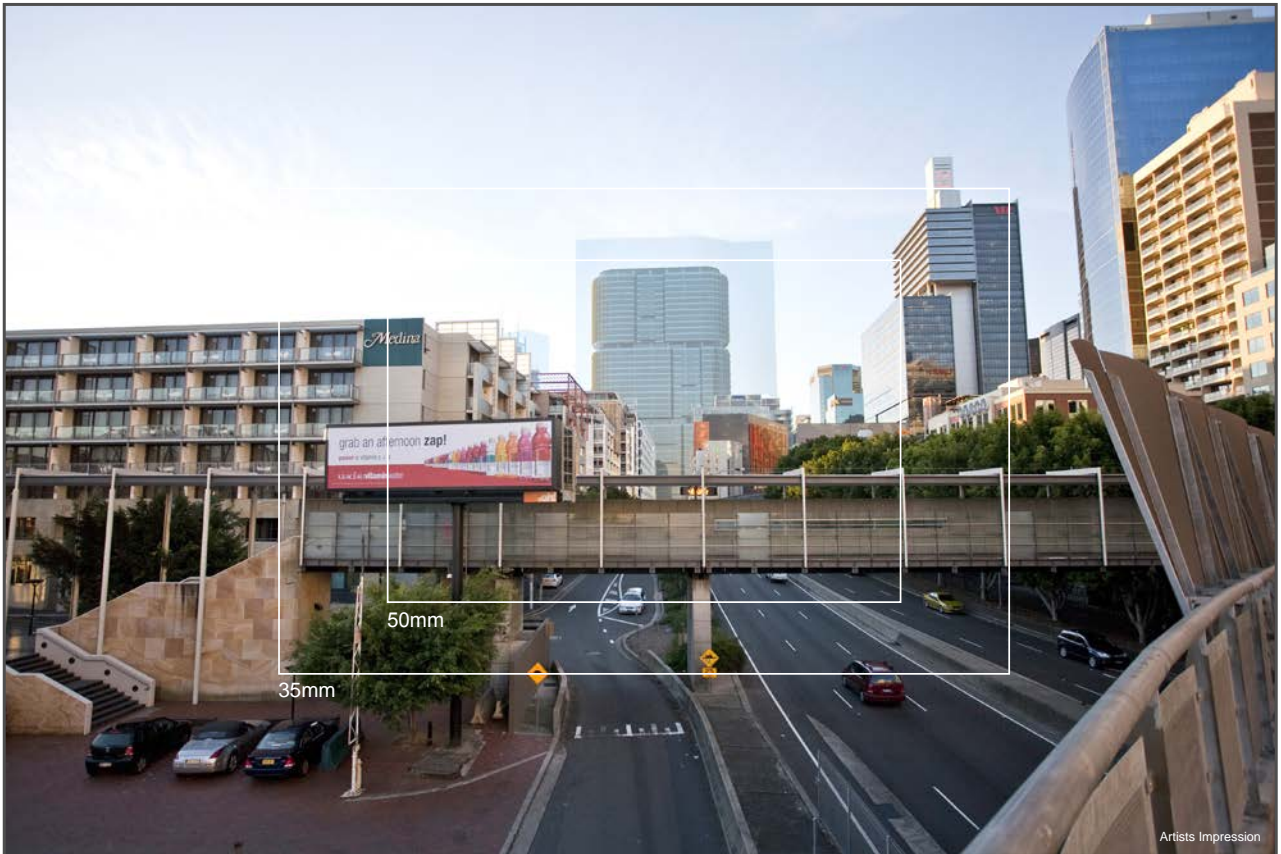


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.

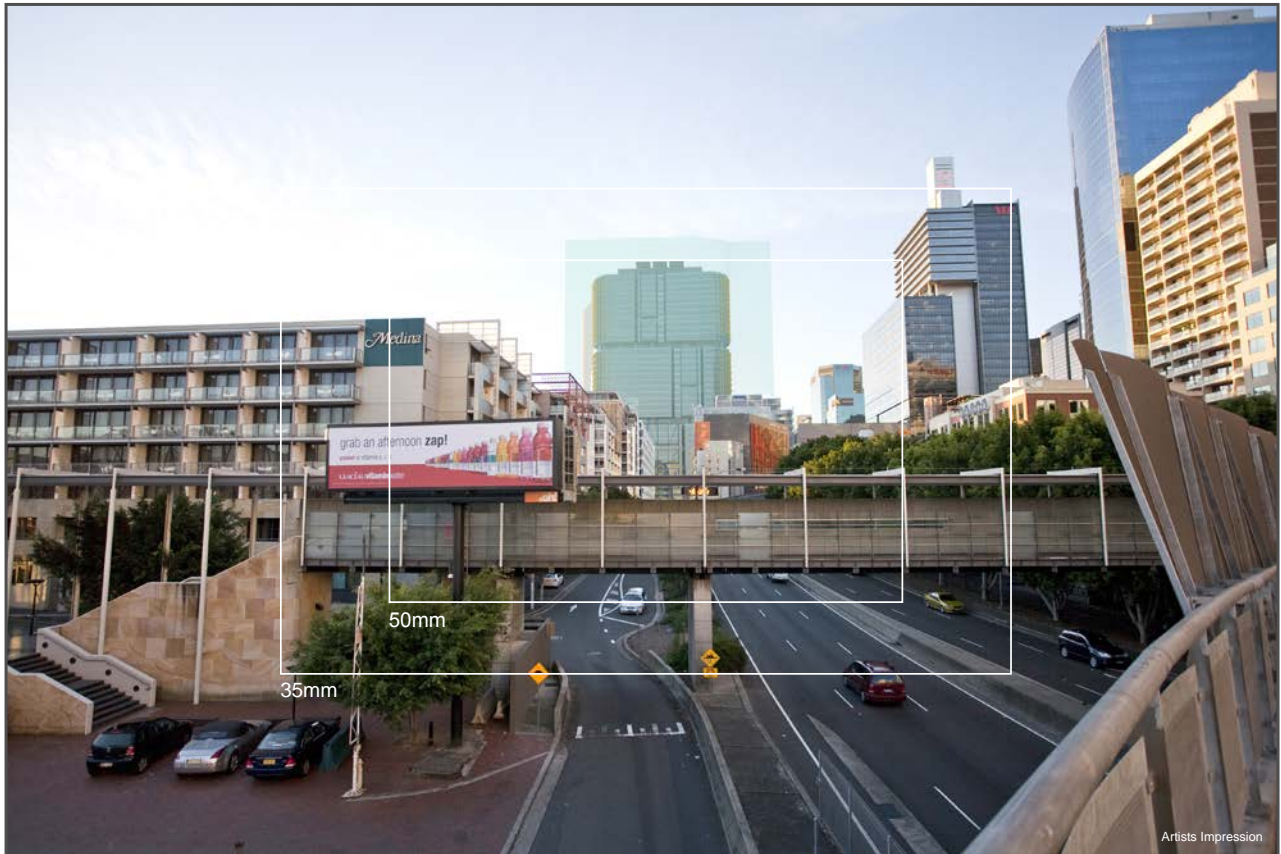


Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.

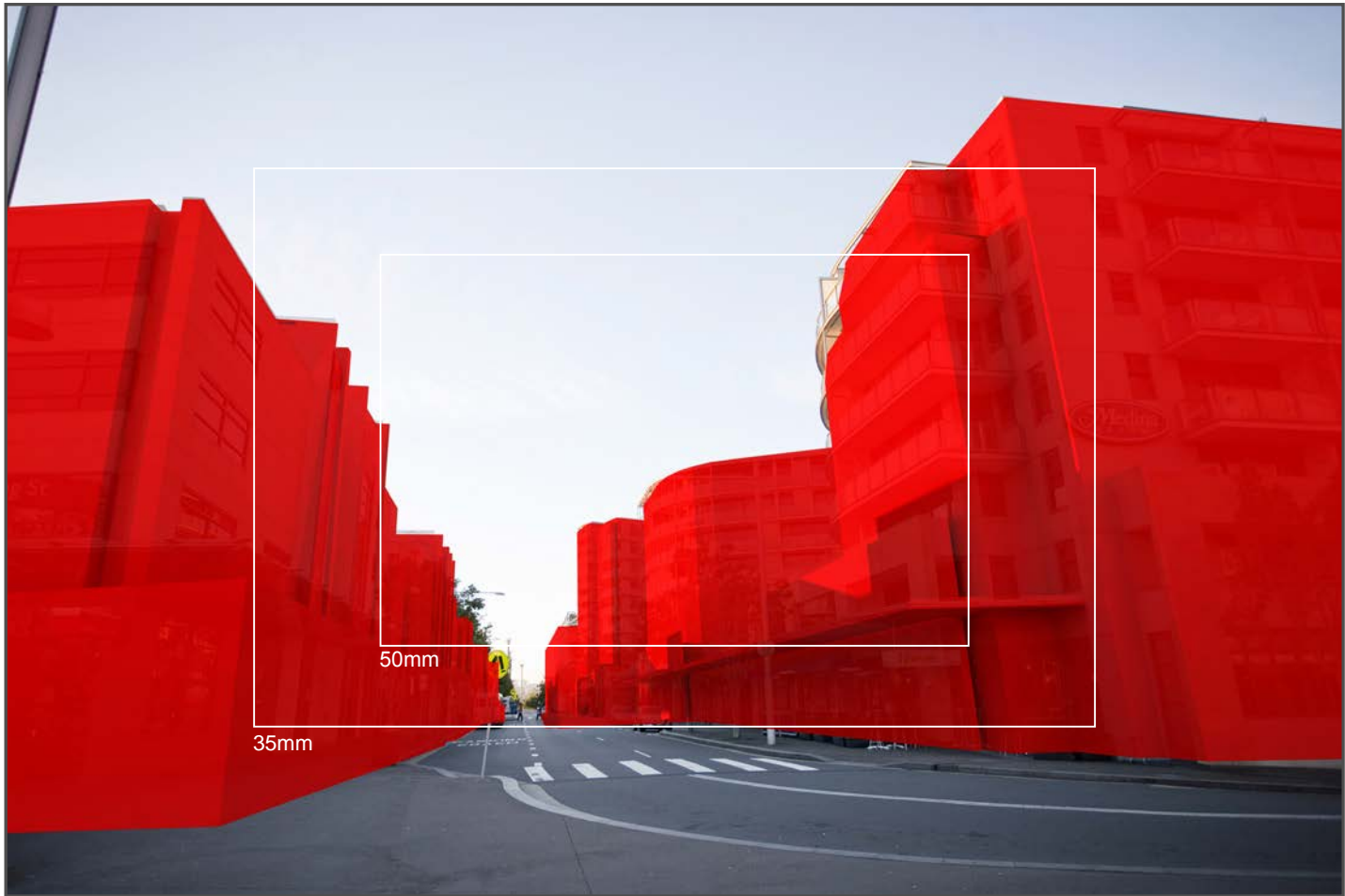


Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: LIME STREET
Camera R.L. 6.7m
MGA coords: X: 333693.502, Y: 6250920.272
Lens: 22mm
Dimensions: 4368 x 2912
Date: 8/06/2010 5:47 PM
Camera: Canon EOS 5D

Rationale for lens selection

The rationale for using a 22mm lens was that to show the width of the street in front of the viewer, as well as to capture the height of the lime st buildings.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



Image showing massing of the Proposed Concept Plan Amendment (Mod 8)



Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.

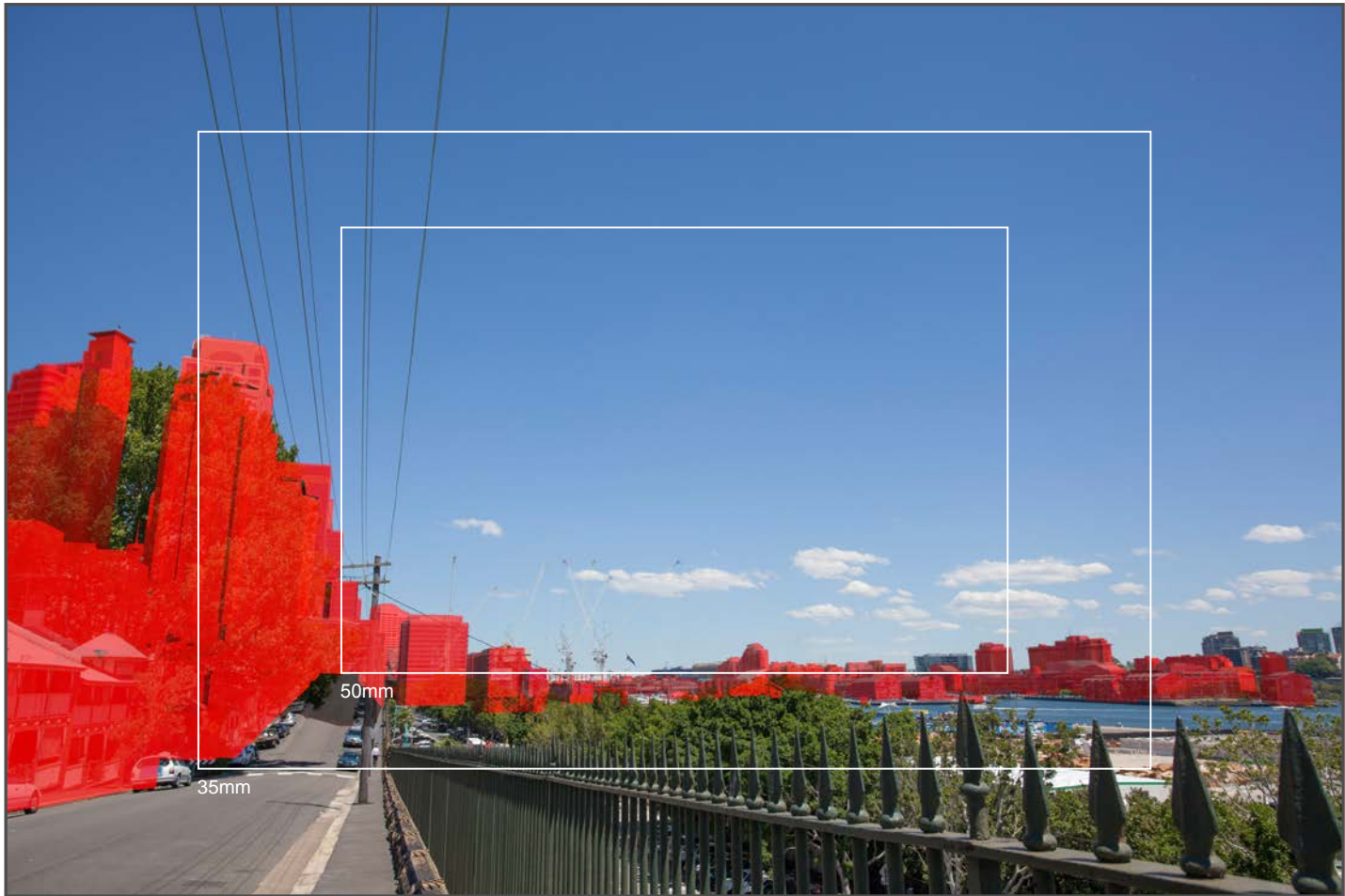


Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: HIGH STREET
Camera R.L. 16.0m
MGA coords: X: 333744.51, Y: 6252031.60
Lens: 25mm
Dimensions: 5616 x 3744
Date: 14/11/2013, 12:35:12 PM
Camera: Canon EOS 5D Mark II

Rationale for lens selection

The rationale for using a 25mm lens was that to show the width of the street in front of the viewer, as well as to capture the height of the High st buildings.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)

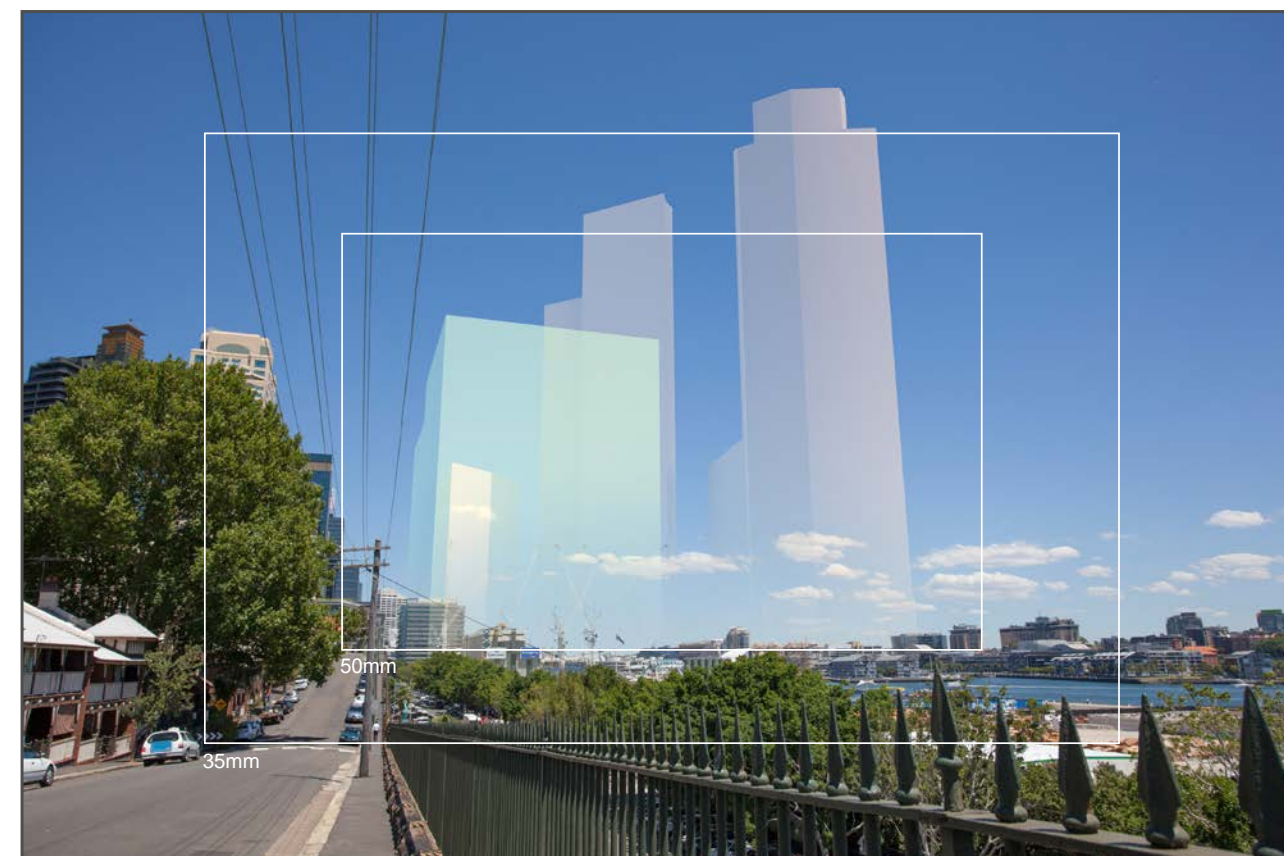


Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

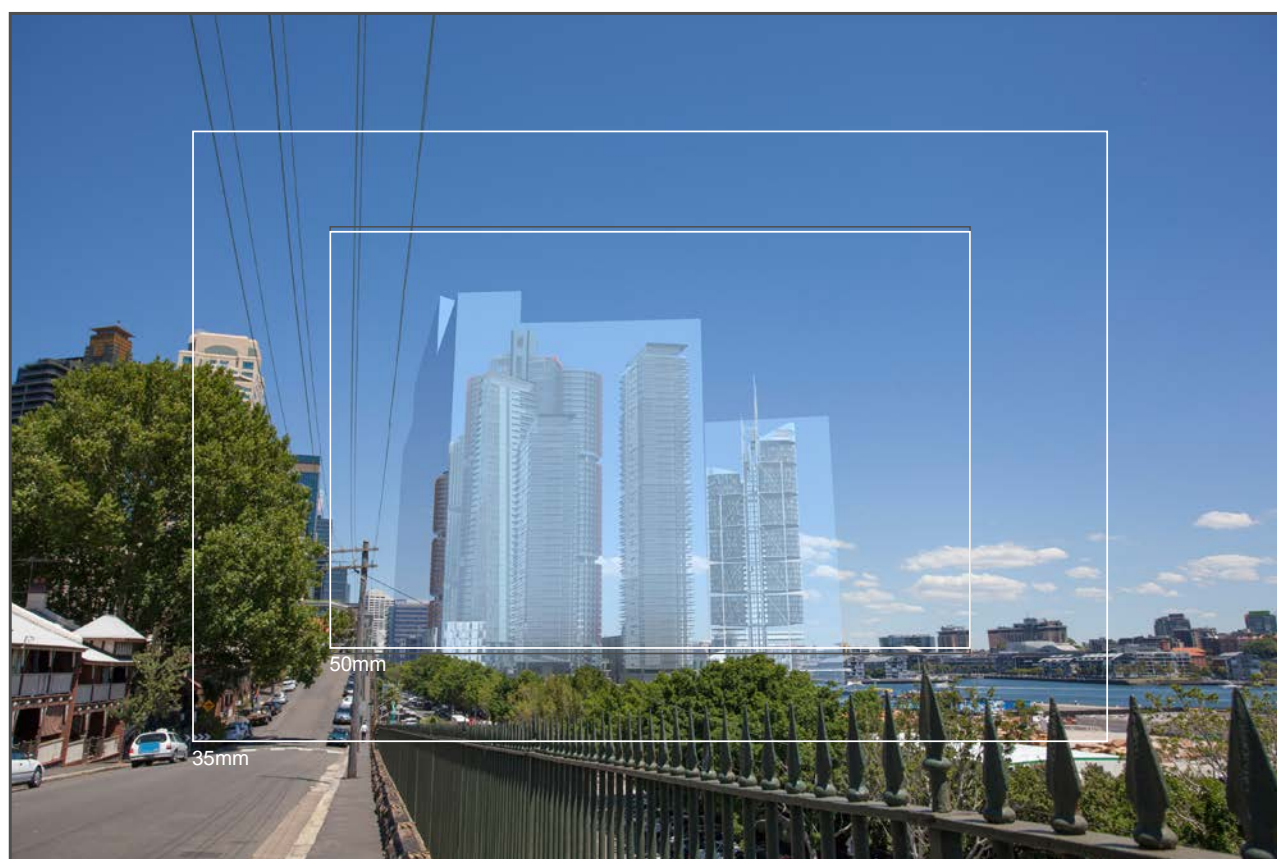


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.

Photographic data

Location: GAS LANE
Camera R.L. 21.17m
MGA coords: X: 333142.1113, Y: 6251923.256
Lens: 17mm
Dimensions: 4368 x 2912
Date: 2/06/2010 4:55 PM
Camera: Canon EOS 5D



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Rationale for lens selection

The rationale for using a 17mm lens was to capture as much of the barangaroo buildings as possible as we were very close to the subject. We also wanted to show some of the sides of the Gas lane buildings .

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)

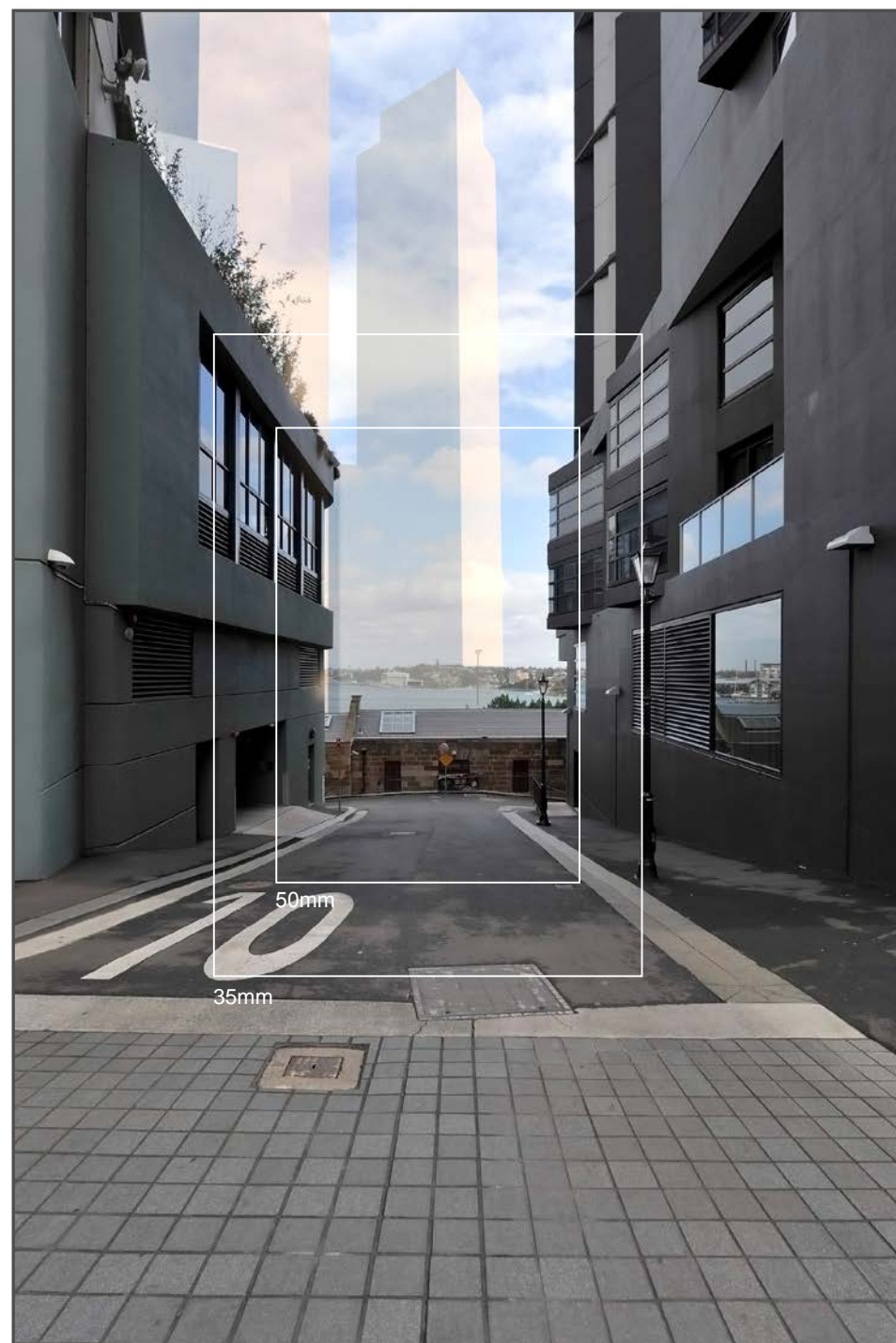


Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

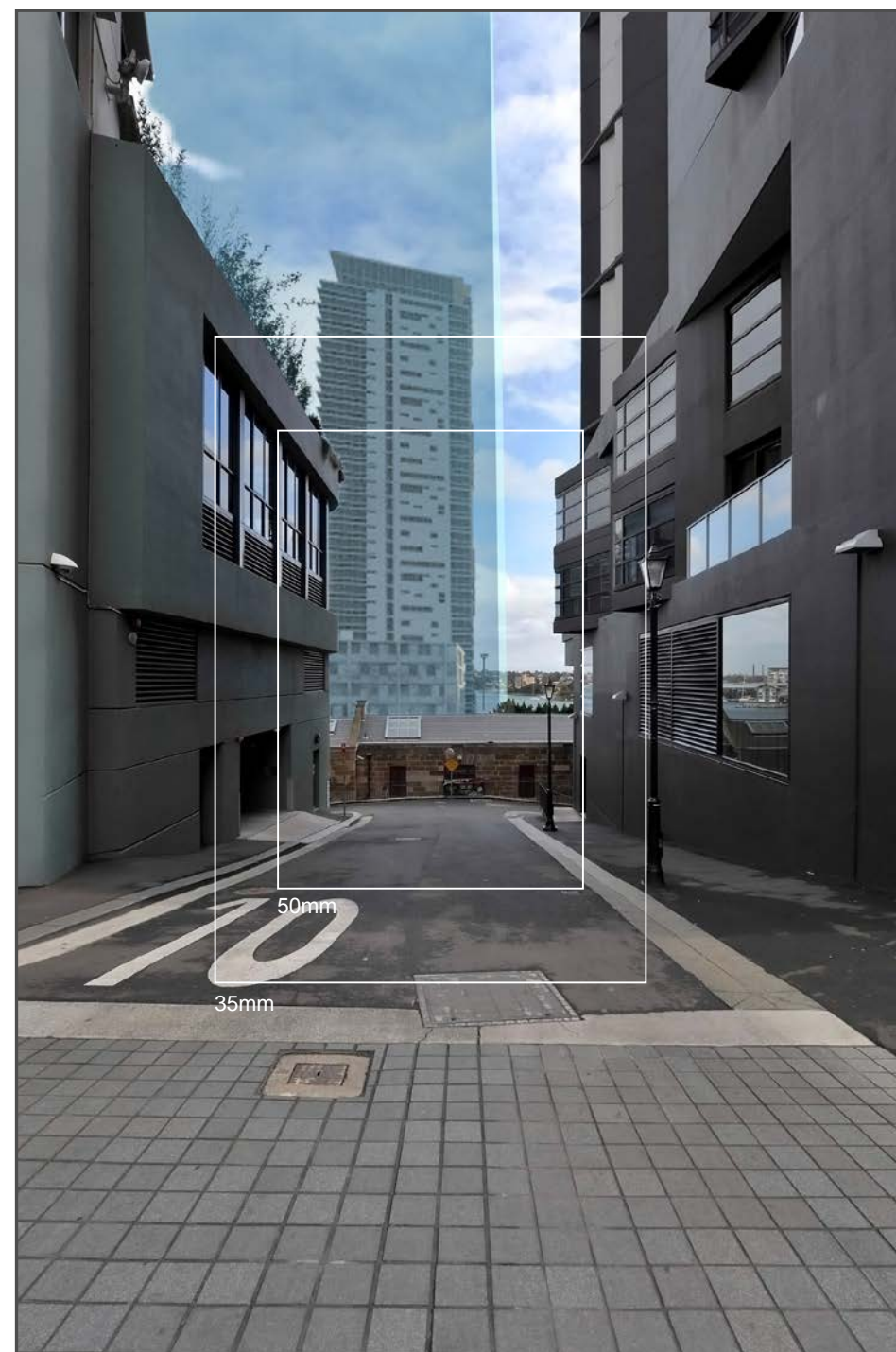


Image showing massing of the Approved Concept Plan amendment (Mod 7) with indicative design.

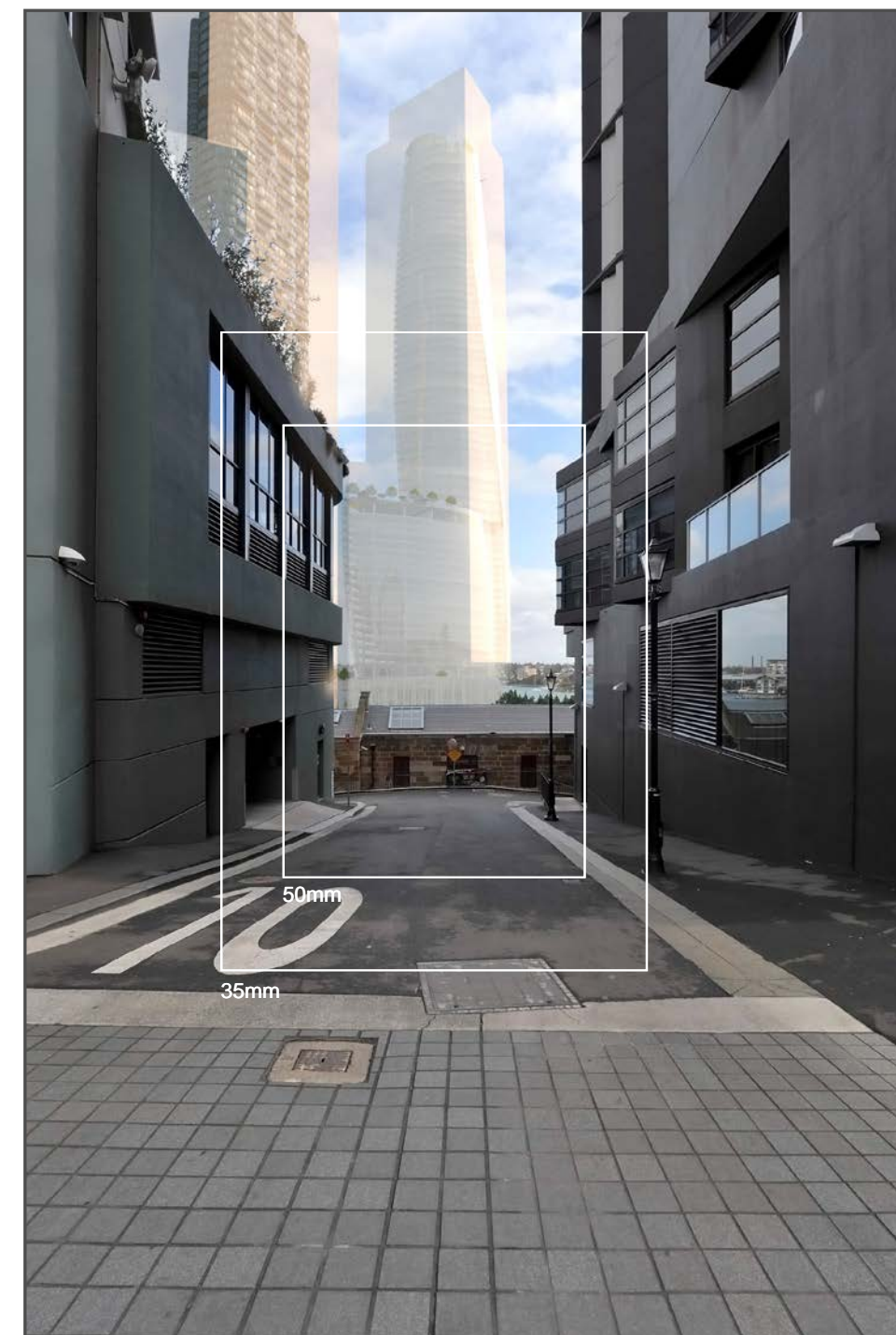
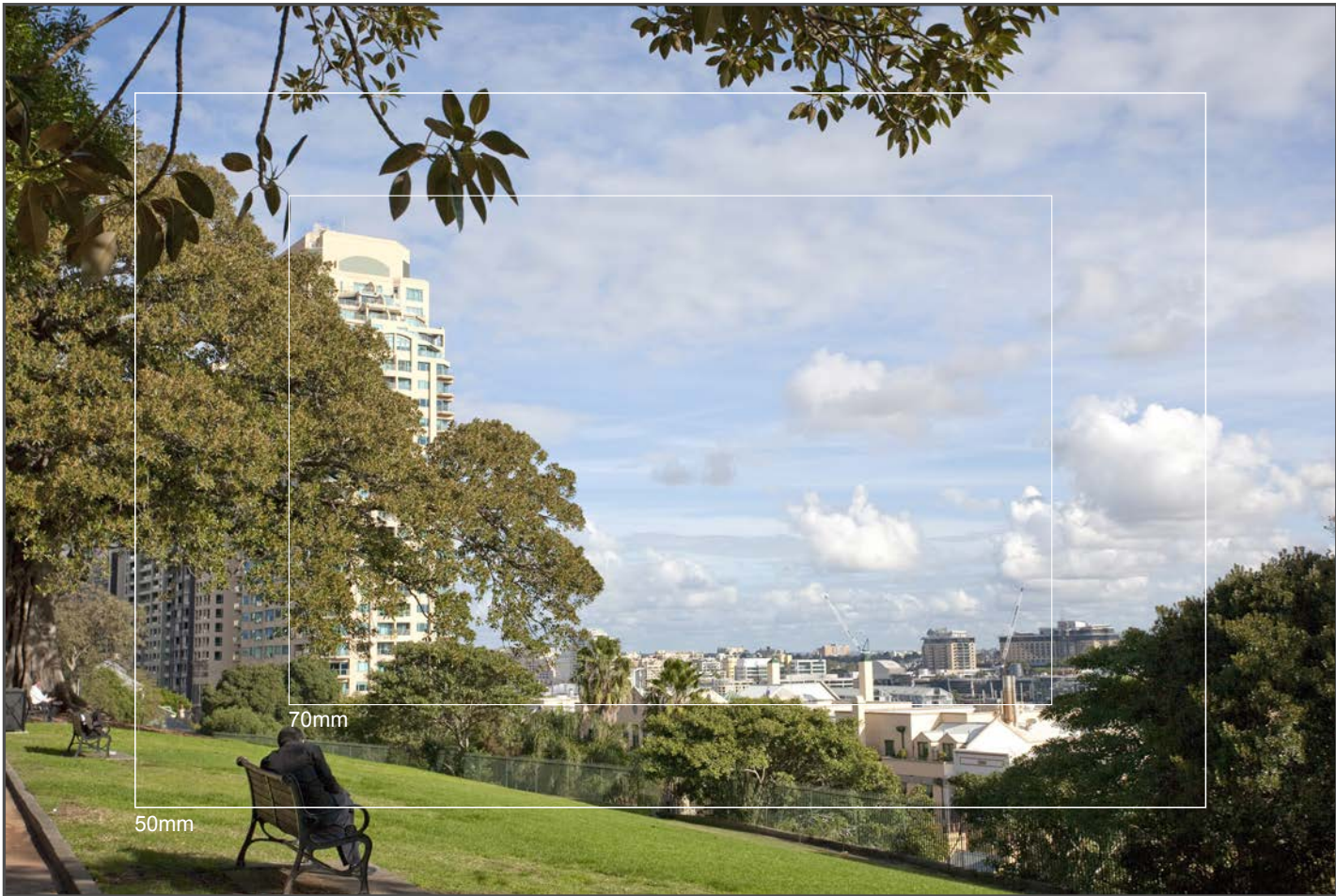


Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: MILLERS POINT (OBSERVATORY HILL)
Camera R.L. 43.2m
MGA coords: X: 333894.874, Y: 6252001.792
Lens: 40mm
Dimensions: 4368 x 2912
Date: 2/06/2010 2:57 PM
Camera: Canon EOS 5D

Rationale for lens selection

The rationale for using a 40mm lens was that from this specific location the wider lens only captured more of the underside of the canopy and did not see any additional built form. Therefore we selected a 40mm lens as this balanced the amount of built form vs the surrounding nature in the image.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

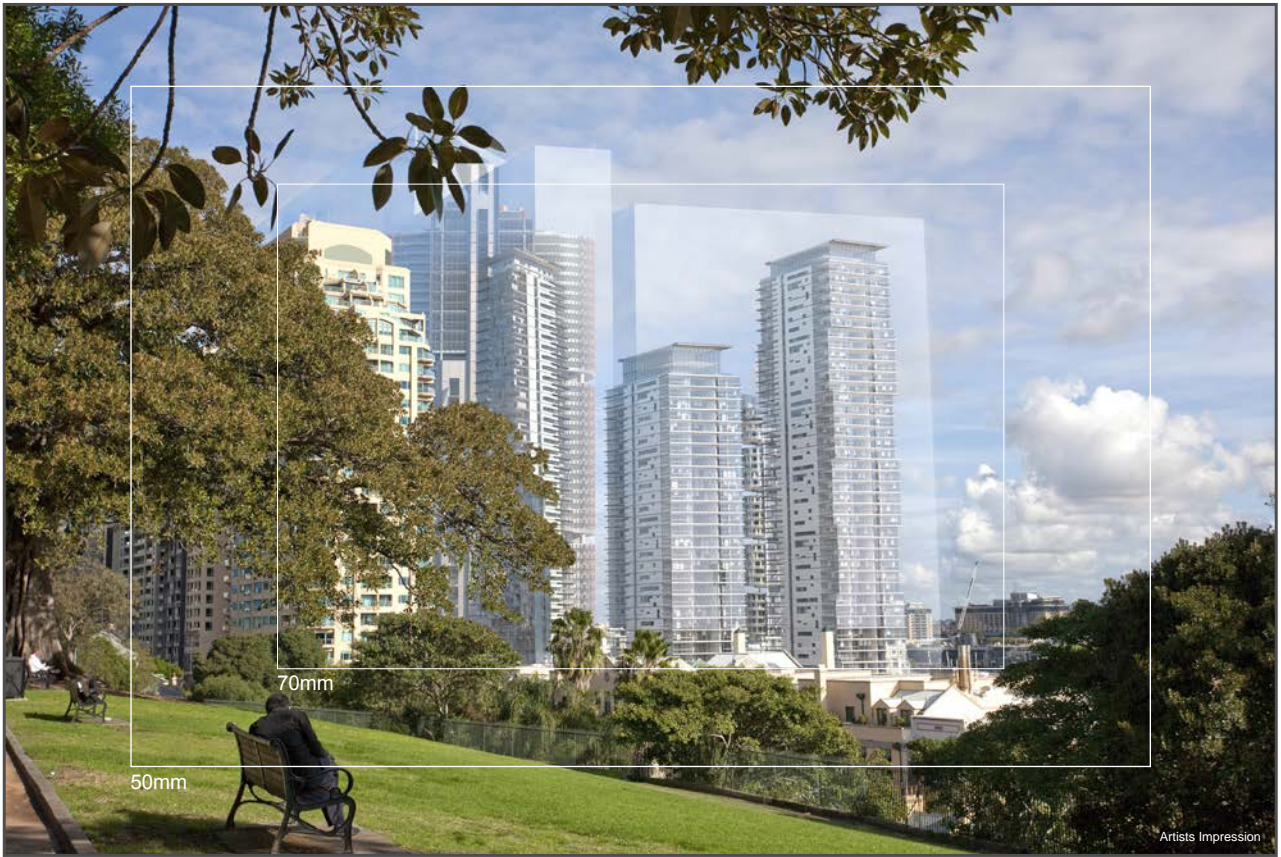


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.

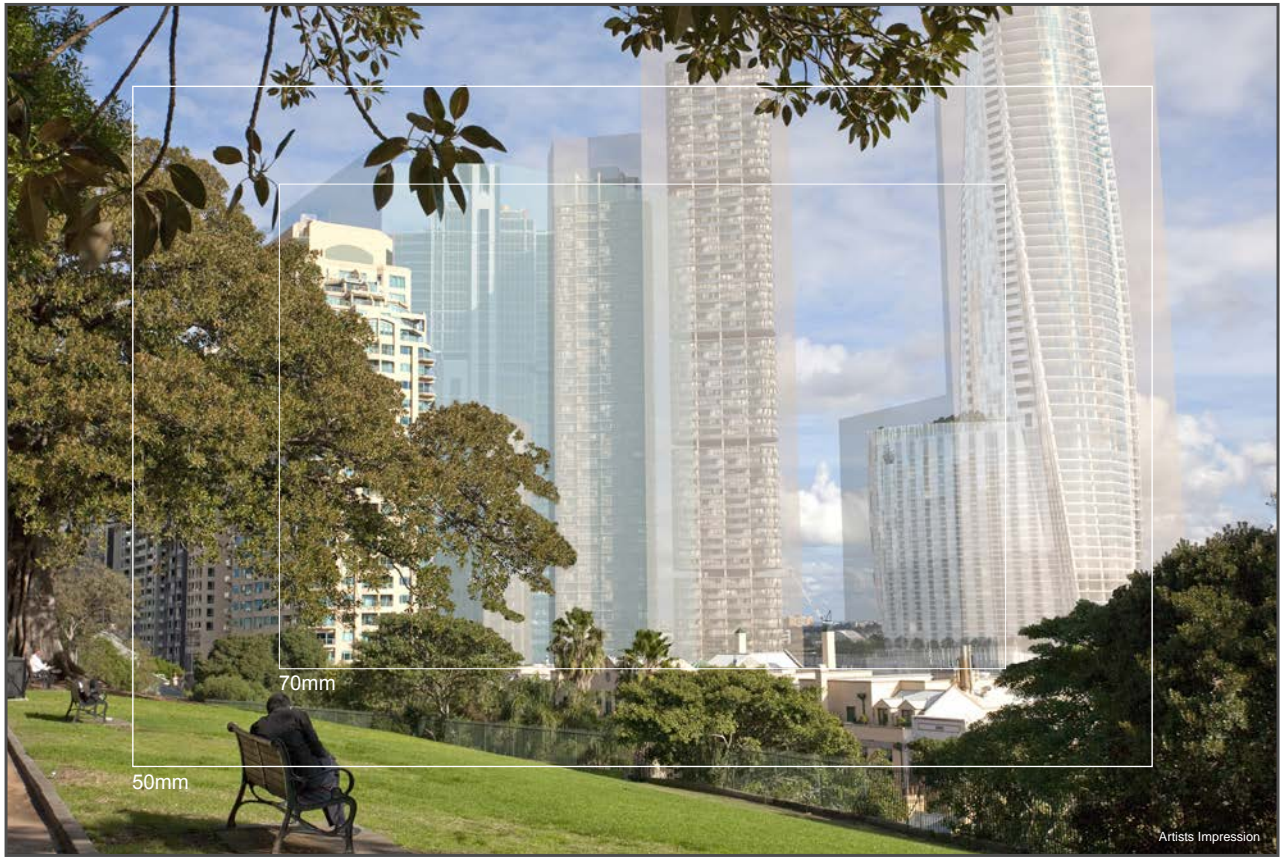


Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: CLYNE RESERVE
Camera R.L. 20.78m
MGA coords: X: 333657.71, Y: 6252257.07
Lens: 25mm
Dimensions: 5616 x 3744
Date: 14/11/2013, 12:28:48 PM
Camera: Canon EOS 5D Mark II

Rationale for lens selection

The rationale for using a 25mm lens was to provide enough immediate context from the camera location, while still being able to see enough of the Barangaroo buildings in the distance.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

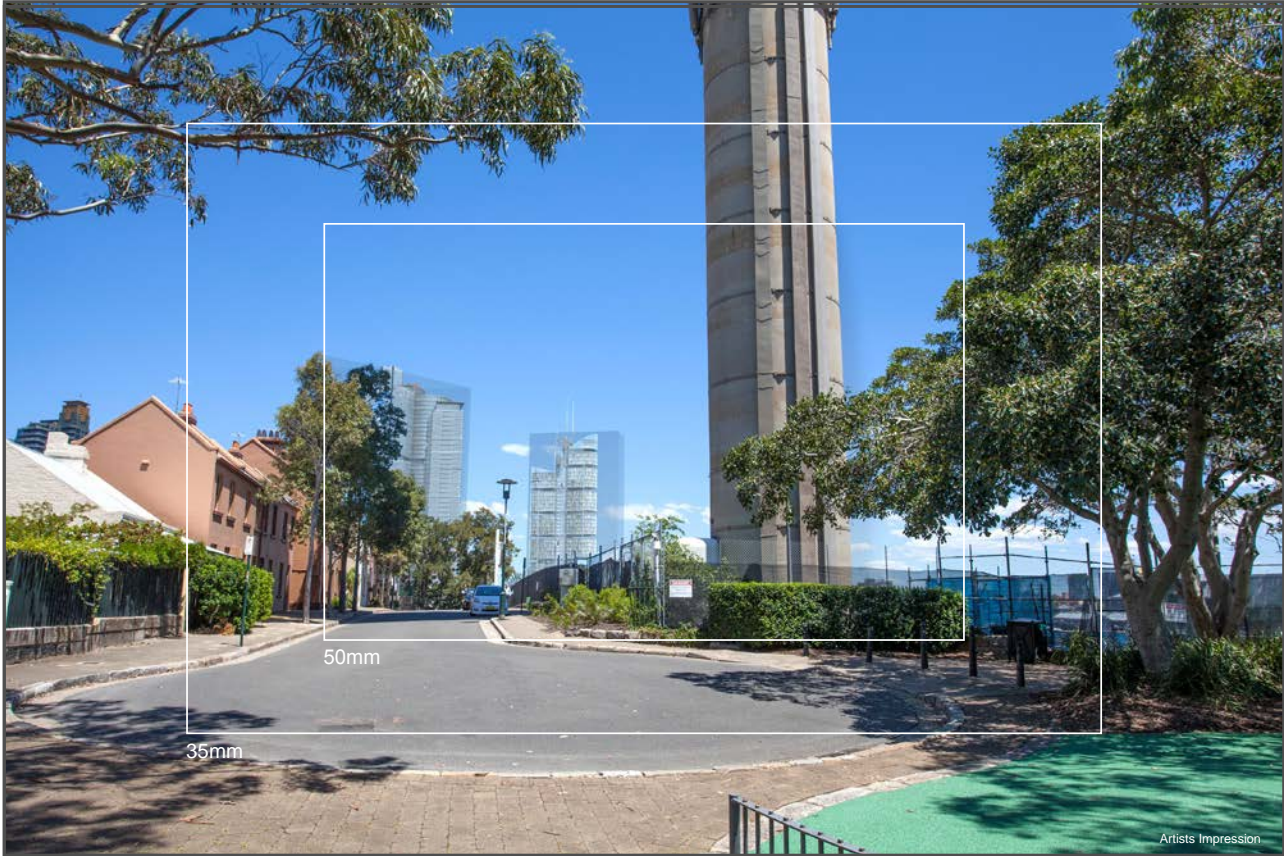


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: MUNN RESERVE
Camera R.L. 18.12m
MGA coords: X: 333731.60, Y: 6252111.36
Lens: 25mm
Dimensions: 5616 x 3744
Date: 14/11/2013, 12:16:37 PM
Camera: Canon EOS 5D Mark II

Rationale for lens selection

The rationale for using a 25mm lens was to provide enough immediate context from the camera location, while still being able to see enough of the Barangaroo buildings in the distance.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



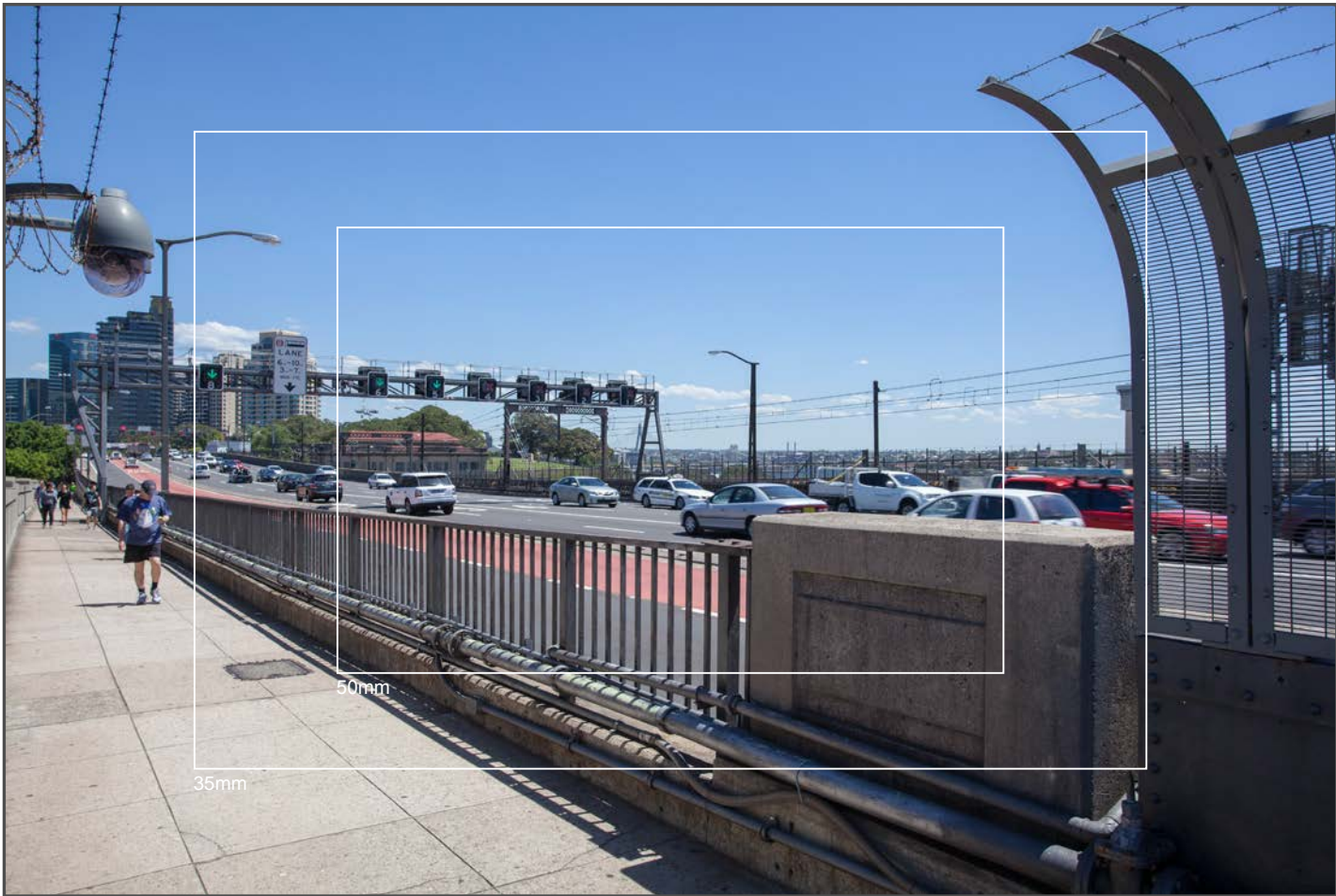
Image showing massing of the Proposed Concept Plan Amendment (Mod 8)



Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: SYDNEY HARBOUR BRIDGE
Camera R.L. 47.63m
MGA coords: X: 334214.97, Y: 6252259.87
Lens: 25mm
Dimensions: 5616 x 3744
Date: 14/11/2013, 12:51:10 PM
Camera: Canon EOS 5D Mark II

Rationale for lens selection

The rationale for using a 25mm lens was to provide enough immediate context from the camera location, while still being able to see enough of the Barangaroo buildings in the distance.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

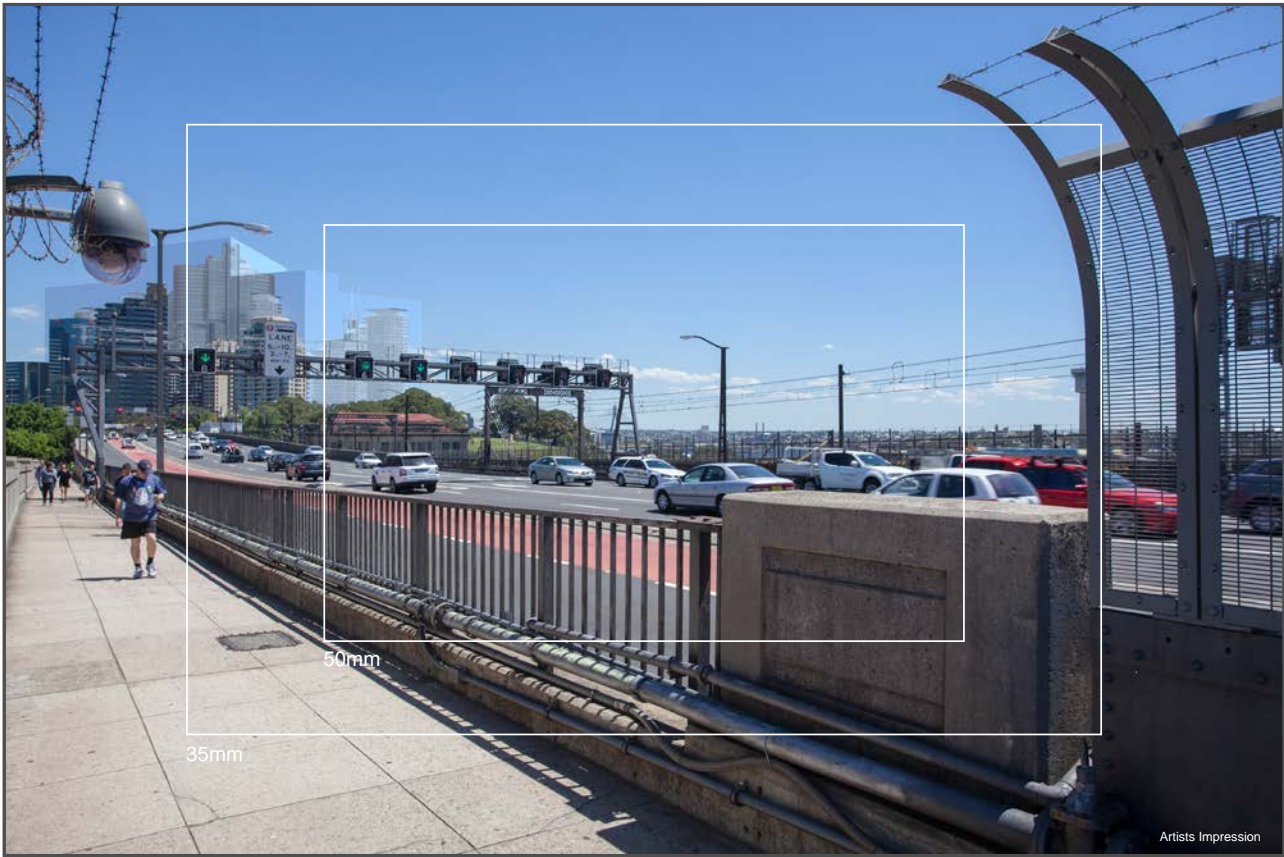


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.

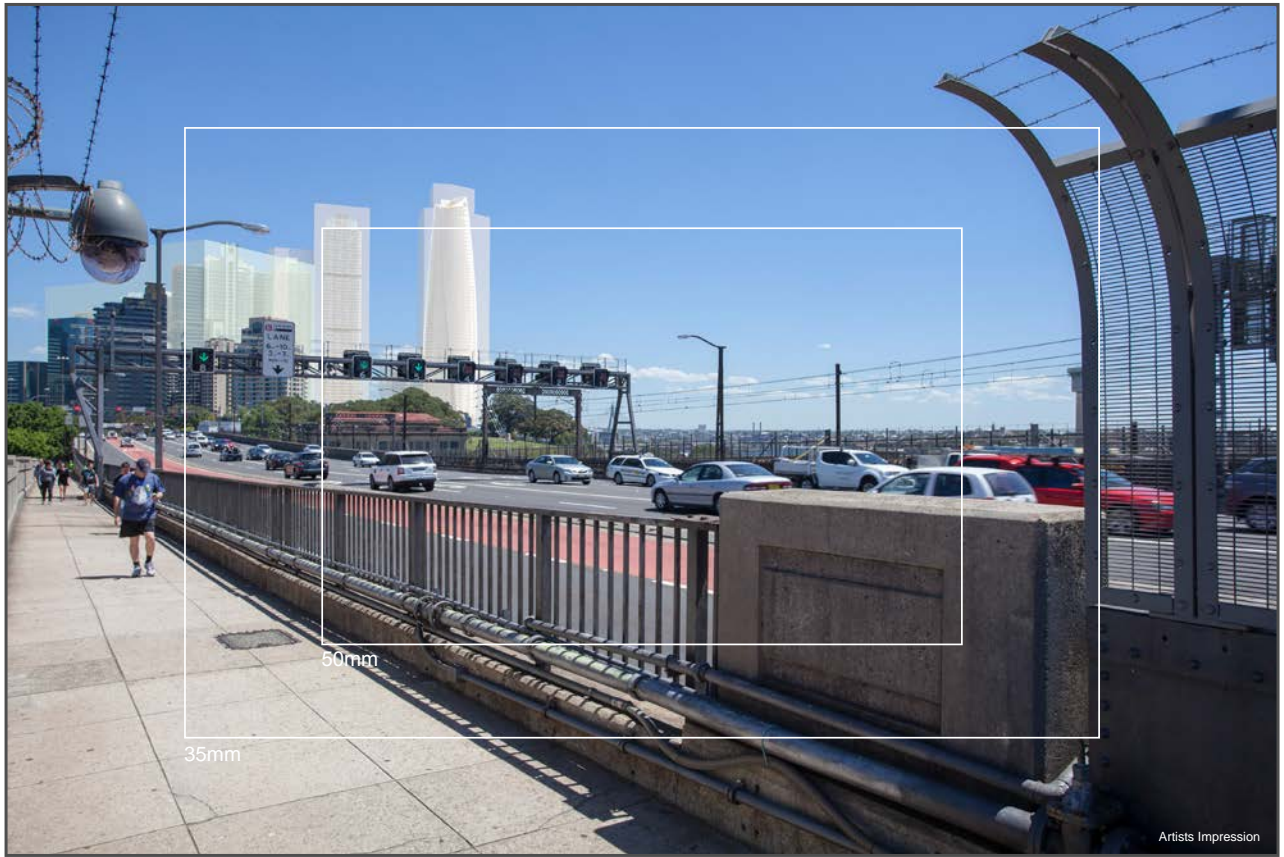


Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: DARLING HARBOUR (PYRMONT BRIDGE)
Camera R.L. 13.6m
MGA coords: X: 333547.744, Y: 6250747.816
Lens: 22mm
Dimensions: 4368 x 2912
Date: 8/06/2010 5:15 PM
Camera: Canon EOS 5D

Rationale for lens selection

The rationale for using a 22mm lens was to capture the surrounding city buildings, while capturing some of the foreground elements so that the viewer could feel like they were standing on the bridge.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image. (See appendix B)



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

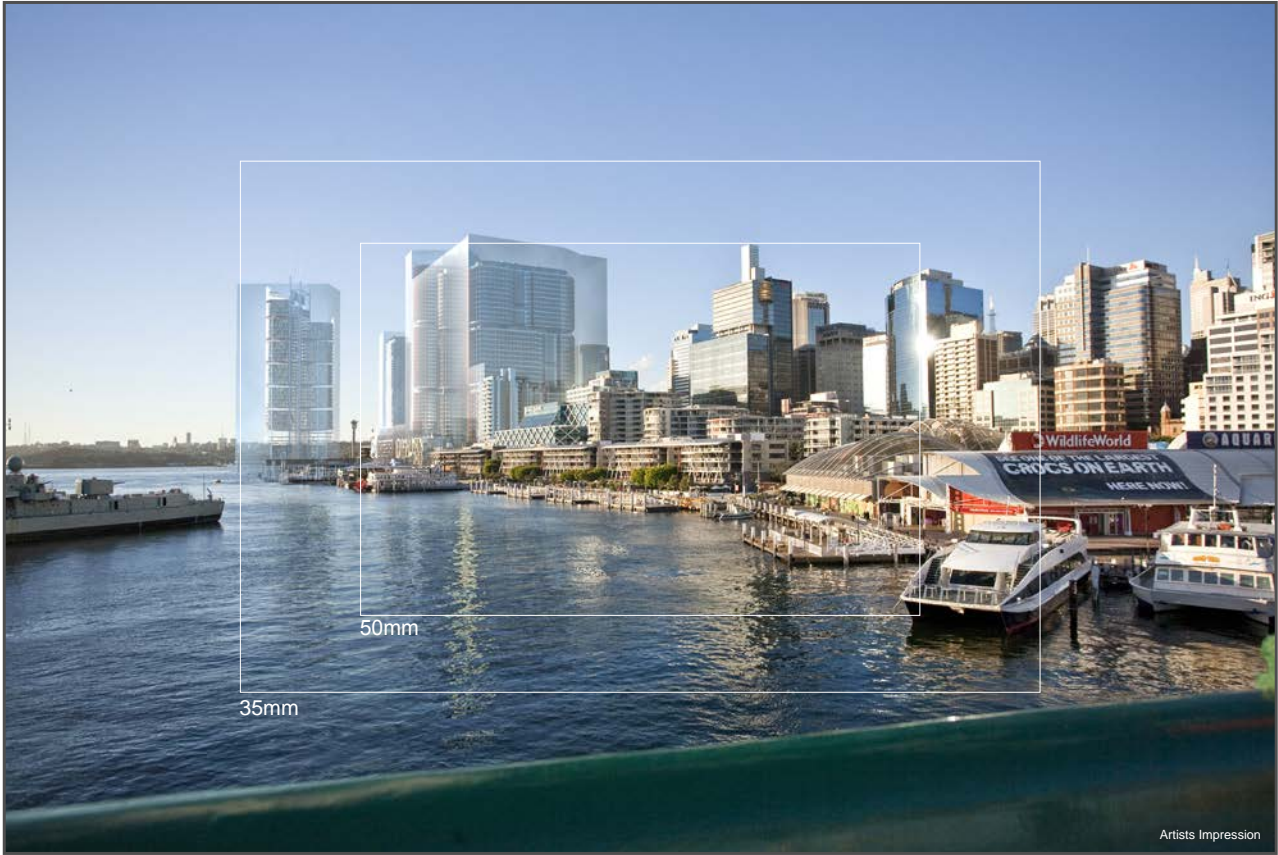


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.

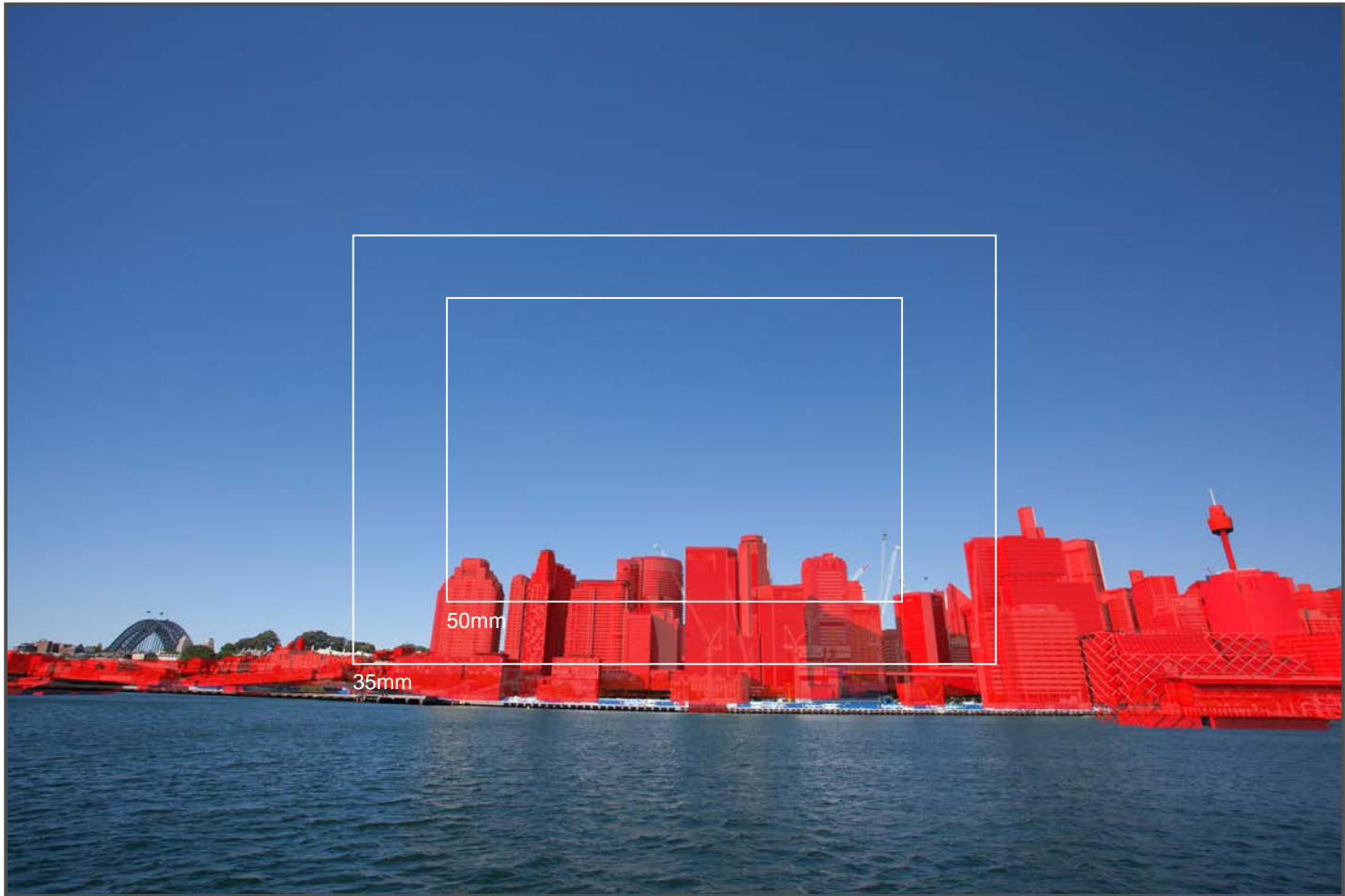


Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: BALLARAAT PARK
Camera R.L. 3.90m
MGA coords: X: 333259.86, Y: 6251452.93
Lens: 17mm
Dimensions: 4368 x 2912
Date: 2/06/2010 2:57 PM
Camera: Canon EOS 5D Mark II

Rationale for lens selection

The rationale for using a 17mm lens was to be able to show the entire Mod 8 buildings, along with some of the surrounding buildings.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.

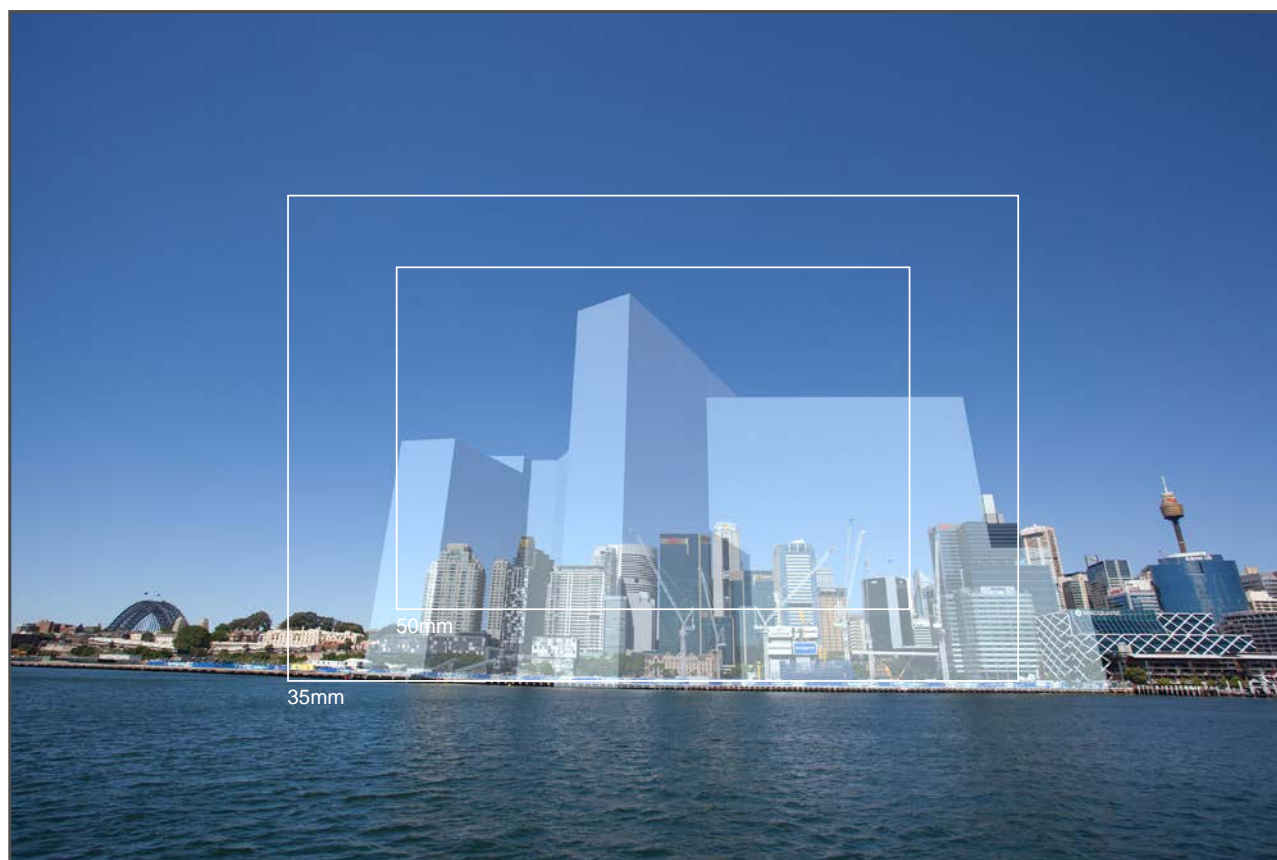


Image showing massing of the Approved Concept Plan Amendment (Mod 7)

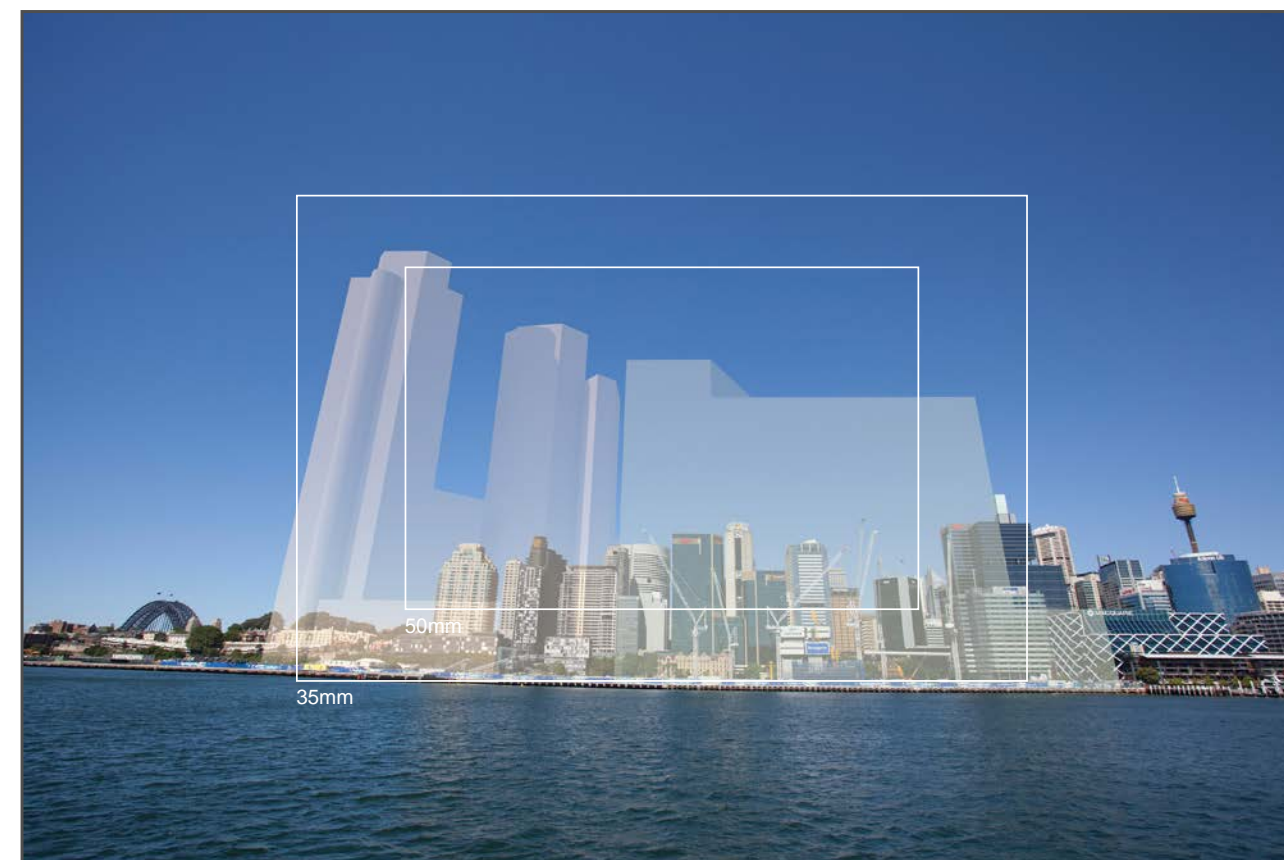


Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

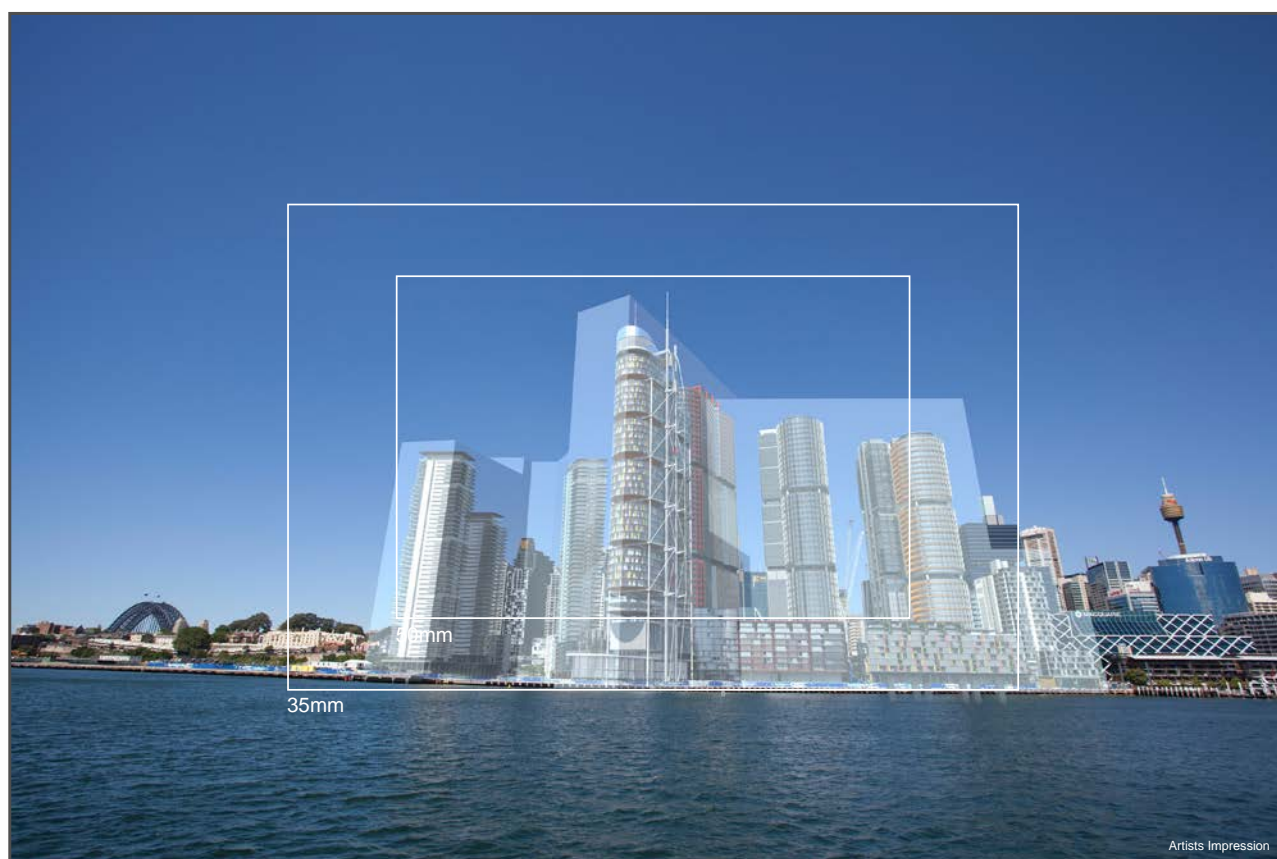


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.

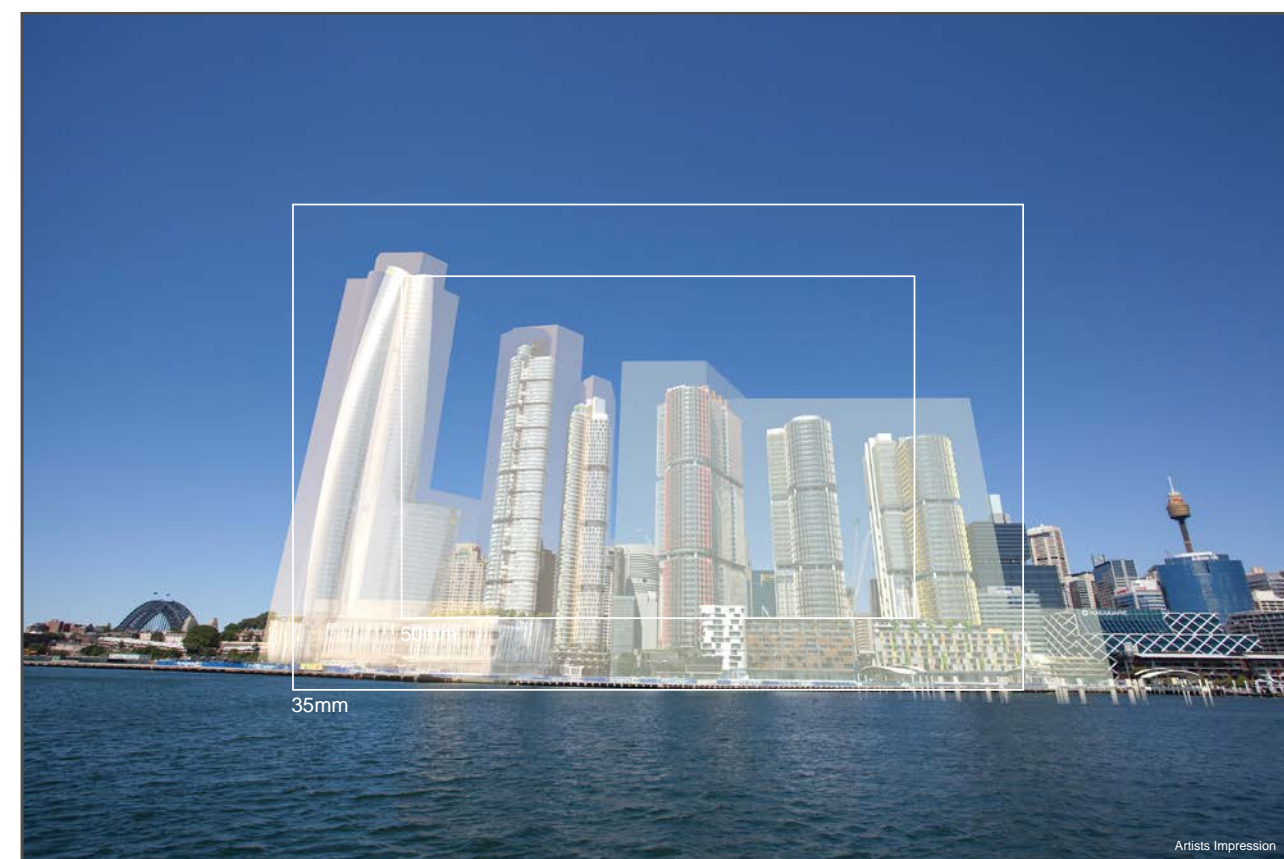
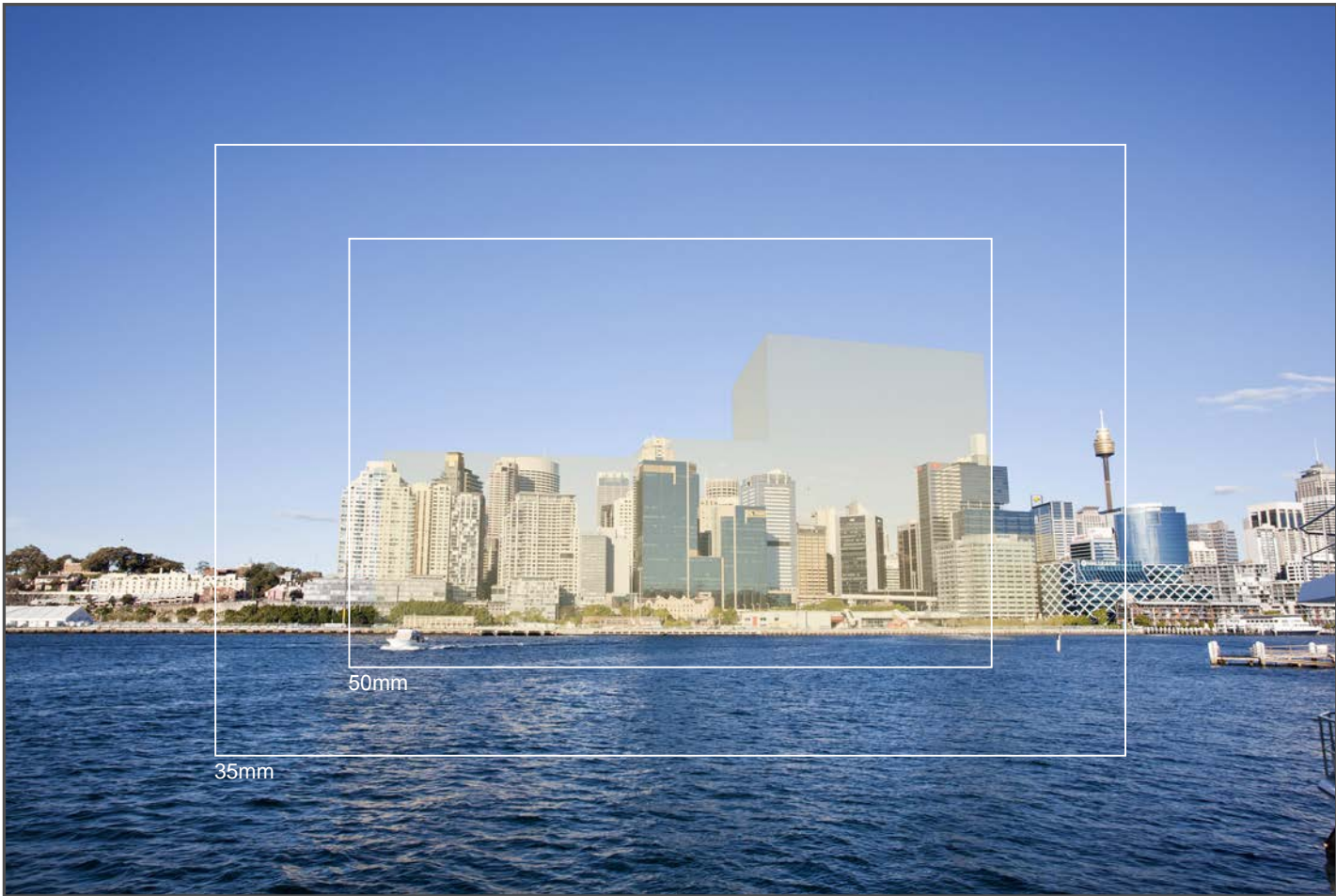


Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: PYRMONT PARK PIER
Camera R.L. 4.2m
MGA coords: X: 333136.251, Y: 6251610.664
Lens: 24mm
Dimensions: 4368 x 2912
Date: 2/06/2010 4:55 PM
Camera: Canon EOS 5D

Rationale for lens selection

The rationale for using a 24mm lens was to capture as much of the city buildings as possible from the selected position.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



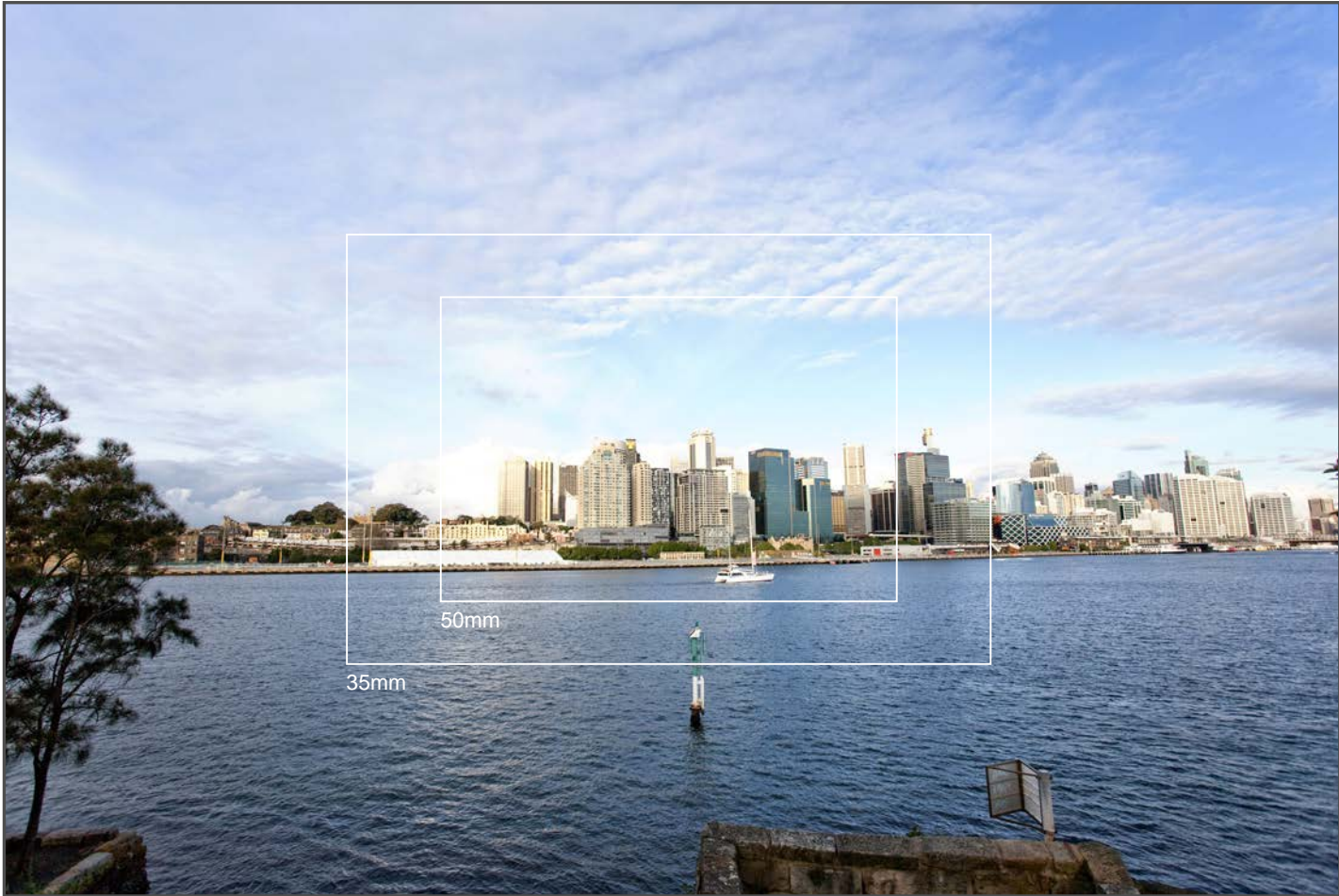
Image showing massing of the Proposed Concept Plan Amendment (Mod 8)



Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.

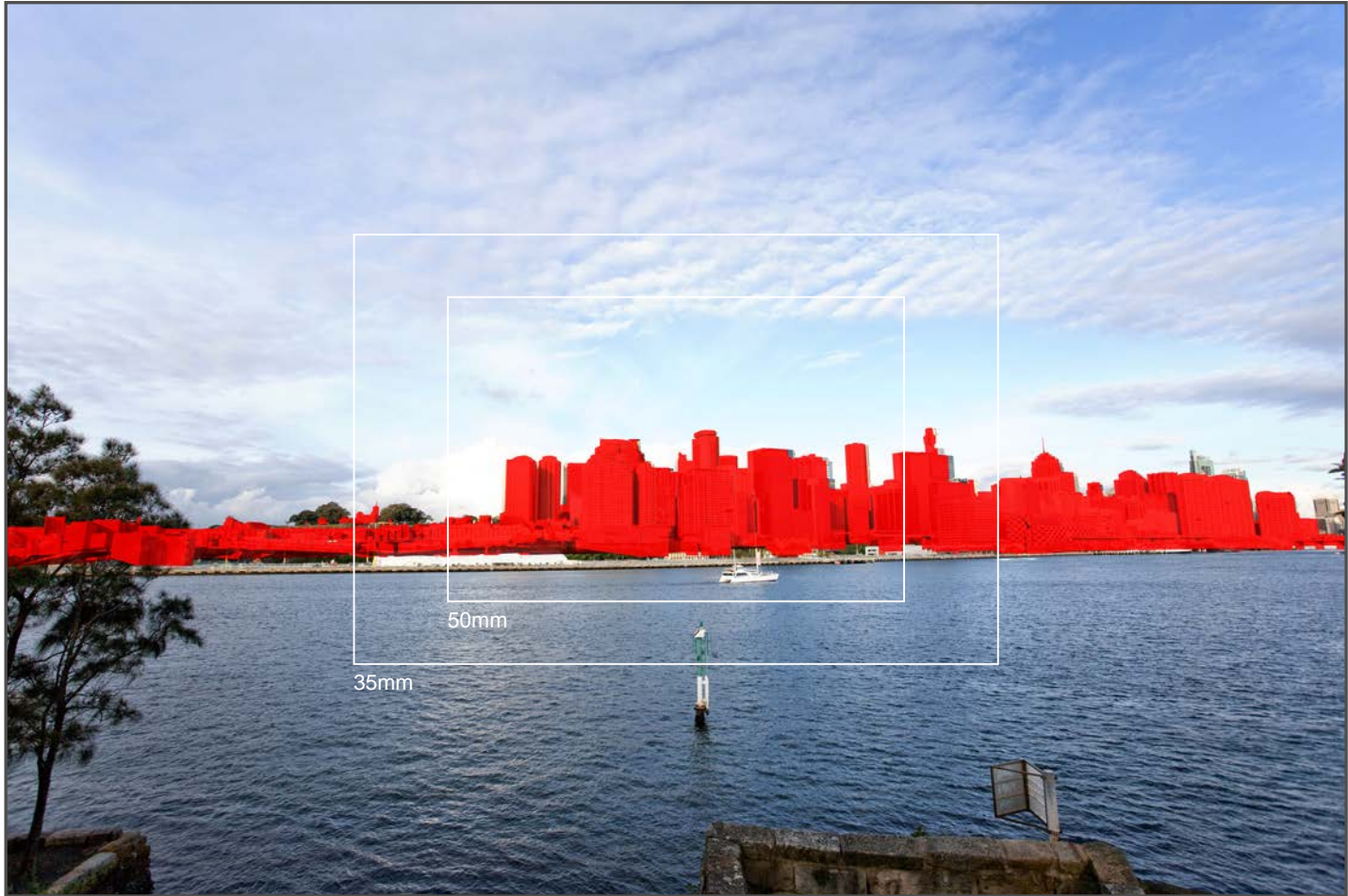


Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: BALMAIN EAST
Camera R.L. 11.6m
MGA coords: X: 333142.111, Y: 6251923.256
Lens: 17mm
Dimensions: 4368 x 2912
Date: 2/06/2010 4:55 PM
Camera: Canon EOS 5D

Rationale for lens selection

The rationale for using a 17mm lens was to capture as much of the city buildings as possible from the selected position. We also wanted to show some of the foreground element so the viewer knows where they are standing.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



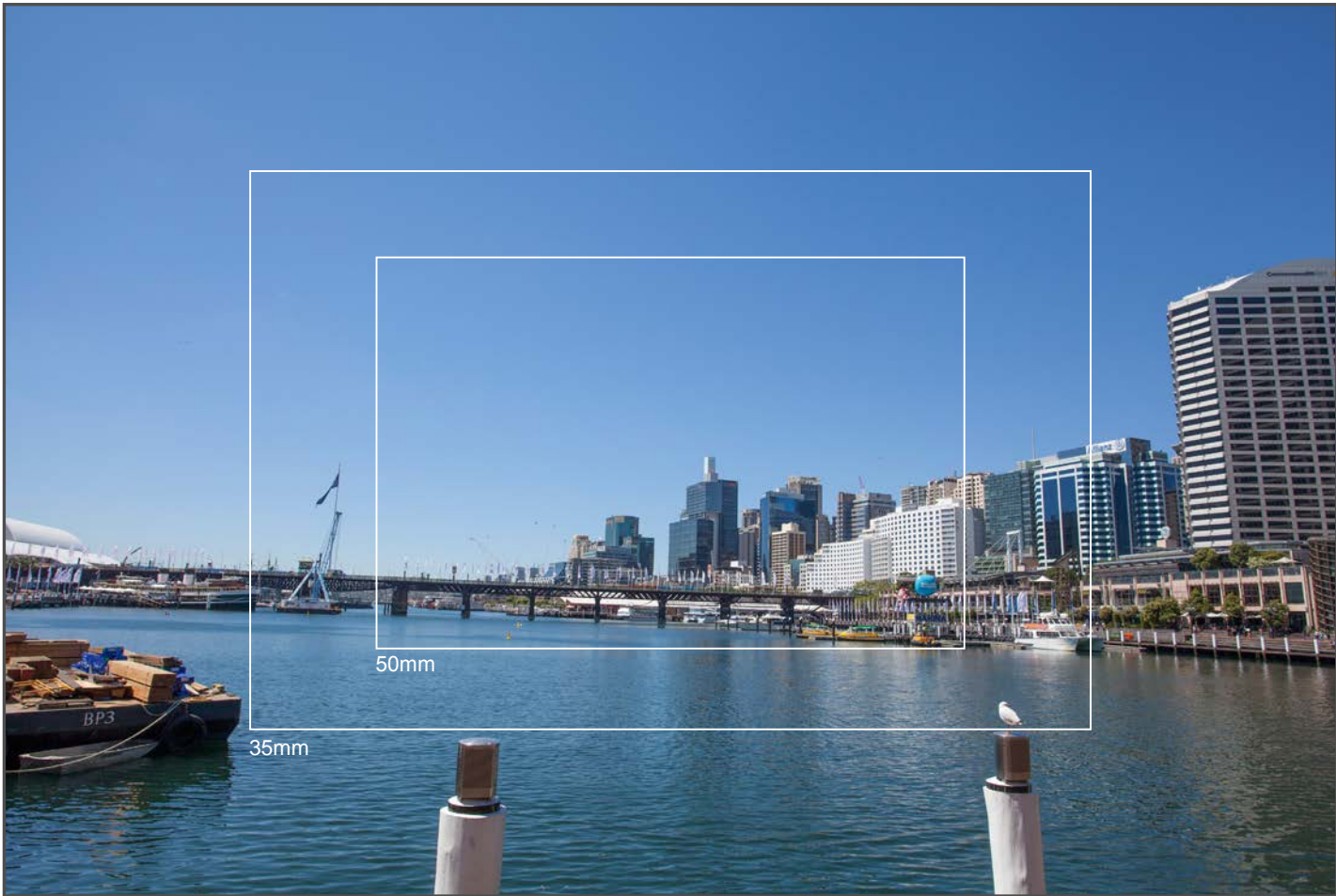
Image showing massing of the Proposed Concept Plan Amendment (Mod 8)



Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.

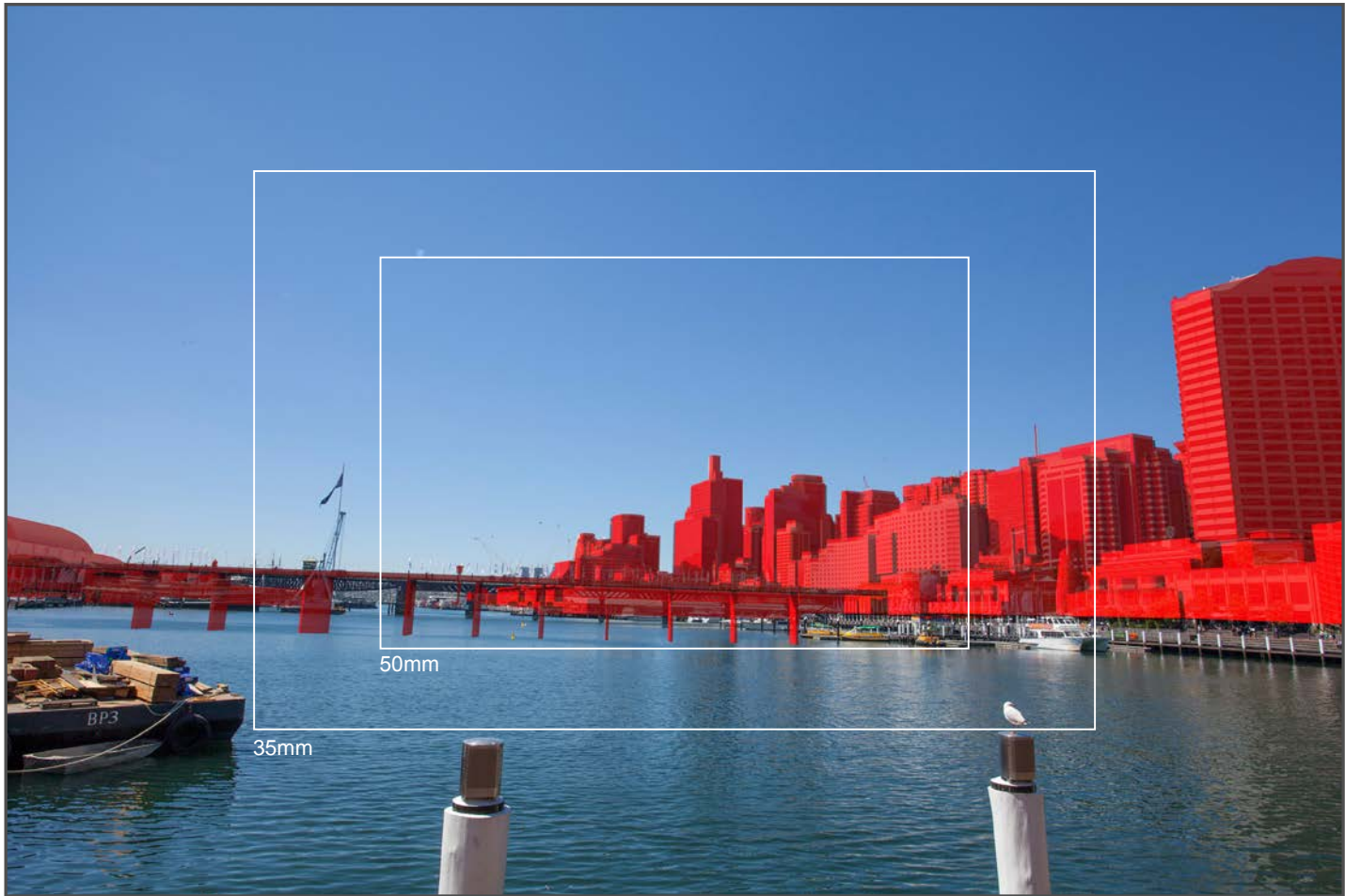


Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: DARLING HARBOUR
Camera R.L. 1.93m
MGA coords: X: 333552.38, Y: 6250416.21
Lens: 22mm
Dimensions: 5616 x 3744
Date: 14/11/2013, 1:43:05 PM
Camera: Canon EOS 5D Mark II

Rationale for lens selection

The rationale for using a 22mm lens was to capture the surrounding city buildings, while capturing some of the foreground elements so that the viewer could feel like they were standing in Darling Harbour.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.

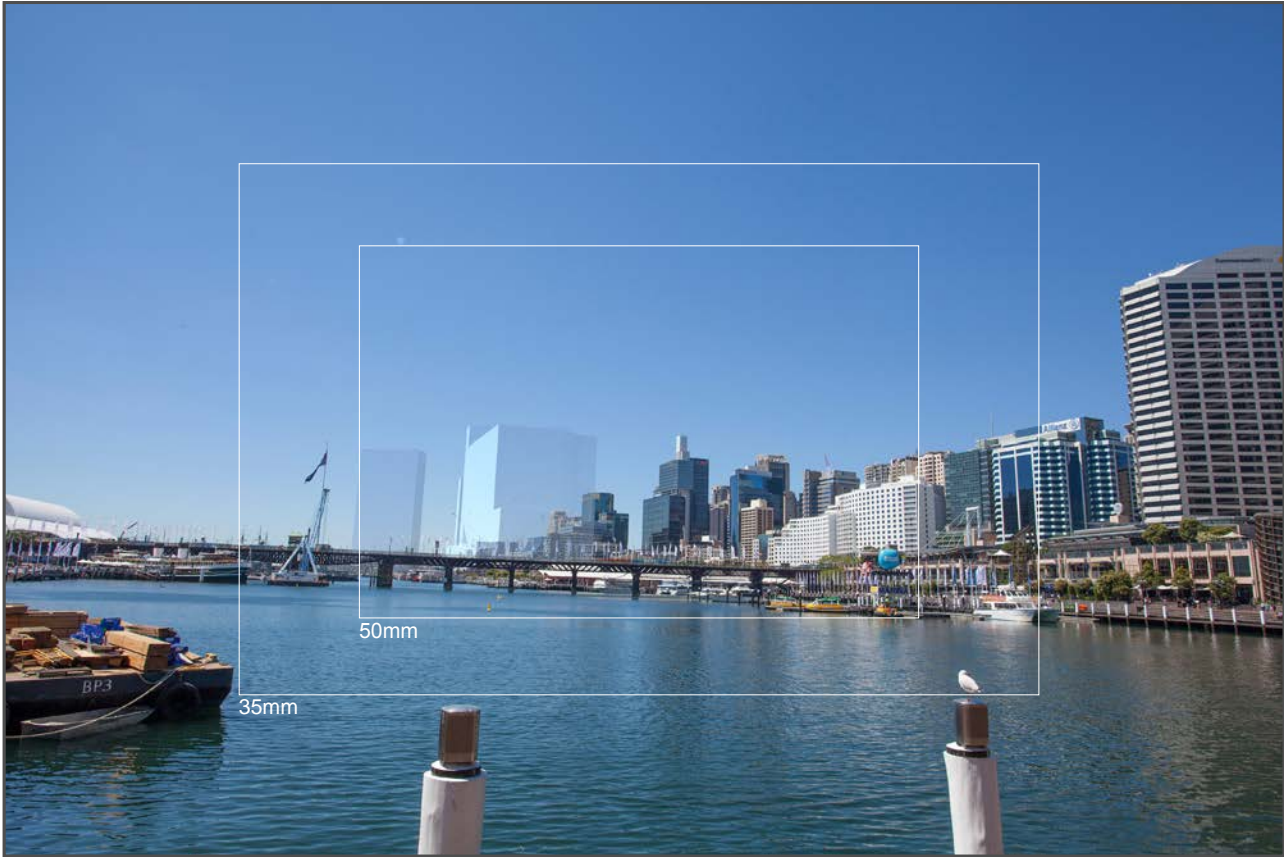


Image showing massing of the Approved Concept Plan Amendment (Mod 7)

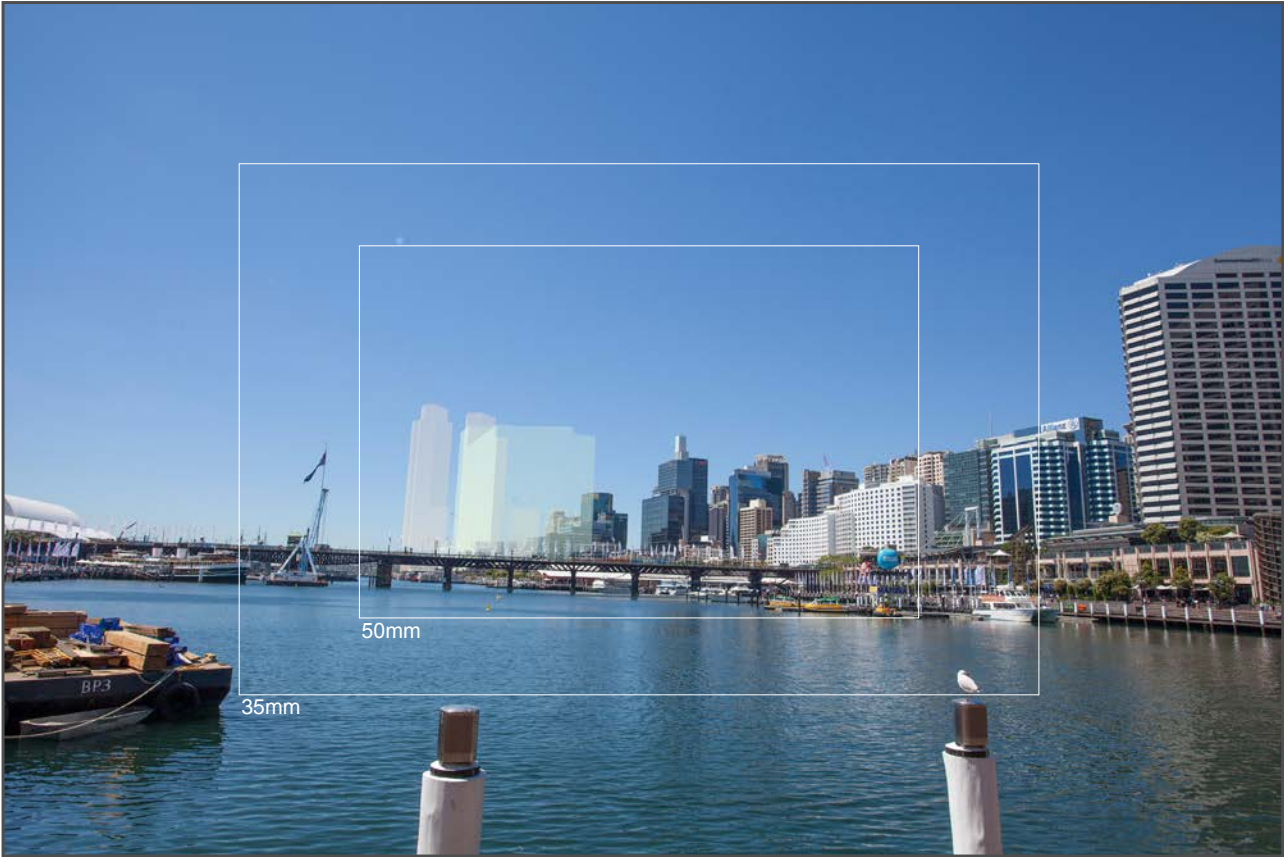


Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

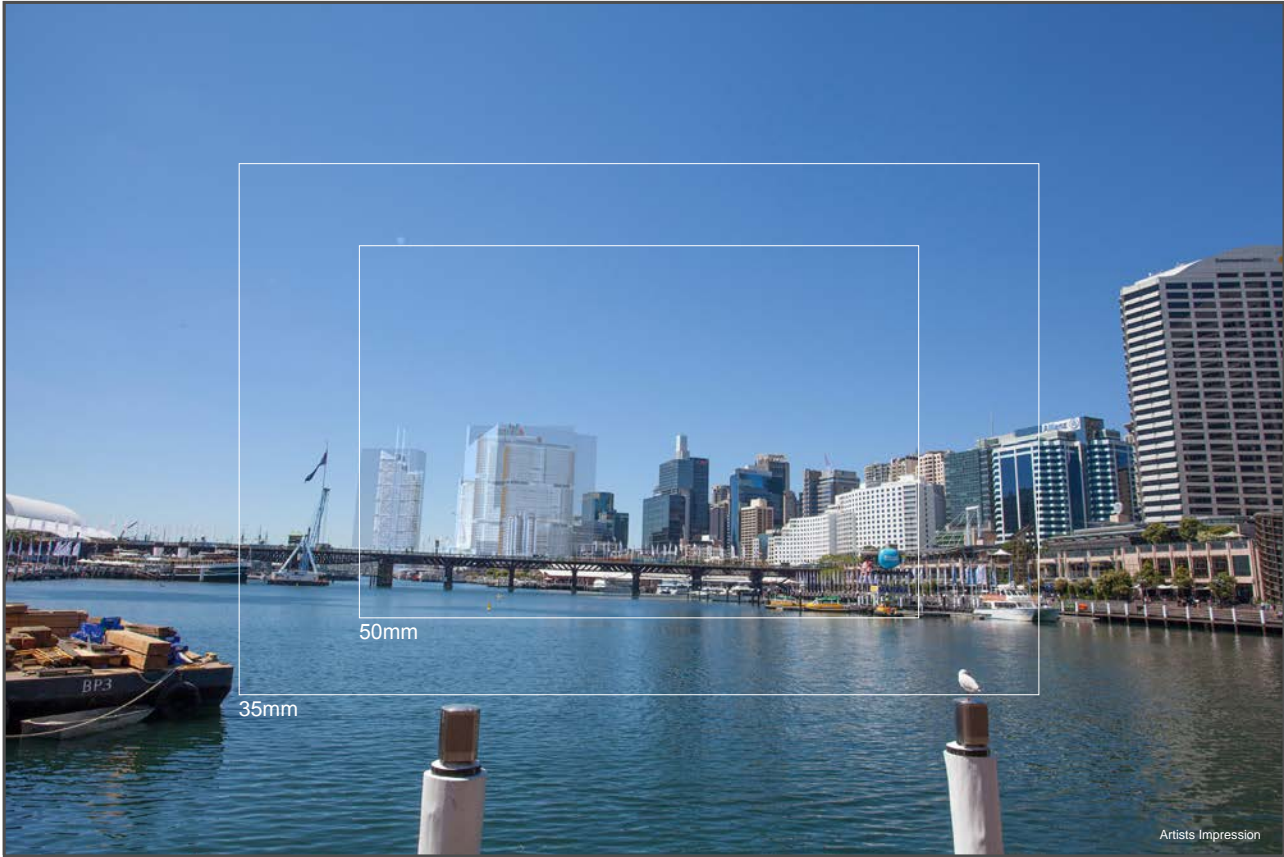


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.

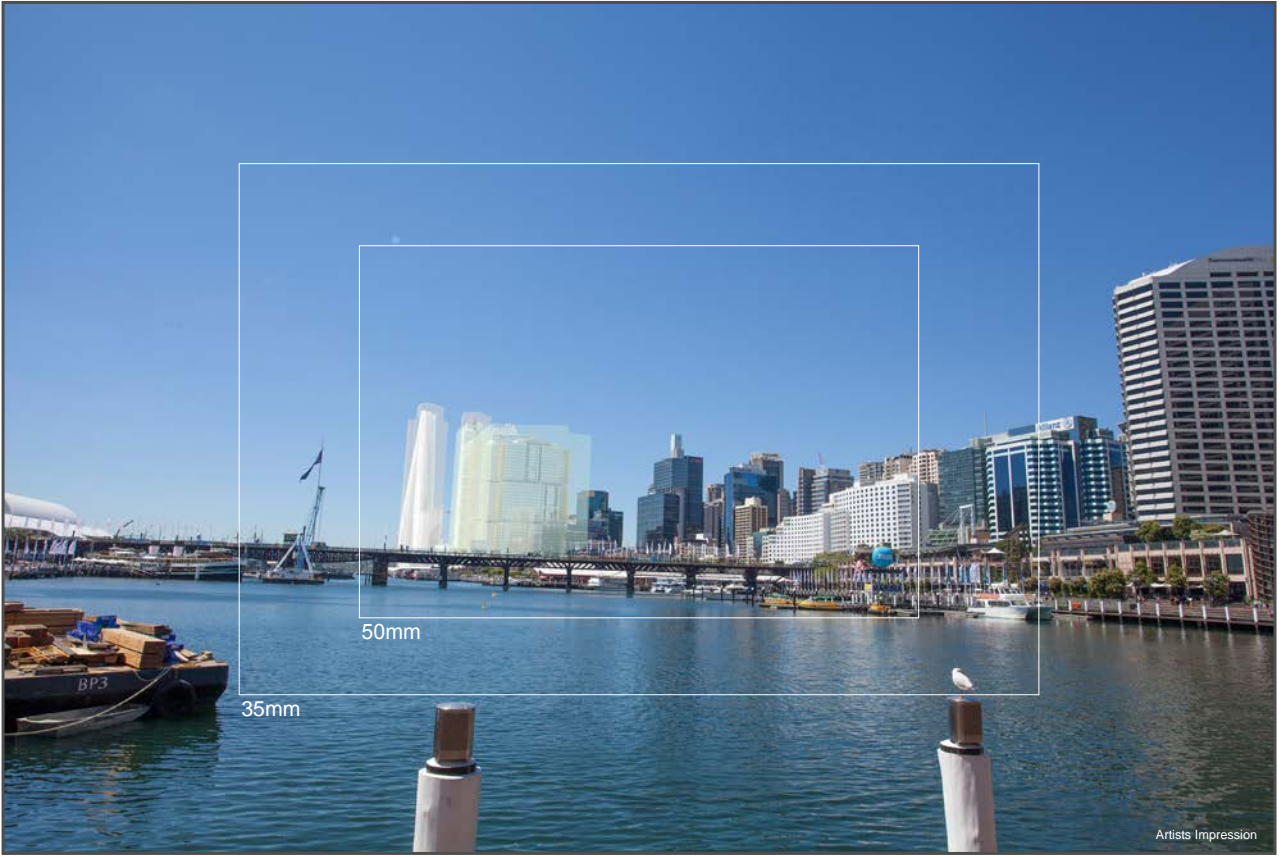
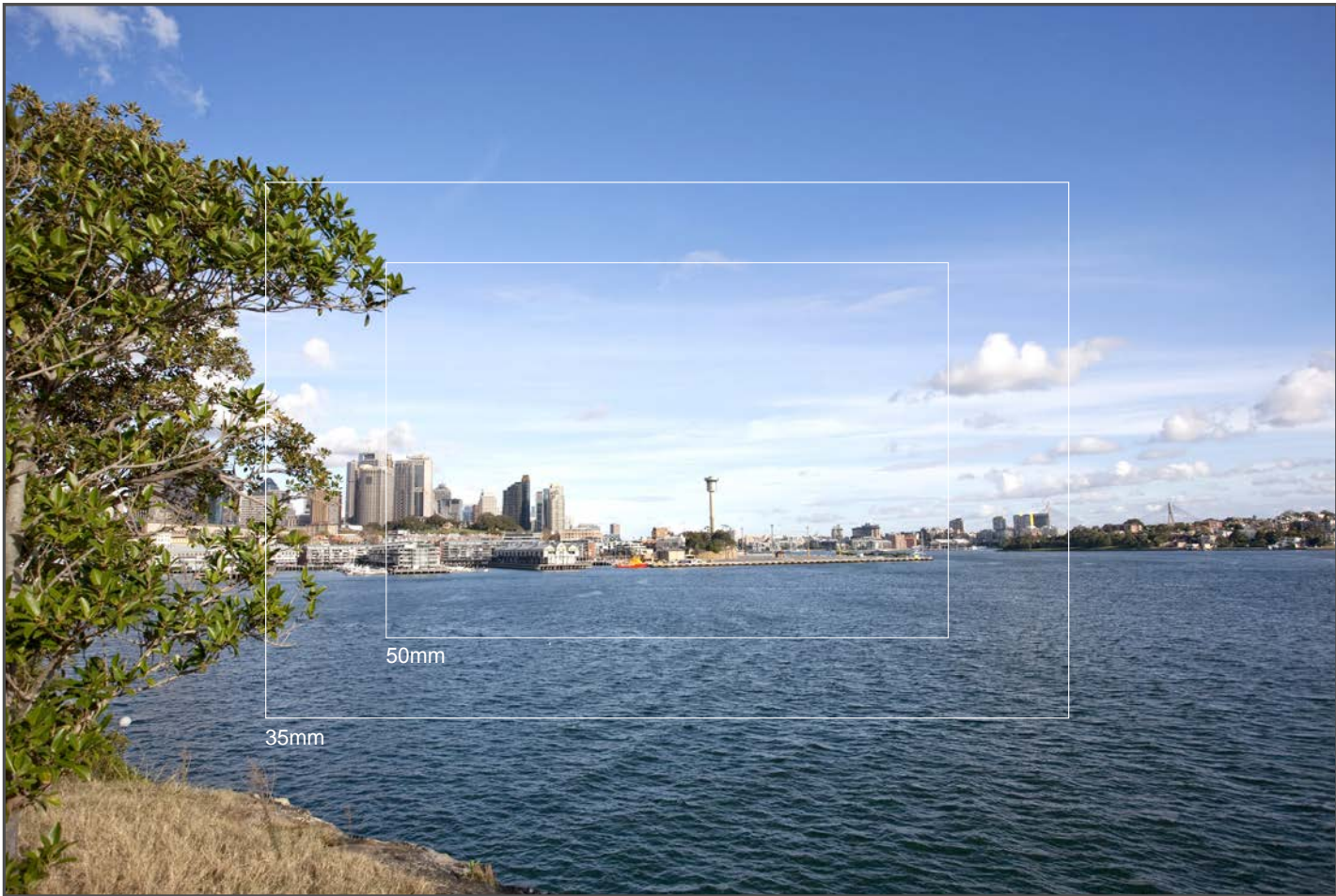


Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: BLUES POINT
Camera R.L. 14.5m
MGA coords: X: 333783.957, Y: 6253021.351
Lens: 21mm
Dimensions: 4368 x 2912
Date: 2/06/2010 3:58 PM
Camera: Canon EOS 5D

Rationale for lens selection

The rationale for using a 21mm lens was to capture as much of the city buildings as possible from the selected position. We also wanted to show some of the foreground elements so the viewer knows where they are standing.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



Image showing massing of the Proposed Concept Plan Amendment (Mod 8)



Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.

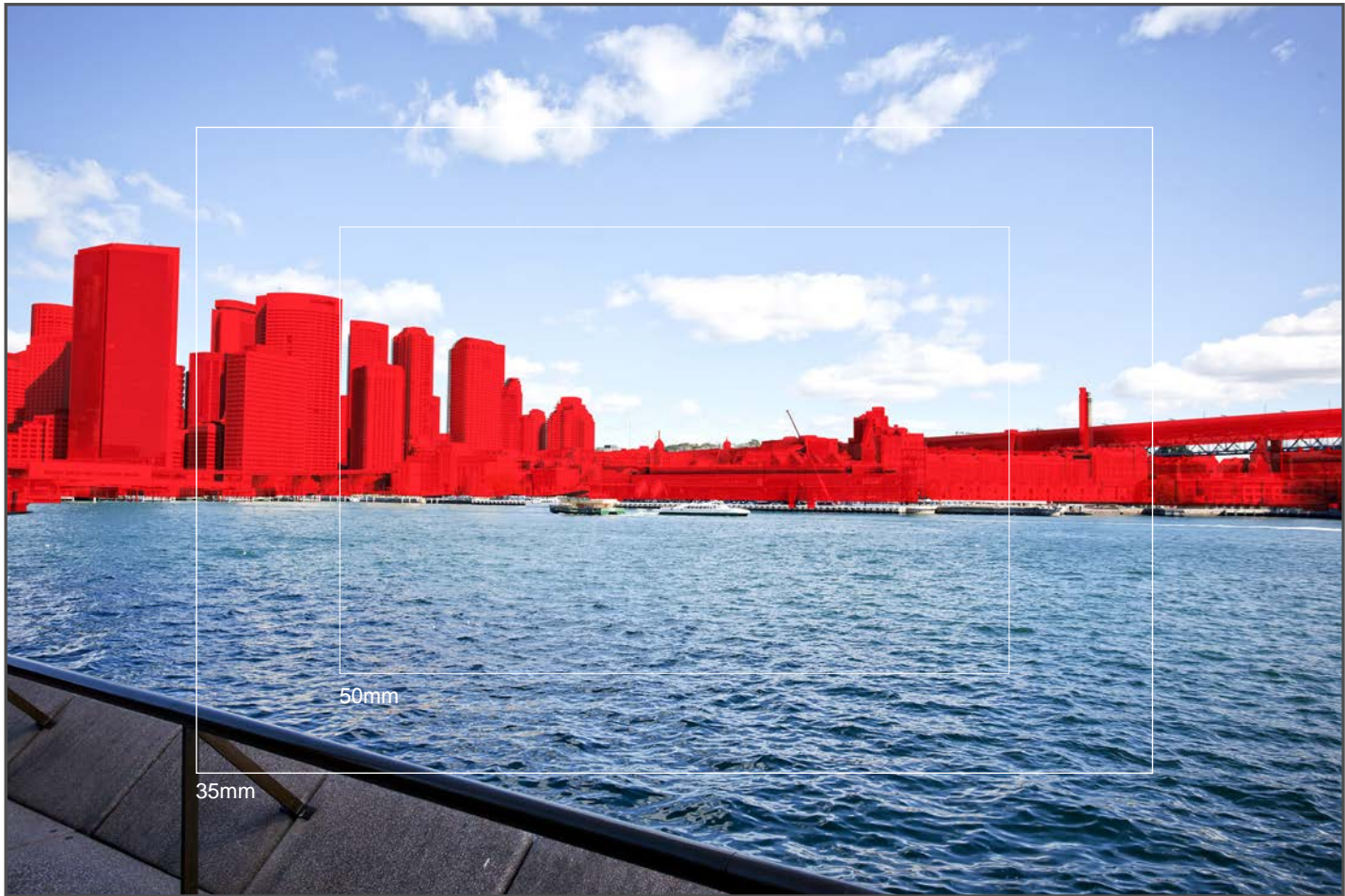


Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: OPERA HOUSE WESTERN FORECOURT
Camera R.L. 4.68m
MGA coords: X: 334826.856, Y: 6252268.439
Lens: 25mm
Dimensions: 4368 x 2912
Date: 2/06/2010 4:55 PM
Camera: Canon EOS 5D

Rationale for lens selection

The rationale for using a 25mm lens was to capture as much of the city skyline as possible from the selected position. We also wanted to show some of the bridge and also the foreground element so the viewer knows where they are standing.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



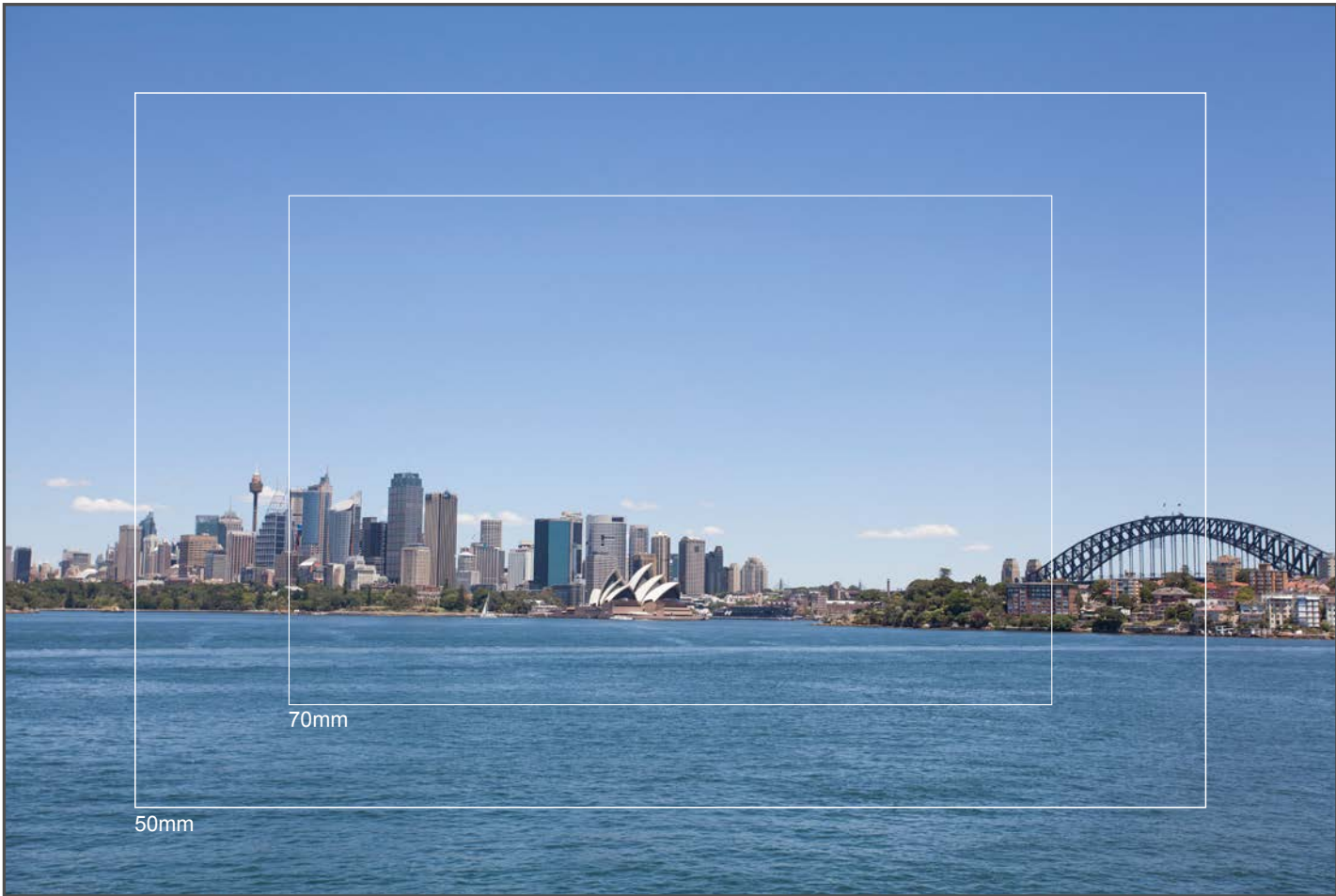
Image showing massing of the Proposed Concept Plan Amendment (Mod 8)



Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: CREMORNE POINT
Camera R.L. 6.50m
MGA coords: X: 336260.81, Y: 6253382.67
Lens: 40mm
Dimensions: 5616 x 3744
Date: 14/11/2013, 11:11:55 AM
Camera: Canon EOS 5D Mark II

Rationale for lens selection

The rationale for using a 40mm lens was that from this specific location the wider lens did not provide a close enough view of the Barangaroo buildings.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.

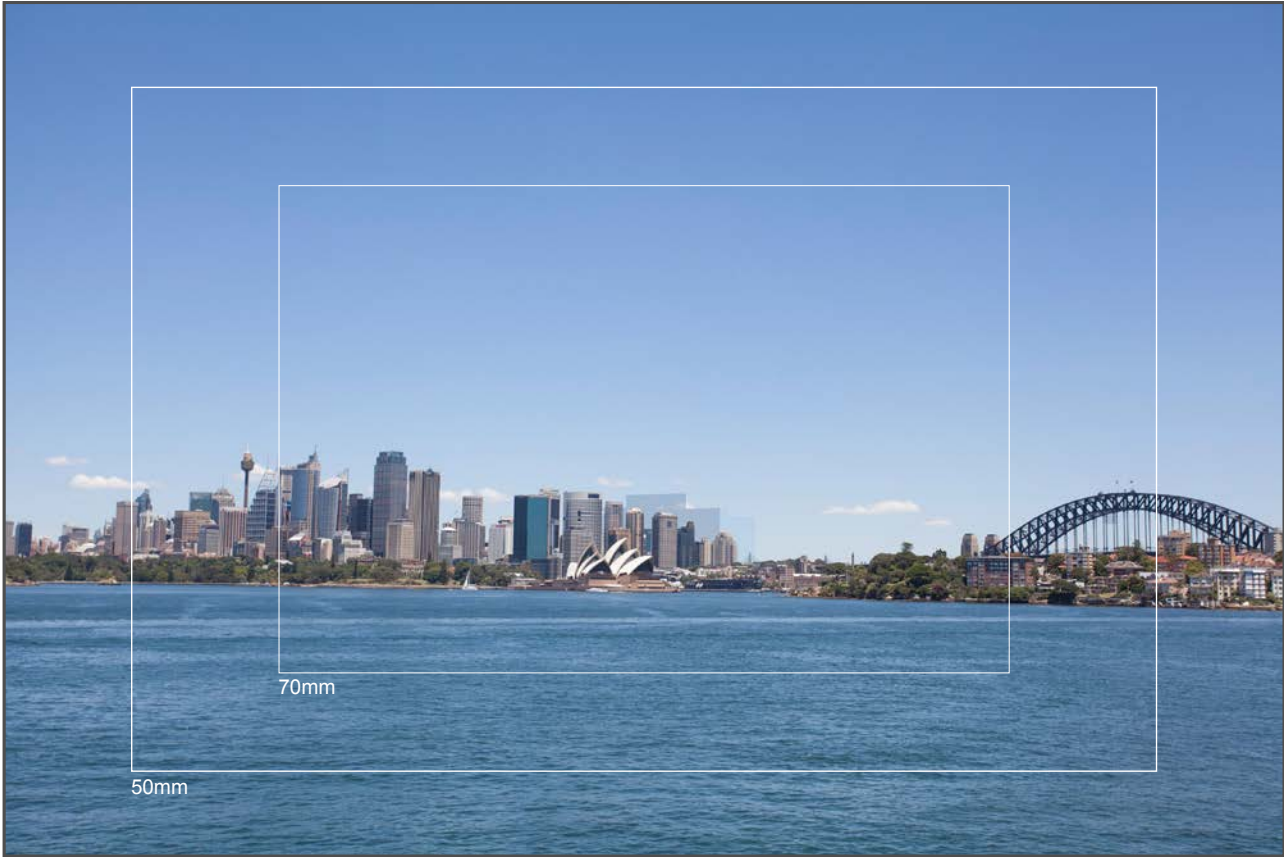


Image showing massing of the Approved Concept Plan Amendment (Mod 7)



Image showing massing of the Proposed Concept Plan Amendment (Mod 8)



Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: GLADESVILLE BRIDGE
Camera R.L. 41.57m
MGA coords: X: 328625.52, Y: 6253826.63
Lens: 40mm
Dimensions: 5616 x 3744
Date: 14/11/2013, 2:41:51 PM
Camera: Canon EOS 5D Mark II

Rationale for lens selection

The rationale for using a 40mm lens was that from this specific location the wider lens did not provide a close enough view of the Barangaroo buildings.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.



Image showing massing of the Approved Concept Plan Amendment (Mod 7)



Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

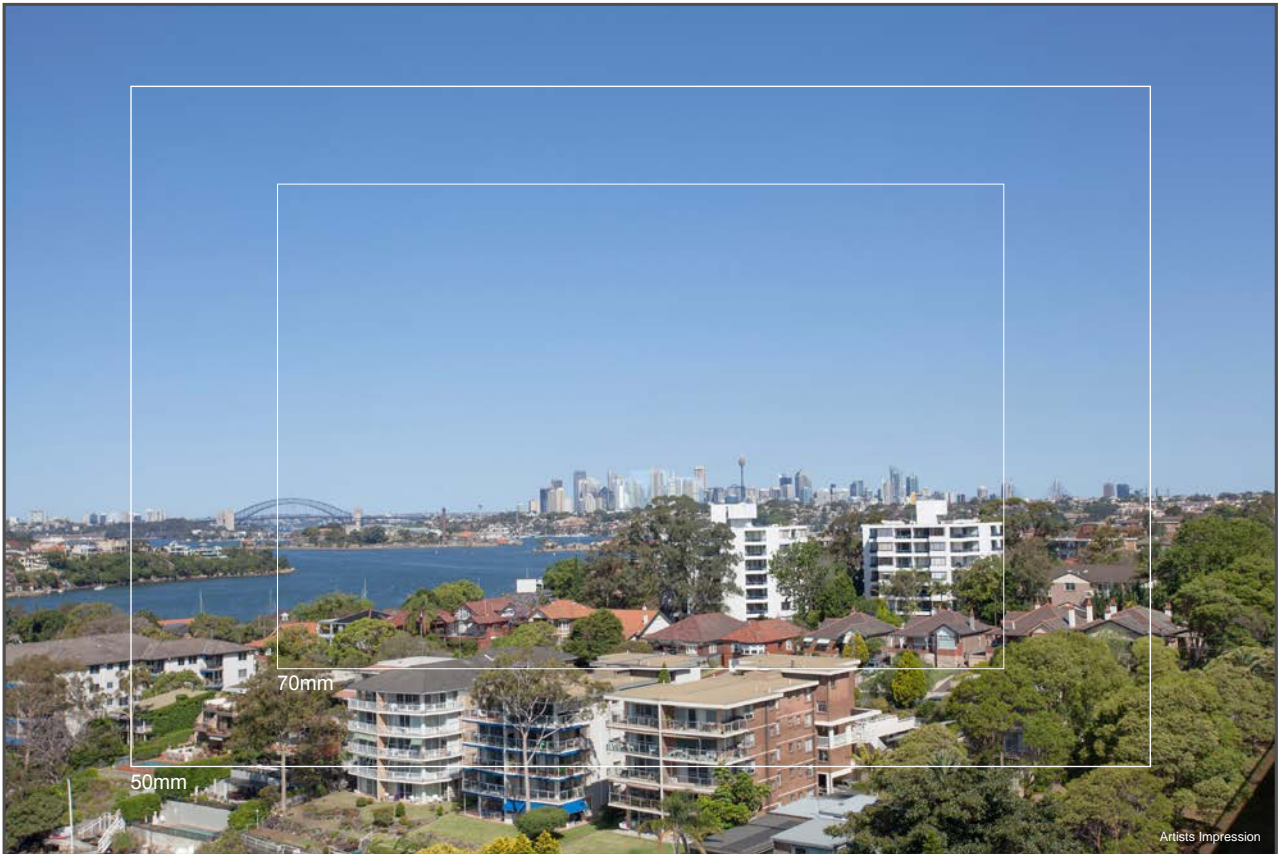
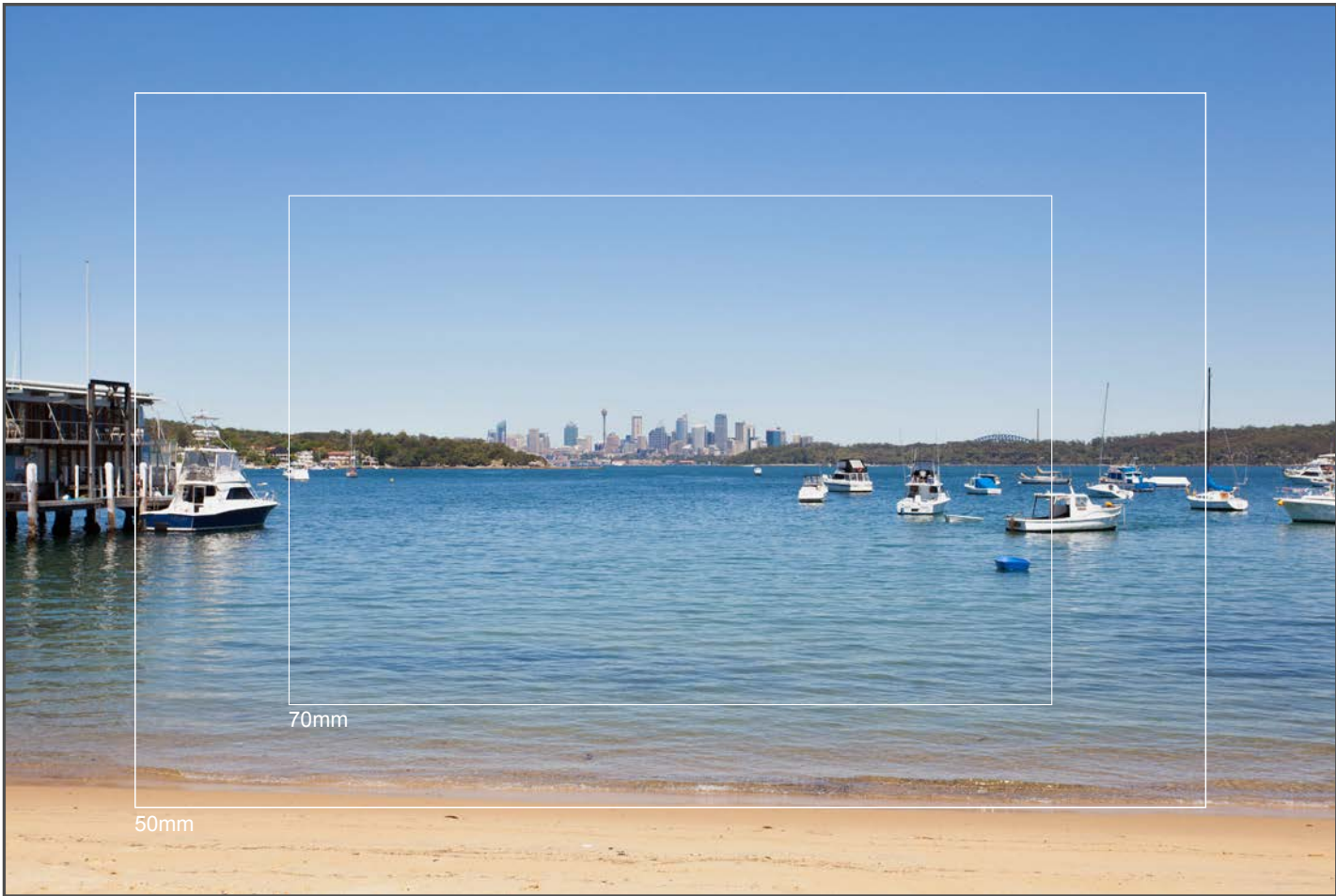


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.



Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.



Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: WATSONS BAY
Camera R.L. 1.85m
MGA coords: X: 341048.94, Y: 6253777.40
Lens: 40mm
Dimensions: 5616 x 3744
Date: 14/11/2013, 10:13:21 AM
Camera: Canon EOS 5D Mark II

Rationale for lens selection

The rationale for using a 40mm lens was that from this specific location the wider lens did not provide a close enough view of the Barangaroo buildings.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.

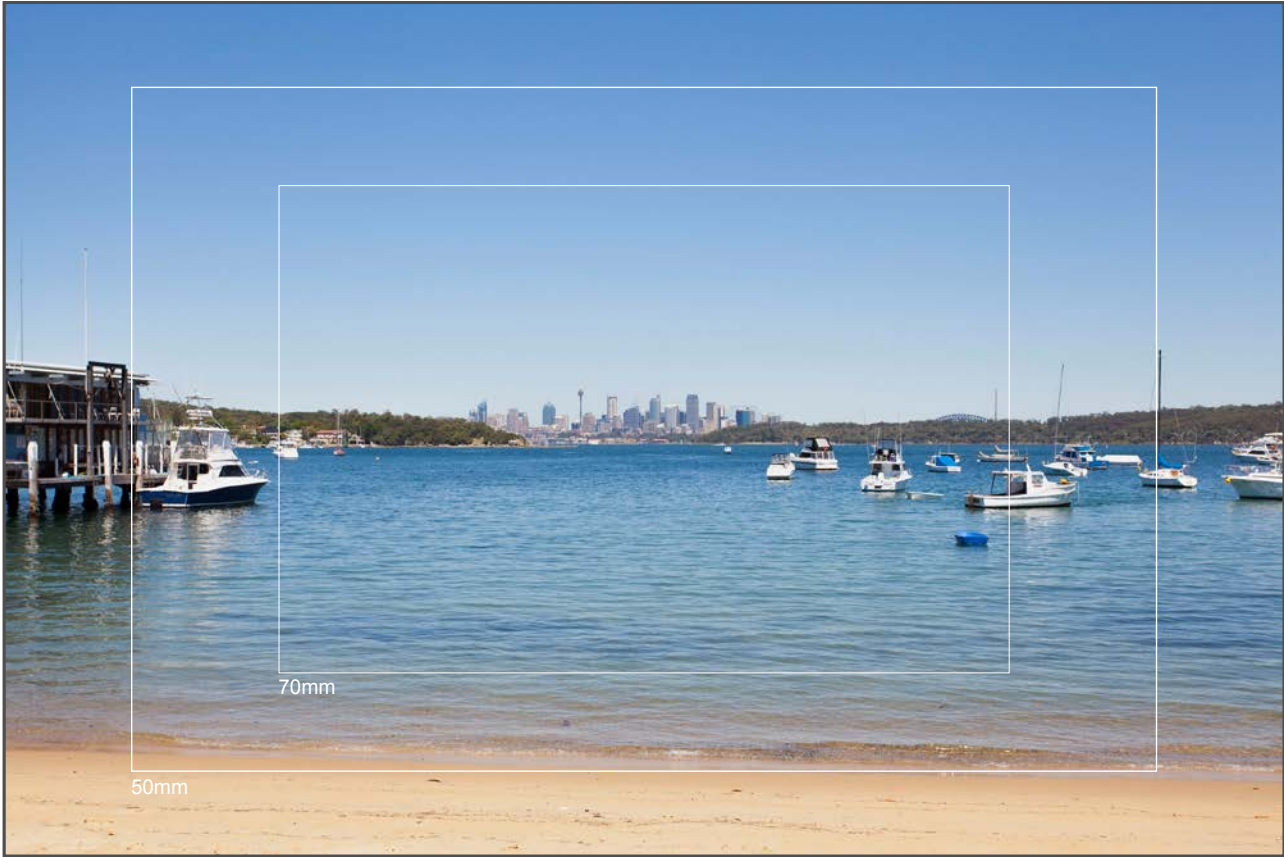


Image showing massing of the Approved Concept Plan Amendment (Mod 7)

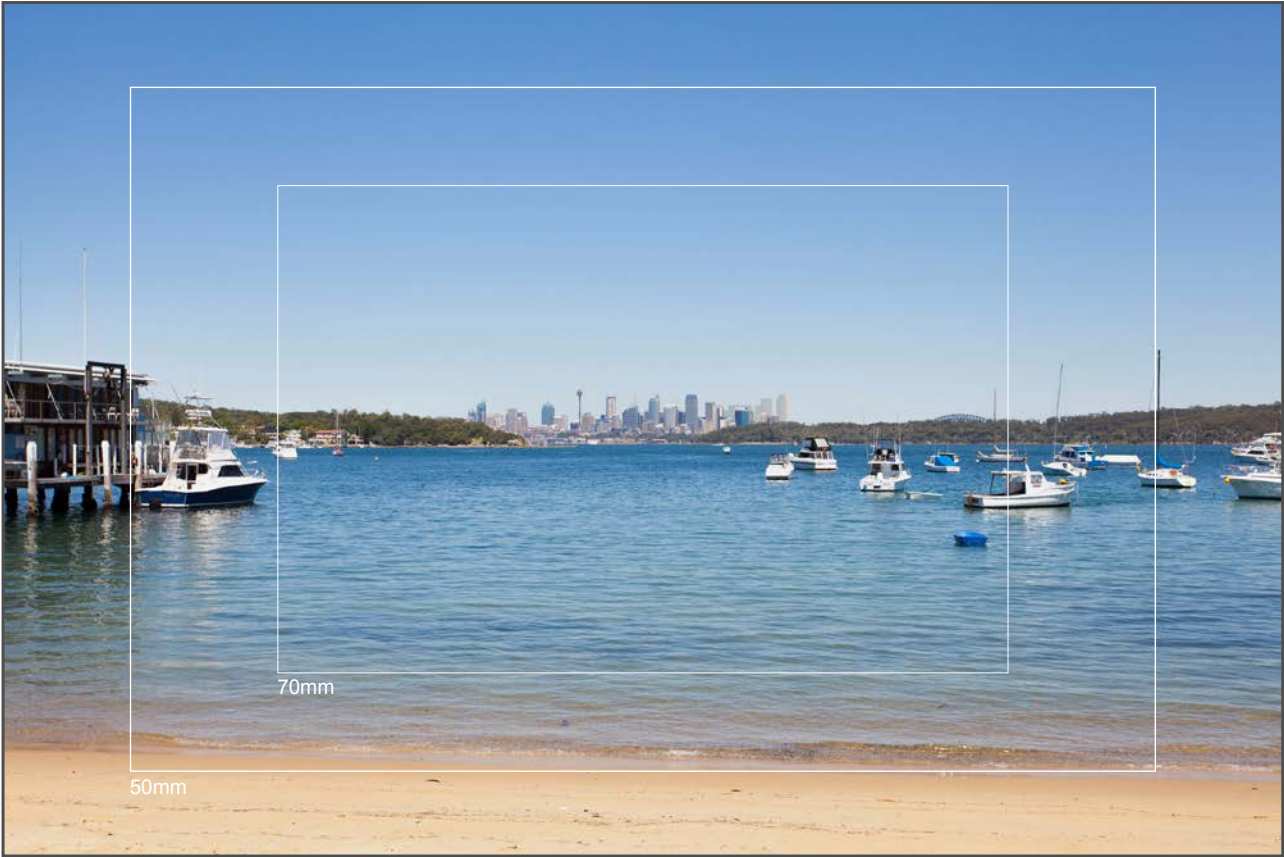


Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

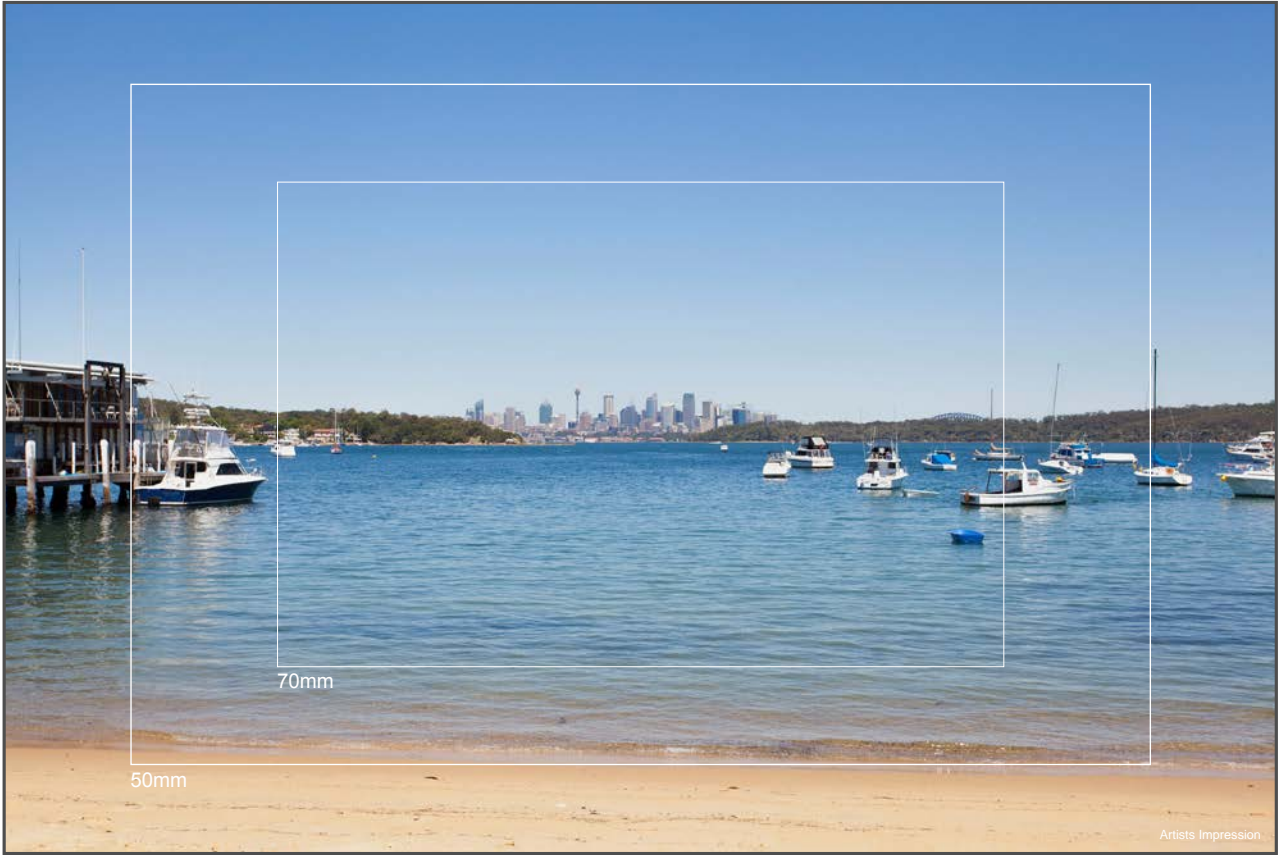


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.

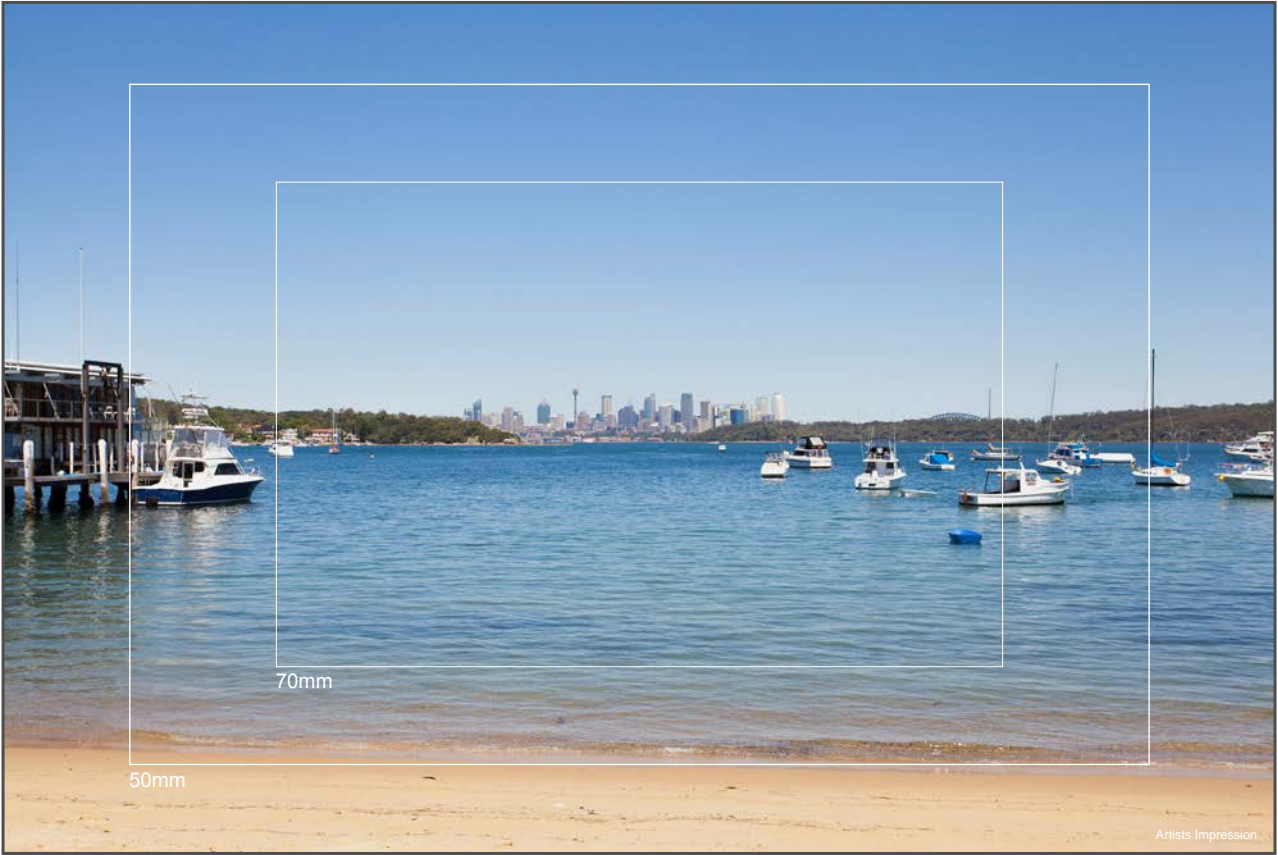
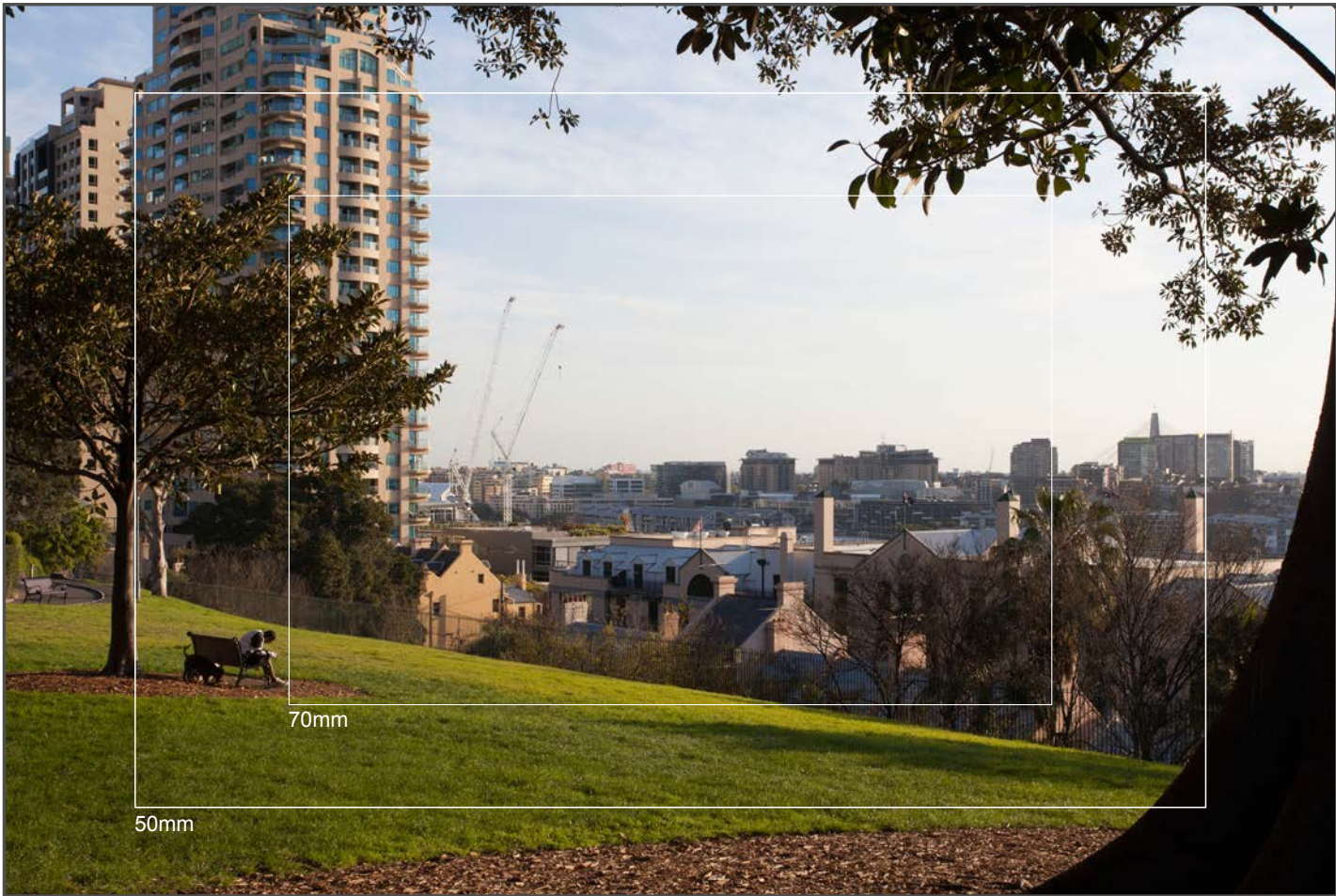


Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.



Original photo with crop marks to identify the field of view of longer lens sizes.

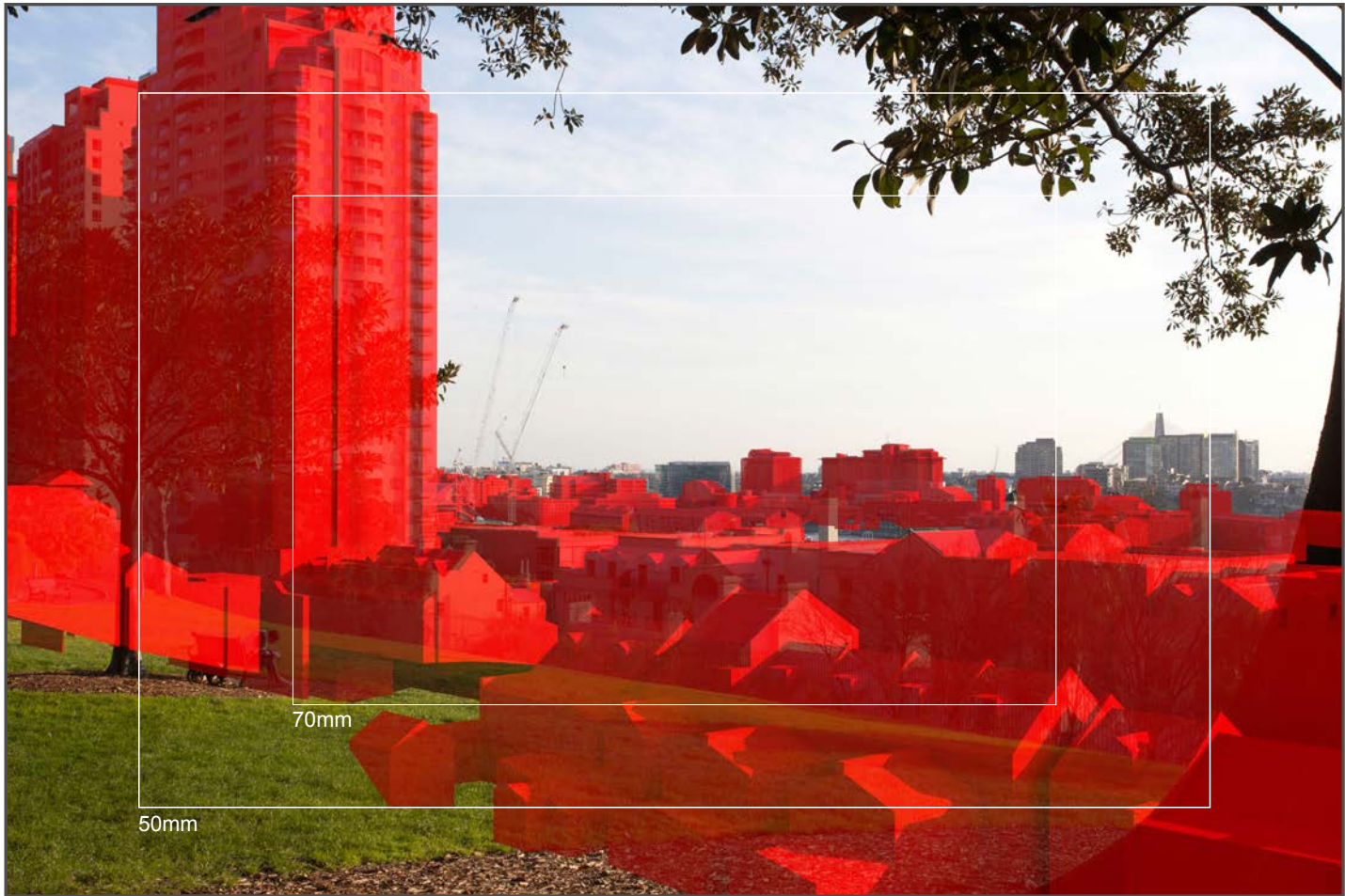


Image showing alignment of 3D model to photograph with the 3D model shown over in red.

Photographic data

Location: SYDNEY OBSERVATORY GROUNDS
Camera R.L. 43.43m
MGA coords: X: 333902.349, Y: 6251936.59
Lens: 40mm
Dimensions: 5616 x 3744
Date: 15/09/2014, 4:44:54 PM
Camera: Canon EOS 5D Mark II

Rationale for lens selection

The rationale for using a 40mm lens was that from this specific location the wider lens did not provide a close enough view of the Barangaroo buildings.

Overlays showing longer lenses have been included to illustrate the effect of a longer lens. Note that using a longer lens from the same location will have the same effect as cropping the wider image.

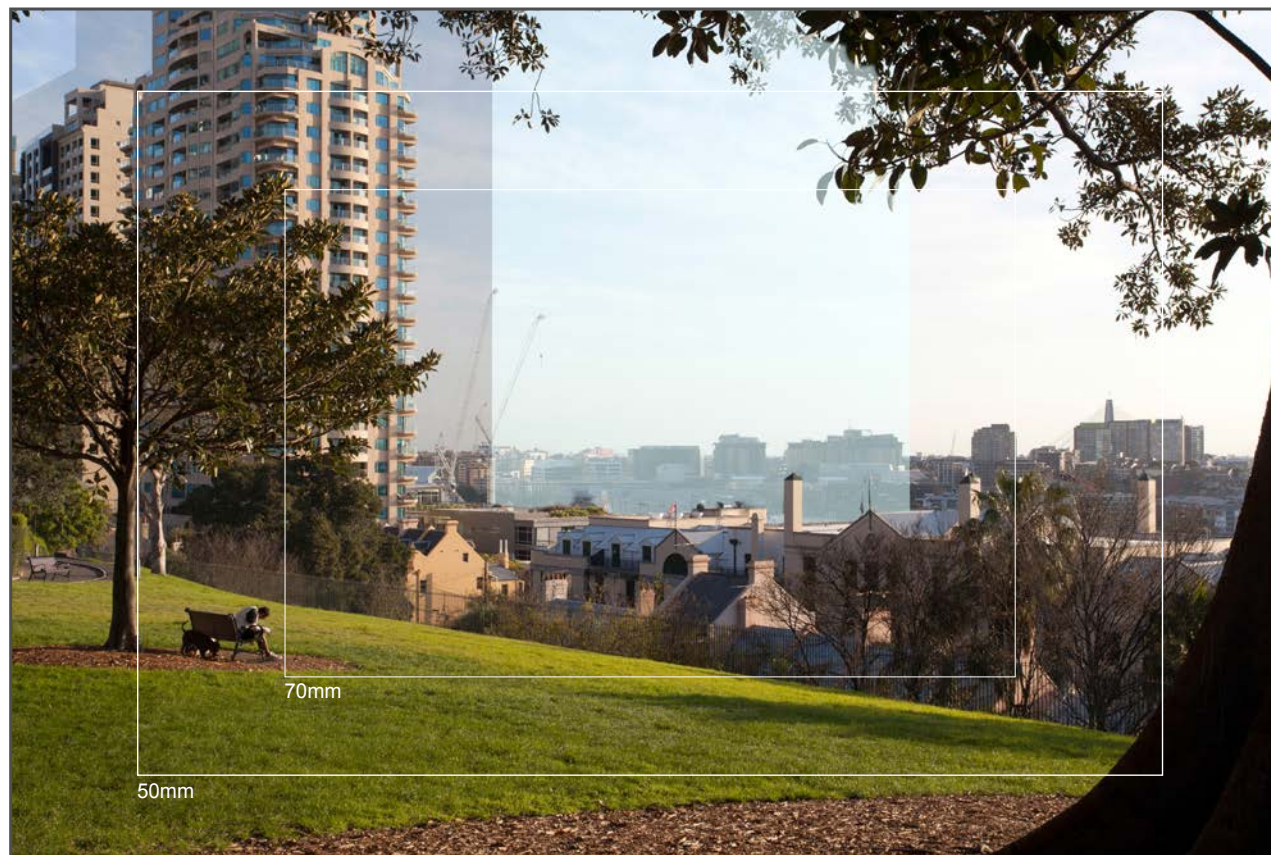


Image showing massing of the Approved Concept Plan Amendment (Mod 7)

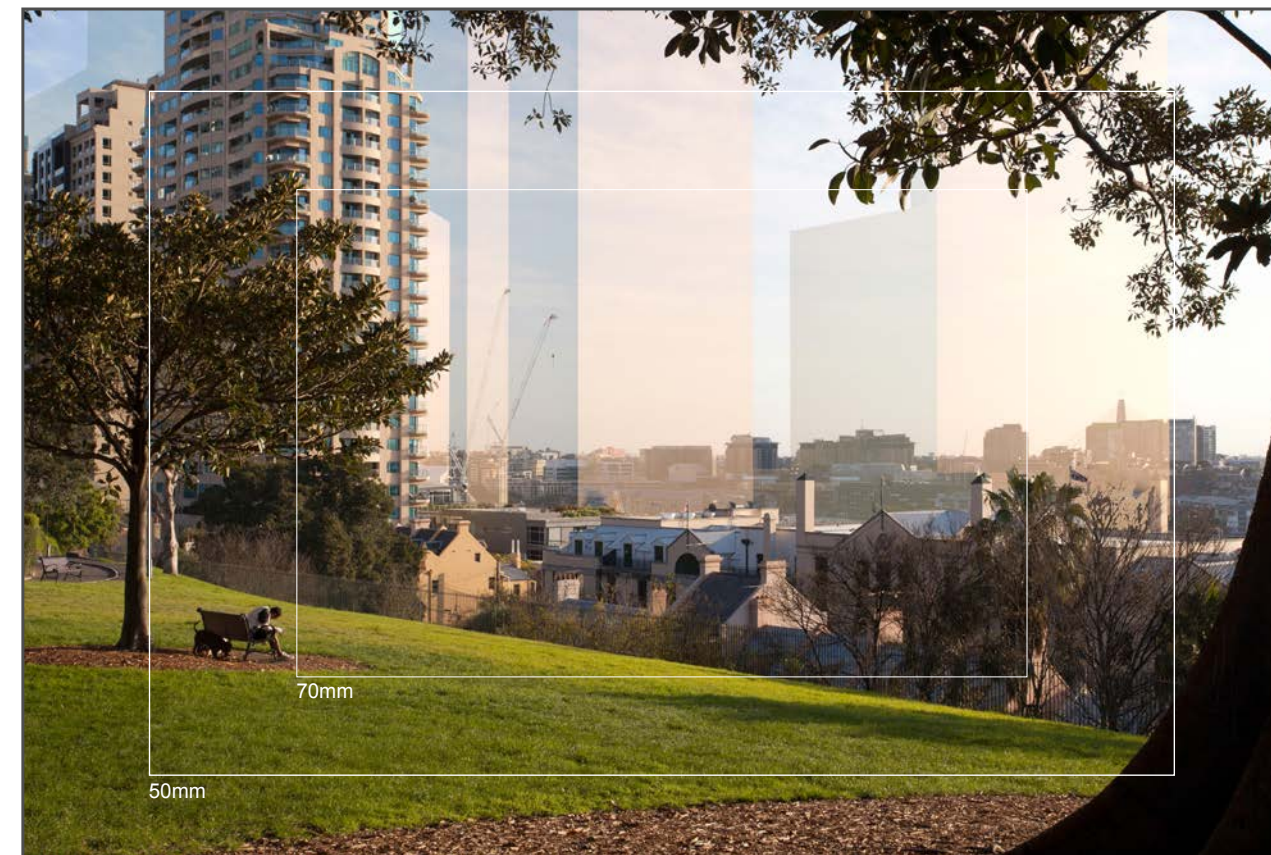


Image showing massing of the Proposed Concept Plan Amendment (Mod 8)

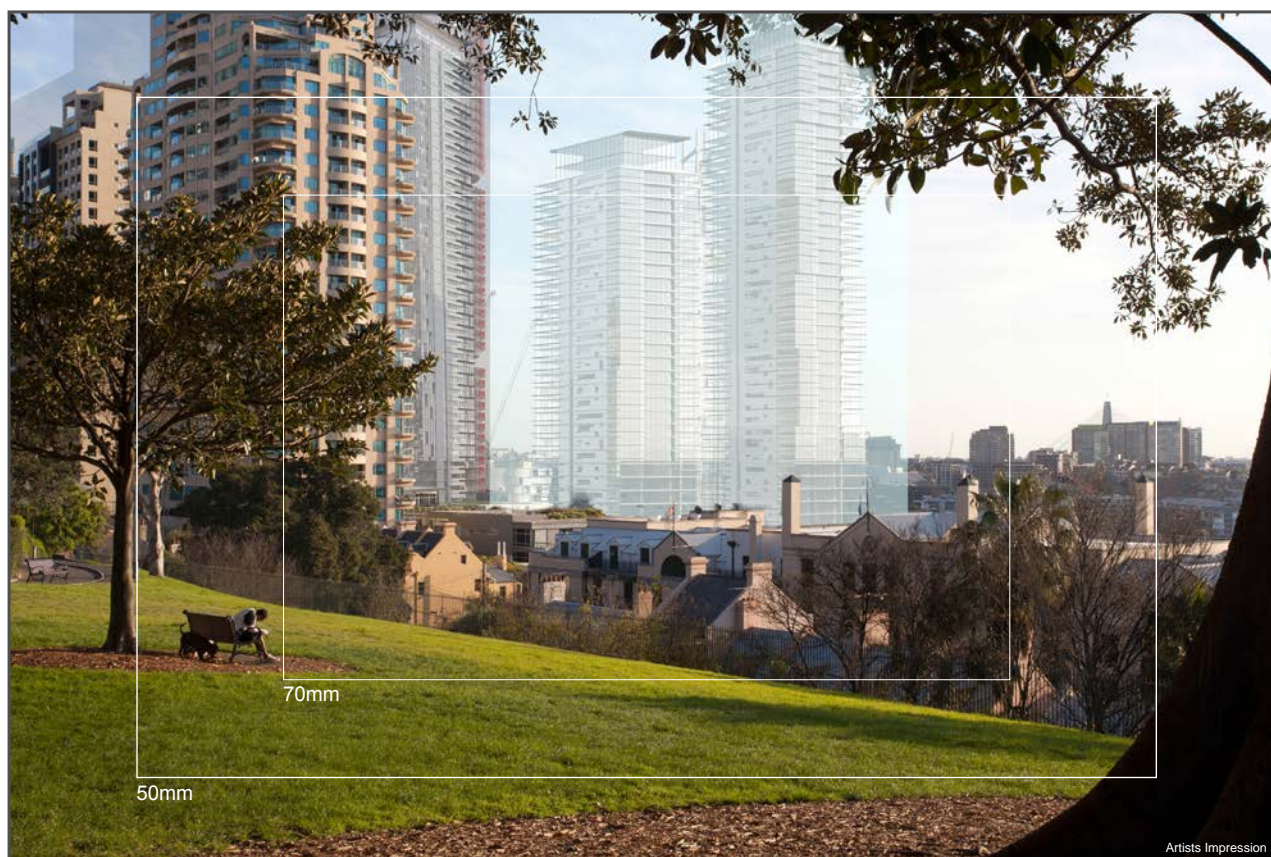


Image showing massing of the Approved Concept Plan Amendment (Mod 7) with indicative design.

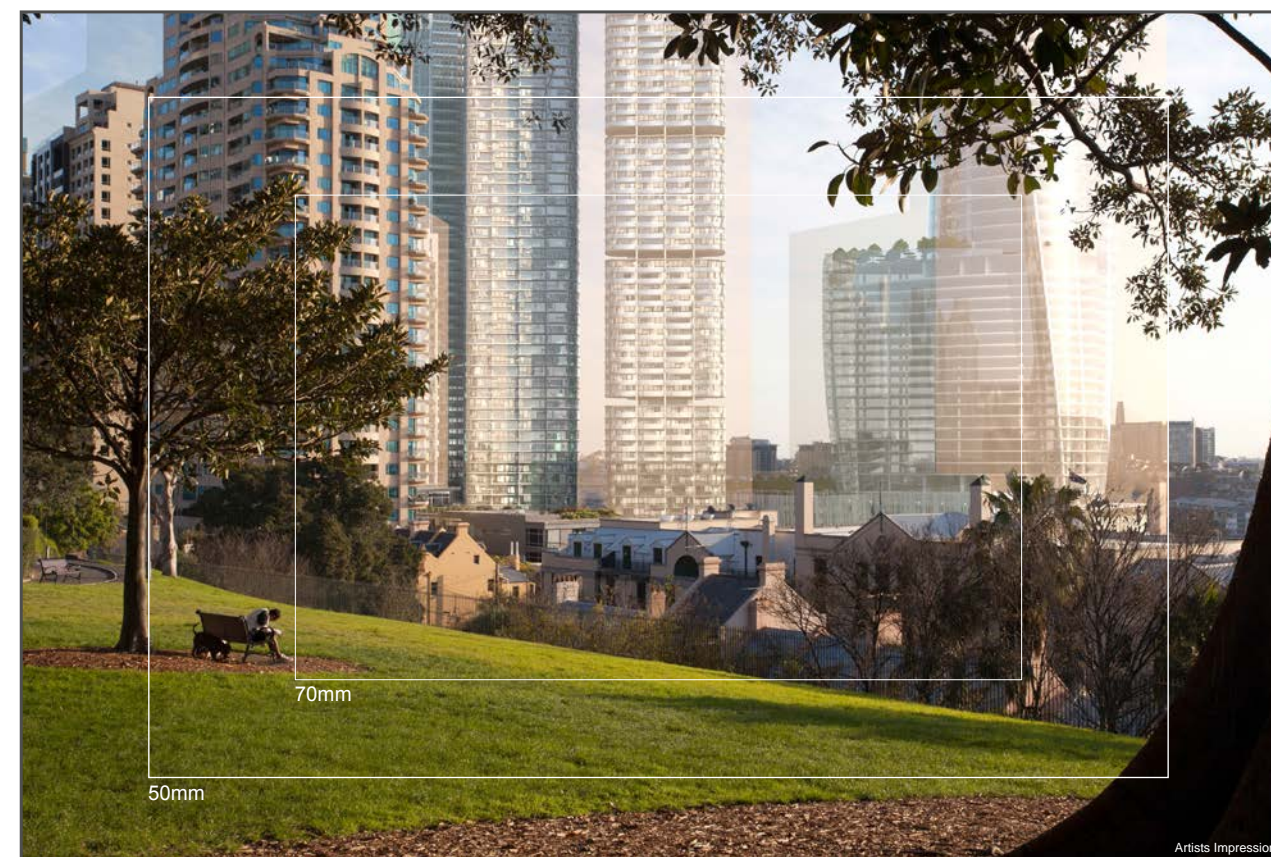


Image showing massing of the Proposed Concept Plan Amendment (Mod 8) with indicative design.

APPENDIX A - DIGITAL CAMERA LENSES FOR PHOTOMONTAGES AND VISUAL IMPACT ASSESSMENTS

The intention of a photomontage rendering is to visually communicate how proposed built form sits in respect to its surroundings. To achieve this, a digitally rendered image from a digital 3D model is accurately superimposed into a digital photograph to provide an accurate representation in terms of light, material, scale, and form.

Camera lens selection also plays an important part in creating a photomontage that communicates visual impact. There are several things to consider with respect to lens selection.

Field of View of the Human Eye

The field of view of the human eye is a topic that varies depending on the source of information. In many cases the field of view of the eye is stated to be 17mm. Other sources claim a smaller field around 22-24mm. Whichever the case, it is clear that the human eye has quite a wide field of view and when we stand close to a subject - or instance a building - our vision can potentially see all of the top, sides and bottom of the building at one glance. In addition to this, the human eye can change focus and target direction extremely quickly, allowing us to view a large structure in a very short period of time, effectively making our perceived field of view even larger.

The Perspective of the human eye

It is difficult to accurately reproduce what the human eye sees by the means of a printed image. As the back of the human eye is curved and the sensors on cameras are flat, the perspective of a photograph can look quite different to how we see things in the real world, especially with a larger field of view, or wider lens.

In digital photography circles it is commonly stated that using a longer lens (approx 50mm) reduces the amount of perspective in an image and therefore looks more like the human eye would see in reality, but this is talking about perspective only, and does not consider the field of view of the eye. If you take a photo using a 50mm lens, print the photo, and hold the print out against the actual view in the same location as the photo was taken, it becomes very clear that the human eye can see much more of the surrounding information than what is shown on the print out.

Changing the FOV on a digital camera

The main difference in using a longer lens vs. a wider lens is the amount of information that is displayed at the edges of the subject. Changing the lens to a smaller FOV produces the same result as cropping in on the wide angle image, providing that the position and the angle of the camera remains constant while taking the photographs. In short, a lens with a wider FOV does not create an image that has incorrect perspective, it simply means that the perspective is extended at the edges of the image showing more of the surrounds in the images.

What all of this means for visual assessment, is that there is no definitive solution for lens selection. If we follow the opinion that a longer lens produces images that are closer to the perspective of the human eye, we will inevitably be in the situation where we cannot show the entirety of our subject and enough of the surrounds in which the subject resides. Also, if we strictly stick to a 17mm lens, we will have situations where the subject is far away and looks very small in the image, again making it difficult to assess visual impact. For these reasons, we have taken the view that we can never totally represent what the human eye will see on a piece of paper, and for visual impact photomontages we should select lenses that strike a balance between the two and can accurately display the built form in its surroundings.

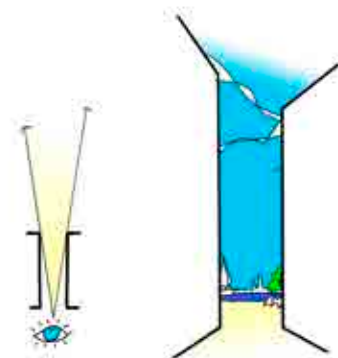
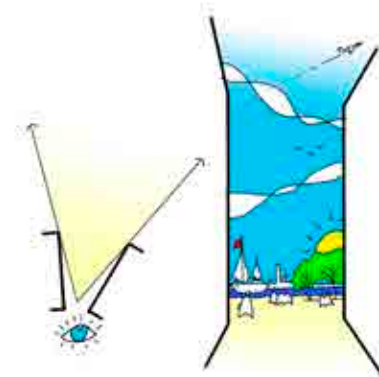
The most effective way to accurately gauge visual impact and get a real world feeling for scale would be to take prints of the photomontages to the exact site photography locations and compare the prints with the scale of the existing built form.

View Analysis Introduction

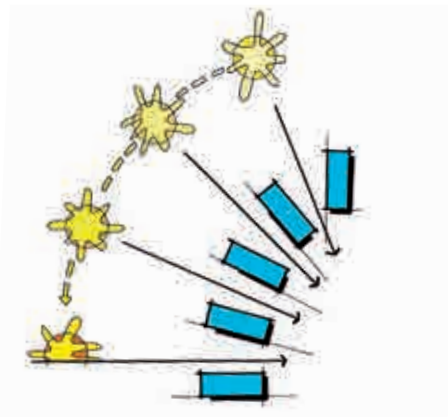
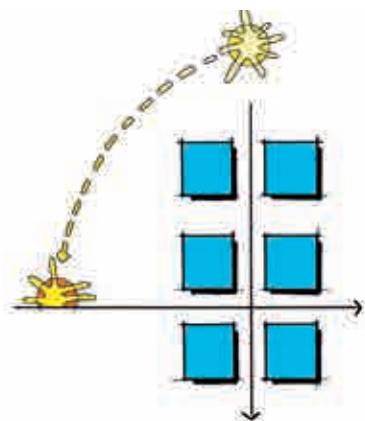
The Visual Impact report was first prepared in response to the Department of Planning's direction on 27-09-2010. This was updated for the Mod 6 application made by Lend Lease. This report has been updated with the currently proposed residential tower envelopes R4a + b and R5 in Block 4 as well as with the new hotel location in Block Y, and compares this to the Mod 6 approved application. As per the original report, it assesses the proposed Barangaroo South envelopes' impact on the existing residential units on Kent Street including: Highgate, Georgia, Stamford Marque and Stamford on Kent.

Barangaroo South Masterplan continues the fan arrangement in Mod 6 including the new hotel, cultural building and public spaces such as the Radial Park and City Cove. The extension ensures all public spaces have equitable access to views and sunlight.

The fan arrangement continues the principles established in Mod 6 and provides a funnel of space which opens up viewing corridors, and expands as it draws out towards the water.



Fan opens up views



Fan opens up solar aspect

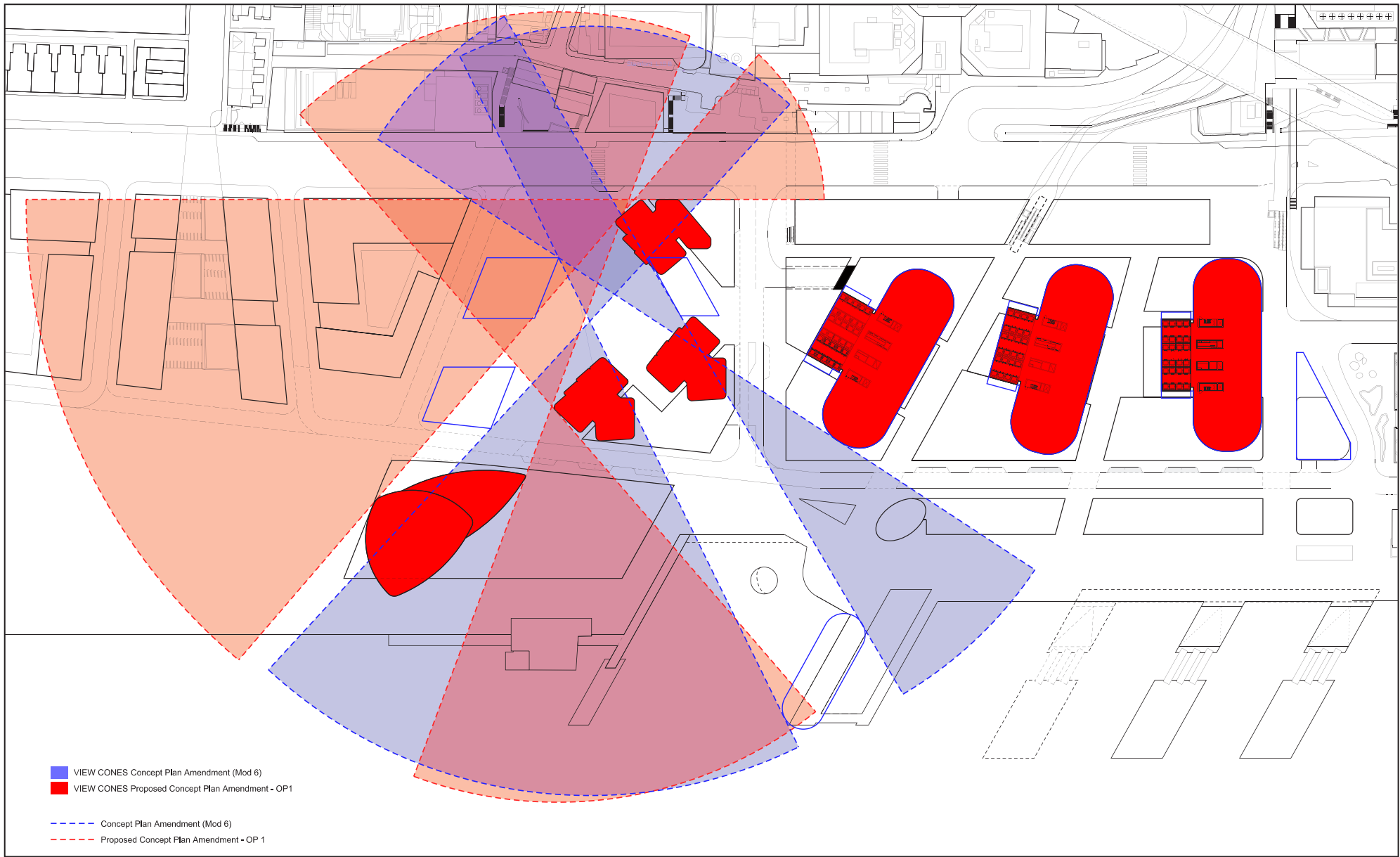
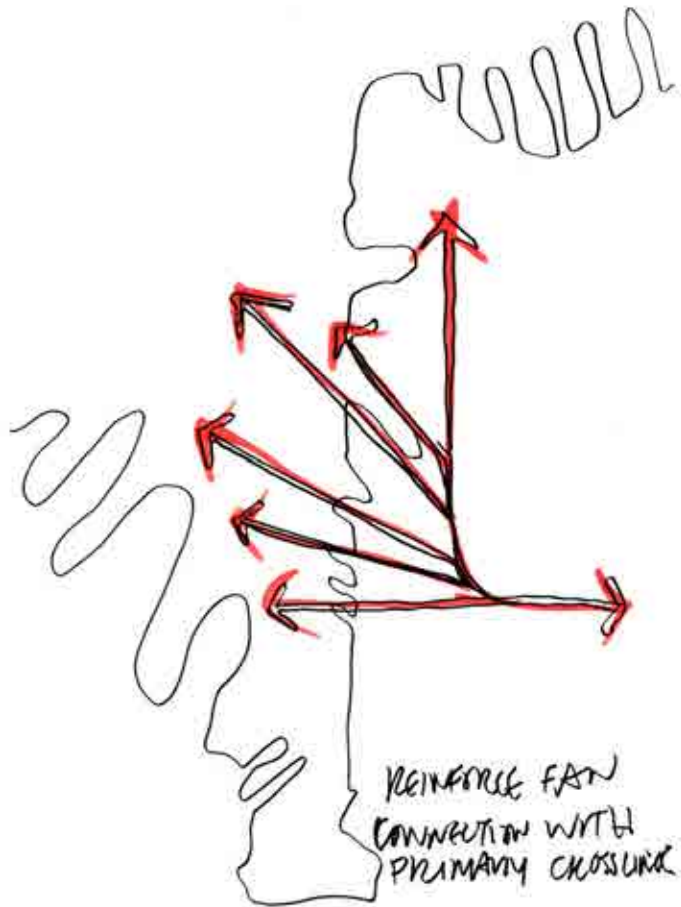


Fan opens up views and solar aspect

View Analysis

The consolidation of the residential towers to be located towards the commercial towers results in the replacement of the singular view corridor between the residential towers in Mod 6 with broader oblique views across Barangaroo Central towards the water.

The aim in the following Oblique Visual Analysis is to compare the view conditions of the residential units on Kent Street (Highgate, Stamford, Georgia, and Stamford Marque), and to ascertain the impact of the overall distribution and view corridors with the proposed Barangaroo South Masterplan when compared with Mod 6 Concept Plan.



Oblique View Analysis - Mod 6 Concept Plan Amendment Indicative Design compared to proposed Barangaroo South Masterplan

View Analysis and Methodology

View Analysis

Comparisons were carried out between the following Concept Plans:-

- Proposed Barangaroo South Masterplan
- Concept Plan Amendment (Mod 6)

The impact the indicative design would have on the Kent Street residential buildings Highgate, Georgia, Stamford Marque and the Stamford on Kent were analysed.

The indicative design options for the Concept Plan Amendment (Mod 6) is described in detail in the Barangaroo Concept Plan Application (MP06-0162).

Methodology

The illustrations give an indication of the impact on the views experienced as a result of the proposed indicative design. This is further supported by 3D visual illustrations from the viewpoints used for this analysis.

There are two methods of view analysis, orthogonal view projection and oblique views assessment. As detailed in the Barangaroo Concept Plan Application (Mod 6), orthogonal view projection provides an assessment of a simple elevation and ignores improved view sharing offered by the Approved Concept Plan Amendment (Mod 6). Similarly, the proposed Barangaroo South Masterplan will use Oblique View Analysis to provide a more considered assessment of view sharing.

Using this method, two heights set out in the previous Barangaroo Concept Plan Application were taken as samples for views from each of the residential buildings at RL59 and RL90.

To measure a reasonable level of uninterrupted views with no loss of amenity from the residential buildings, the first approved concept plan established a benchmark viewing angle of 54° given by the most significantly impacted residential tower, Stamford Marque. This benchmark has again been used to in this proposed Barangaroo South Masterplan.



Aims of Oblique View Analysis from Residential Units

	Total Oblique View Angle using Concept Plan Amendment (MOD 6)	Total Oblique View Angle using proposed Barangaroo South Masterplan	Difference	Conclusion
Highgate Level 15 (RL59.699)	93°	91°	-2°	View greater than 54 ° is maintained
Highgate Level 25 (RL90.187)	93°	91°	-2°	View greater than 54 ° is maintained
Georgia Level 15 (RL59.699)	88°	85°	-3°	View greater than 54 ° is maintained
Georgia Level 25 (RL90.187)	88°	85°	-3°	View greater than 54 ° is maintained
Stamford Marque Level 15 (RL59.699)	87°	79°	-8°	View greater than 54 ° is maintained
Stamford Marque Level 25 (RL90.187)	86°	79°	-7°	View greater than 54 ° is maintained
Stamford on Kent Level 15 (RL59.699)	62°	67°	+5°	View greater than 54 ° is maintained
Stamford on Kent Level 25 (RL90.187)	66°	67°	+1°	View greater than 54 ° is maintained

Table of oblique views

As per Mod 6, the proposed Barangaroo South Masterplan aims to ensure view sharing across the majority of levels for the adjacent Kent Street residential buildings rather than maximising views for the higher levels.

The view analysis should also consider oblique views in context. The distance between the proposed tower forms to Highgate, Georgia and Stamford Marque has increased from 100m to 192m thus significantly improving each tower’s wider field of view.

The summary of the oblique view analysis is outlined in the table. In all cases, an open and unobstructed north westerly view has been maintained.

Highgate - Lower Levels

Concept Plan Amendment (Mod 6) Indicative Design

Level 15 - RL59.699

Highgate - Views at Level 15 at RL59.699

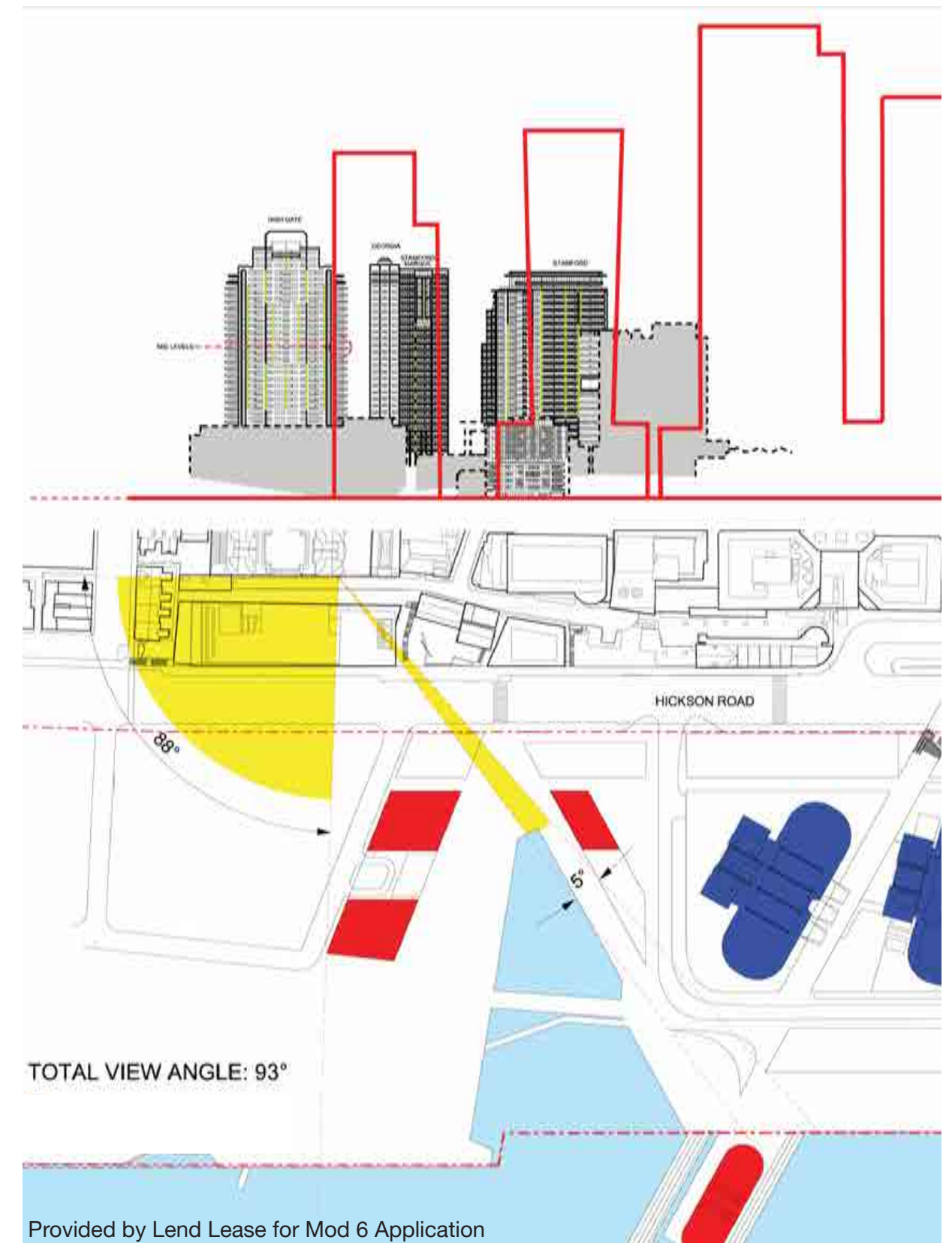
- Concept Plan Amendment (Mod 6) Indicative Design
Existing uninterrupted view angle 93°
- Proposed Barangaroo South Masterplan Indicative Design
Uninterrupted view angle 91°

Uninterrupted view greater than 54° is maintained

Image showing view from Level 15 from Highgate
Concept Plan Amendment (Mod 6) - Indicative Design



Provided by Virtual Ideas

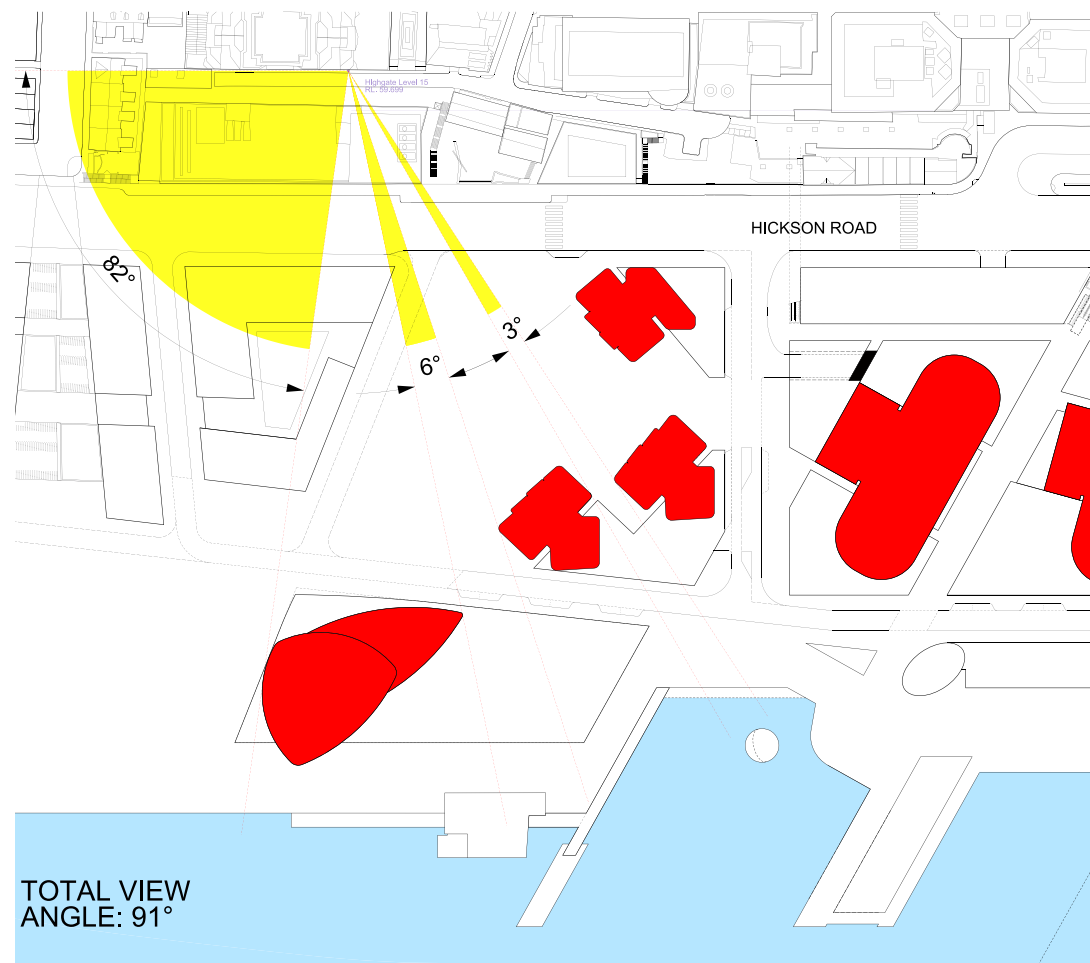
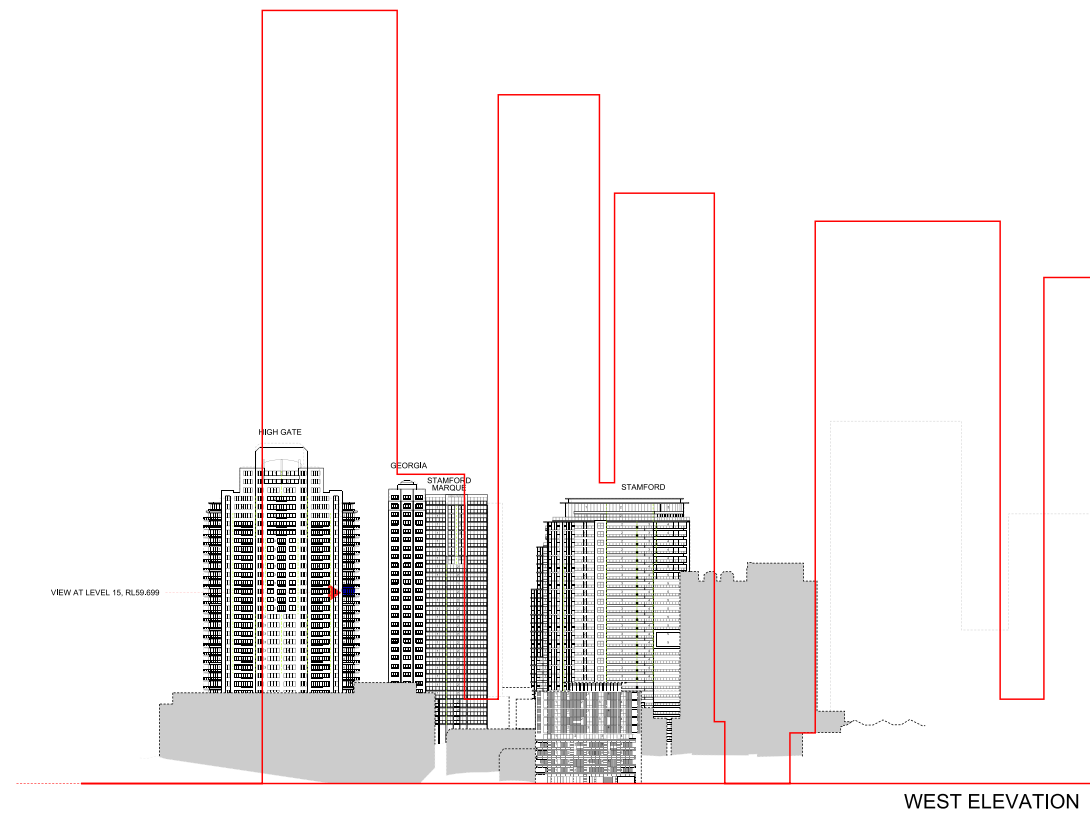


Provided by Lend Lease for Mod 6 Application

- Yellow: Oblique view of the Concept Plan Amendment (Mod 6) indicative design
- Red: Concept Plan Amendment (Mod 6) indicative design building footprint
- Blue: Concept Plan Amendment (Mod 6) indicative design tower footprint

Highgate - Lower Levels

Proposed Barangaroo South Masterplan Indicative Design
Level 15 - RL59.699



- Oblique view of the proposed Barangaroo South Masterplan indicative design
- Proposed Barangaroo South Masterplan indicative design building footprint

Image showing view from Level 15 from Highgate
Proposed Barangaroo South Masterplan indicative Design



Provided by Virtual Ideas

Highgate - Upper Levels

Concept Plan Amendment (Mod 6) Indicative Design

Level 25 - RL90.187

Highgate - Views at Level 25 at RL90.187

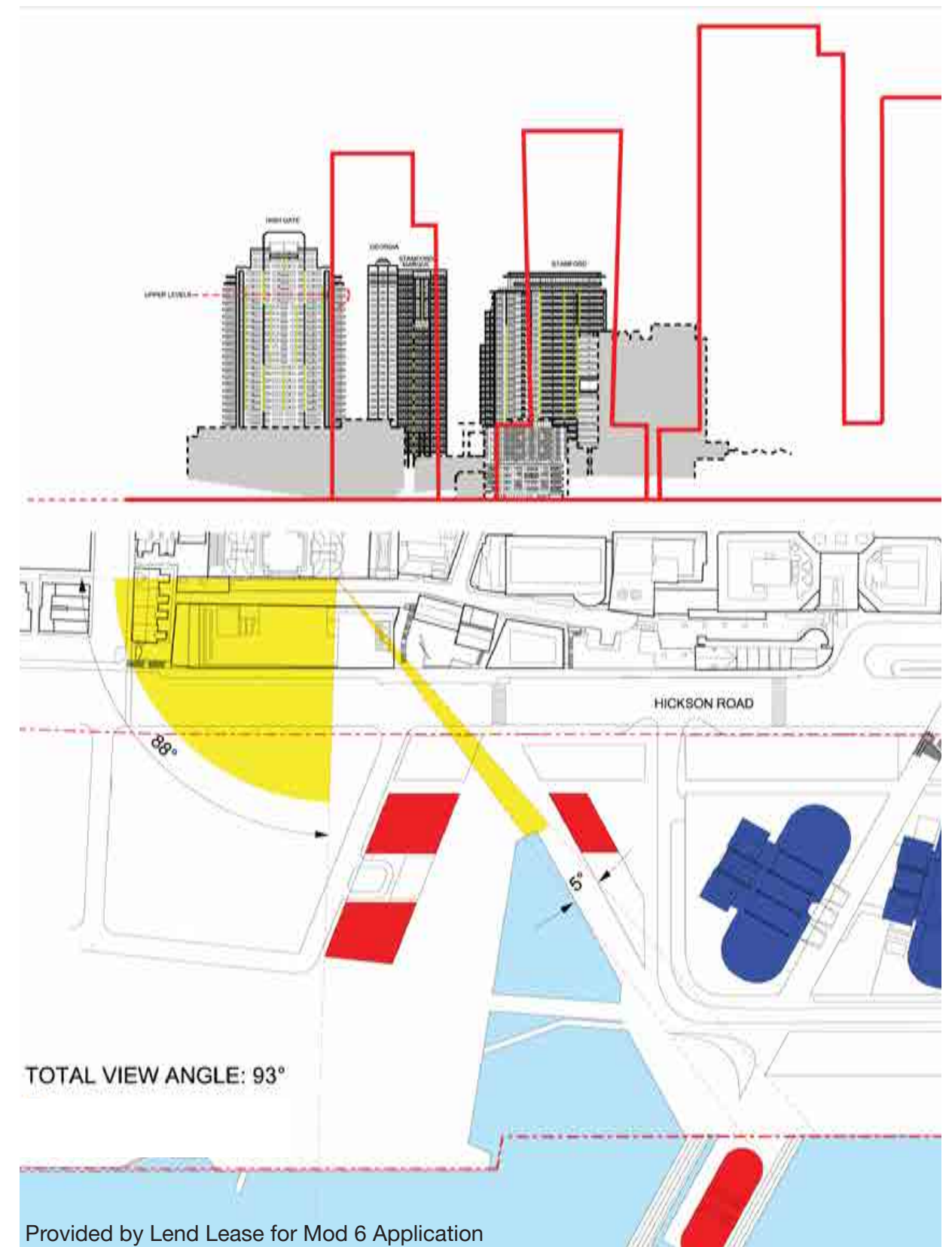
- Concept Plan Amendment (Mod 6) Indicative Design
Existing uninterrupted view angle 93°
- Proposed Barangaroo South Masterplan Indicative Uninterrupted
view angle 91°

Uninterrupted view greater than 54° is maintained

Image showing view from Level 25 from Highgate
Concept Plan Amendment (Mod 6) - Indicative Design



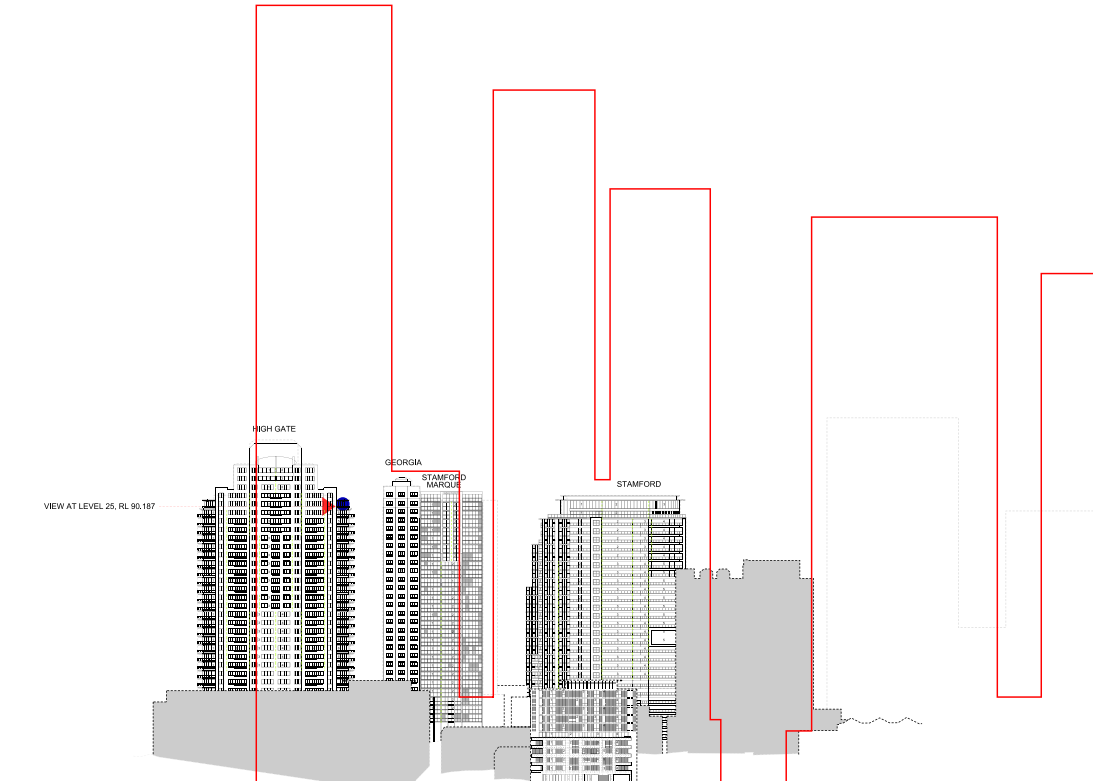
Provided by Virtual Ideas



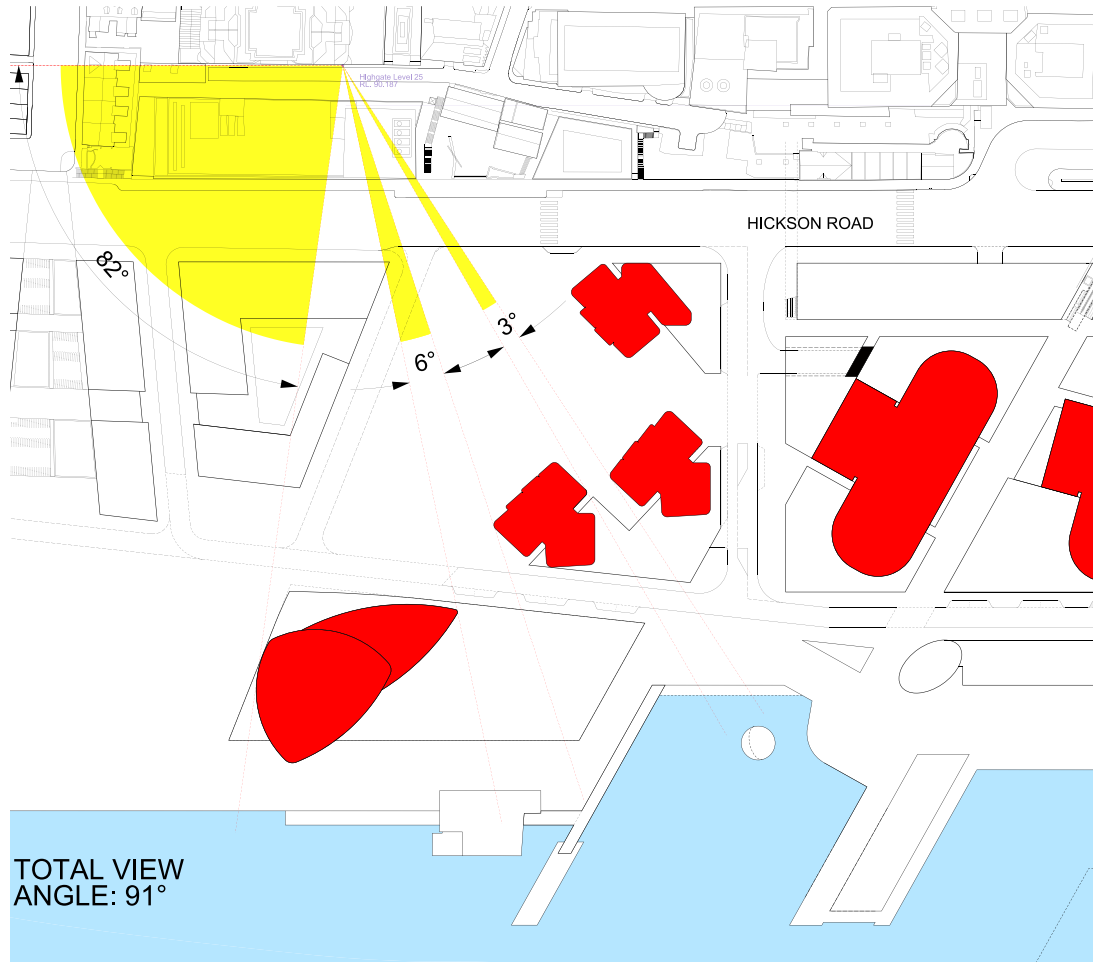
Provided by Lend Lease for Mod 6 Application

- Oblique view of the Concept Plan Amendment (Mod 6) indicative design
- Concept Plan Amendment (Mod 6) indicative design building footprint
- Concept Plan Amendment (Mod 6) indicative design tower footprint

Highgate - Upper Levels
Proposed Barangaroo South Masterplan Indicative Design
Level 25 - RL90.187



WEST ELEVATION



- Oblique view of the proposed Barangaroo South Masterplan indicative design
- Proposed Barangaroo South Masterplan indicative design building footprint

Image showing view from Level 25 from Highgate
Proposed Barangaroo South Masterplan Indicative Design



Provided by Virtual Ideas

Georgia - Lower Levels

Concept Plan Amendment (Mod 6) Indicative Design

Level 15 - RL59.699

Georgia - Views at Level 15 at RL59.699

- Concept Plan Amendment (Mod 6) Indicative Design Existing uninterrupted view angle 88°
- Proposed Barangaroo South Masterplan Indicative Uninterrupted view angle 85°

Uninterrupted view greater than 54° is maintained

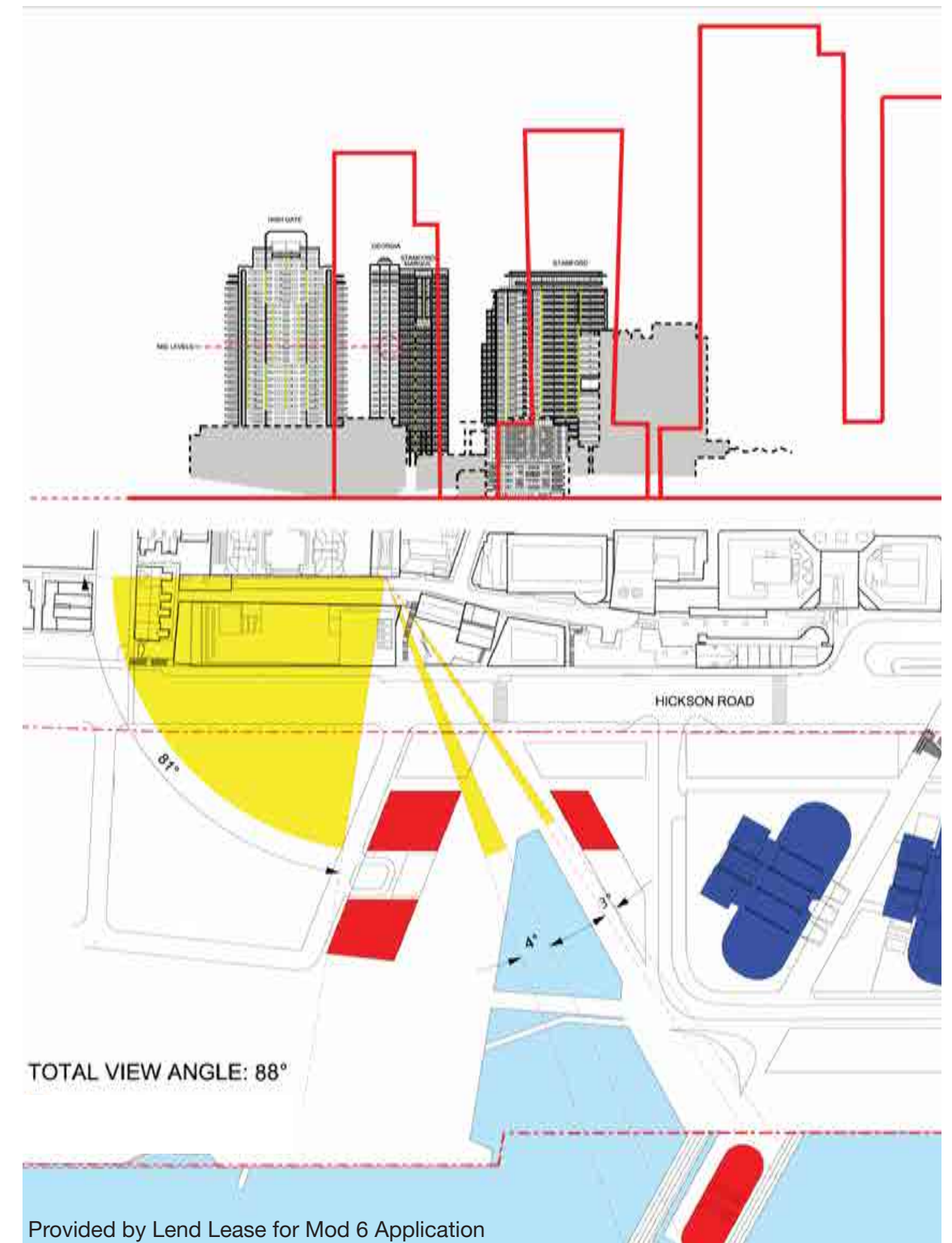
Image showing view from Level 15 from Georgia
Concept Plan Amendment (Mod 6) - Indicative Design



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60 – Barangaroo South Masterplan

Note: Images are illustrative depictions of design concepts only



Provided by Lend Lease for Mod 6 Application

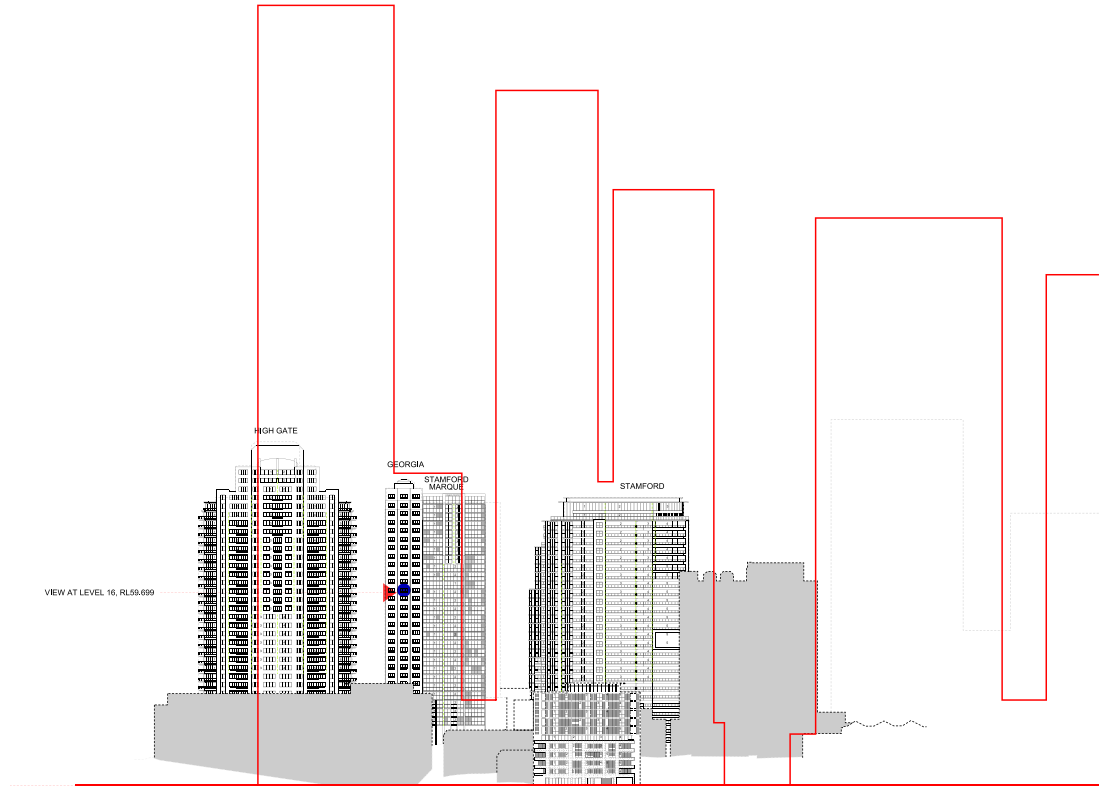
- Oblique view of the Concept Plan Amendment (Mod 6) indicative design
- Concept Plan Amendment (Mod 6) indicative design building footprint
- Concept Plan Amendment (Mod 6) indicative design tower footprint

Rogers Stirk Harbour + Partners

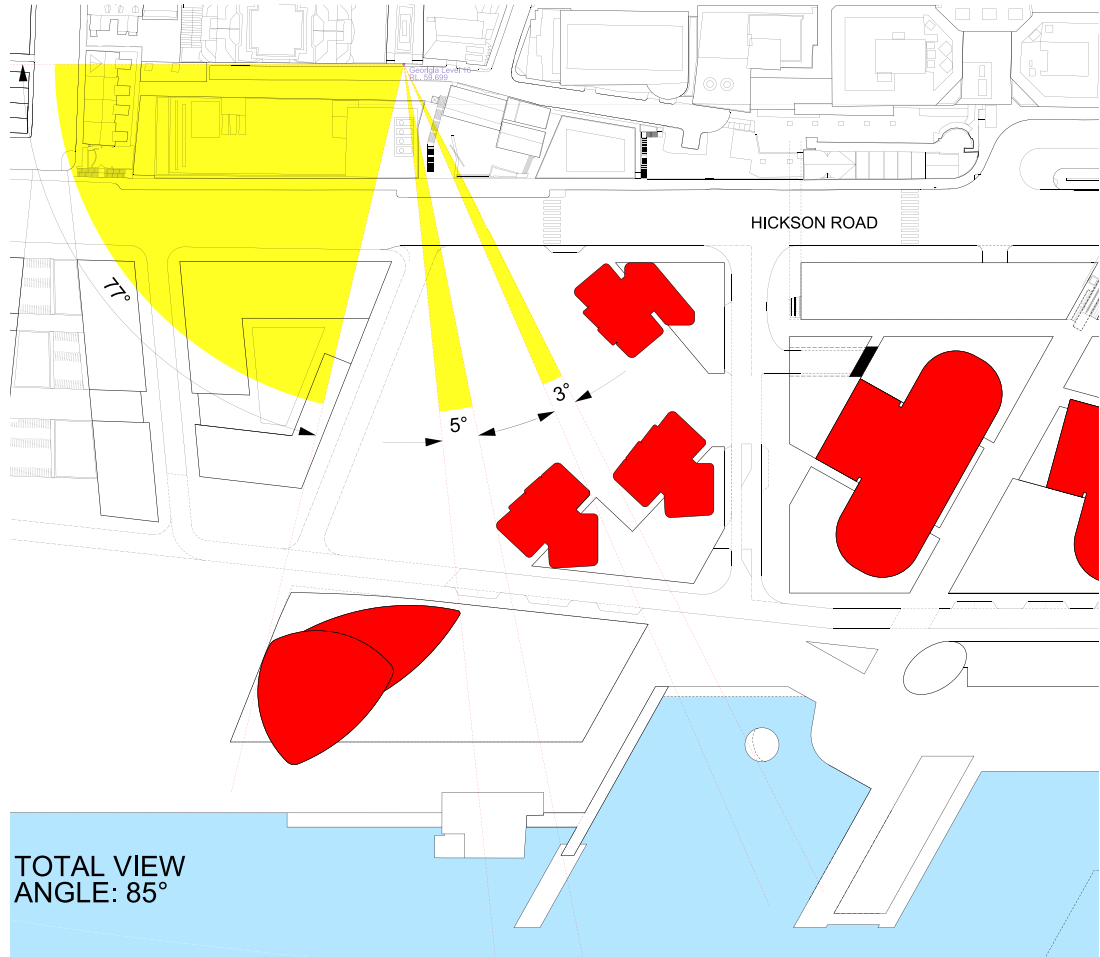
Georgia - Lower Levels

Proposed Barangaroo South Masterplan Indicative Design

Level 15 - RL59.699



WEST ELEVATION



- Oblique view of the proposed Barangaroo South Masterplan indicative design
- Proposed Barangaroo South Masterplan indicative design building footprint

Image showing view from Level 15 from Georgia

Proposed Barangaroo South Masterplan (MOD 6) Indicative Design



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Georgia - Upper Levels

Concept Plan Amendment (Mod 6) Indicative Design

Level 25 - RL90.187

Georgia - Views at Level 25 at RL90.187

- Concept Plan Amendment (Mod 6) Indicative Design Existing uninterrupted view angle 88°
- Proposed Barangaroo South Masterplan Indicative Uninterrupted view angle 85°

Uninterrupted view greater than 54° is maintained

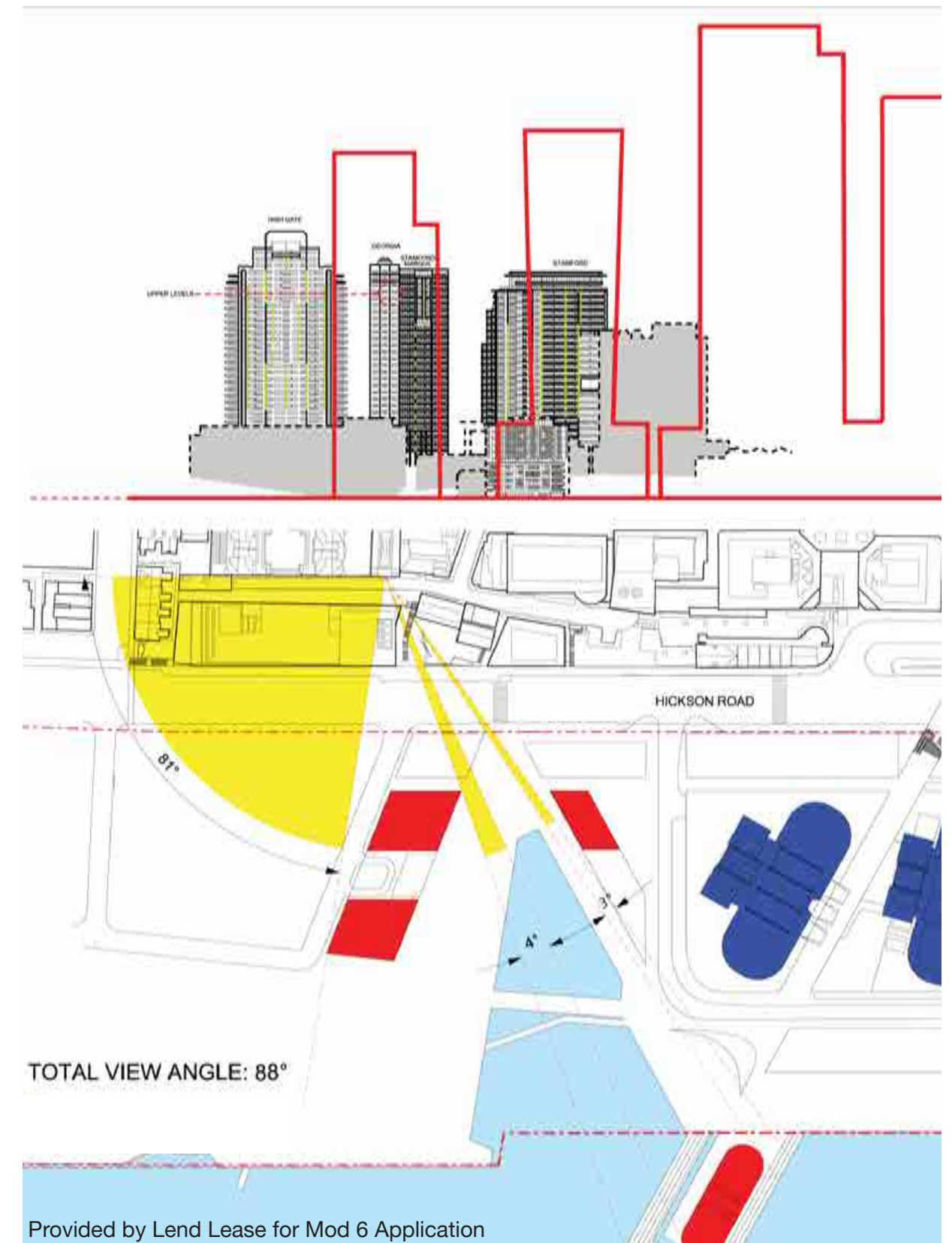
Image showing view from Level 25 from Georgia
Concept Plan Amendment (Mod 6) - Indicative Design



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62 – Barangaroo South Masterplan

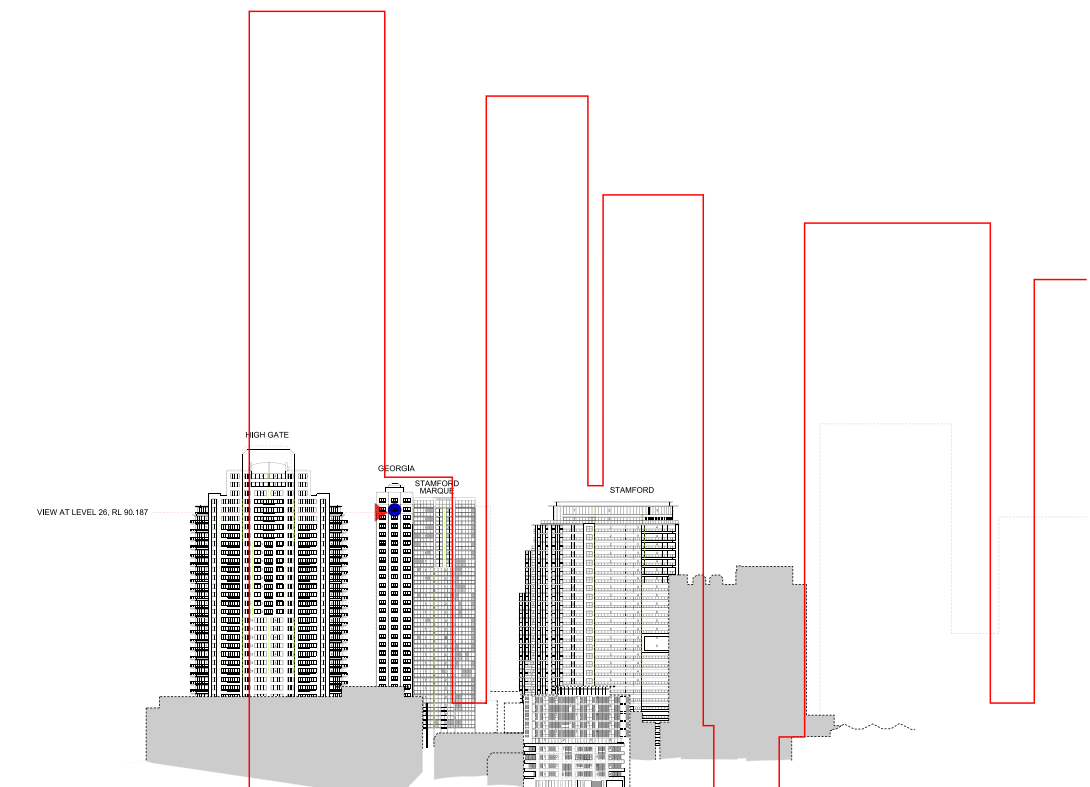
Note: Images are illustrative depictions of design concepts only



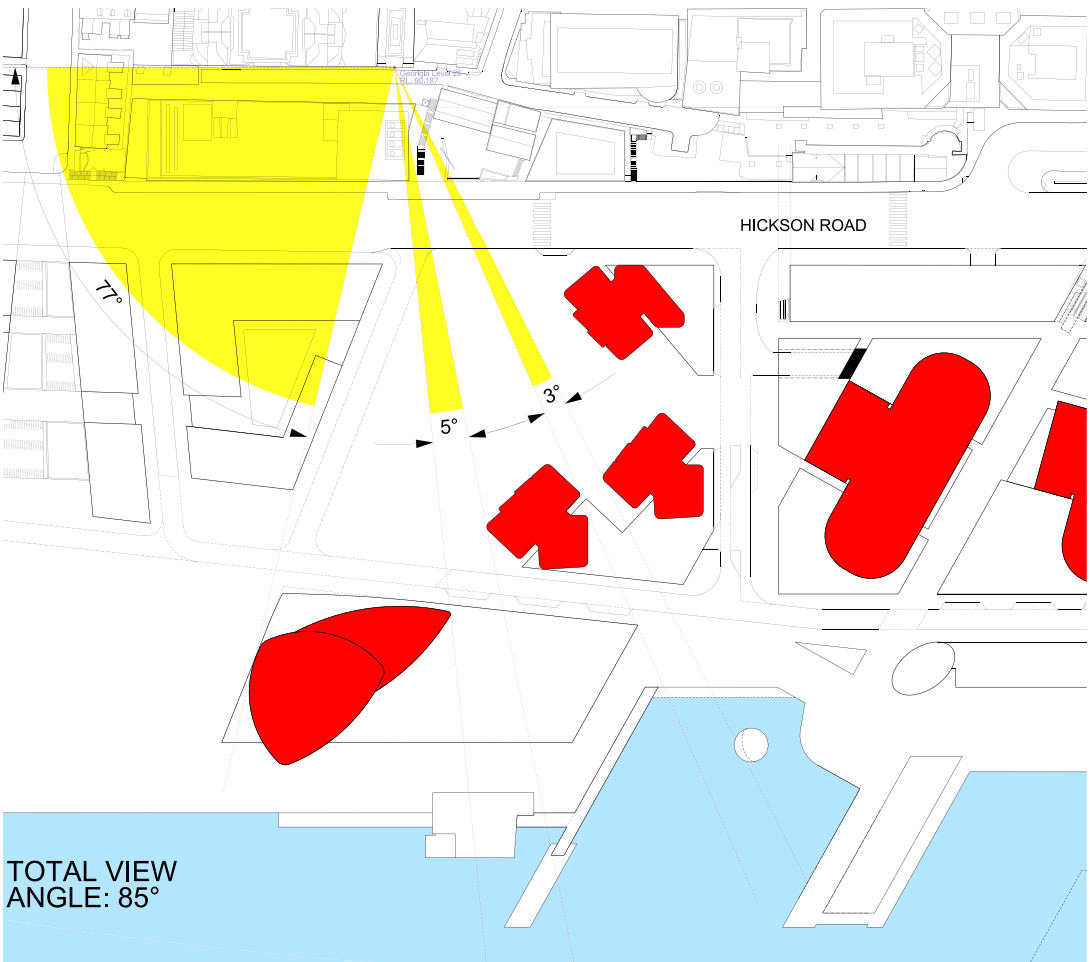
- Oblique view of the Concept Plan Amendment (Mod 6) indicative design
- Concept Plan Amendment (Mod 6) indicative design building footprint
- Concept Plan Amendment (Mod 6) indicative design tower footprint

Rogers Stirk Harbour + Partners

Georgia - Upper Levels
Proposed Barangaroo South Masterplan Indicative Design
Level 25 - RL90.187



WEST ELEVATION



- Oblique view of the proposed Barangaroo South Masterplan indicative design
- Proposed Barangaroo South Masterplan indicative design building footprint

Image showing view from Level 25 from Georgia
Proposed Barangaroo South Masterplan Indicative Design



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Stamford Marquee - Lower Levels

Concept Plan Amendment (Mod 6) Indicative Design

Level 15 - RL59.699

Stamford Marquee - Views at Level 15 at RL59.699

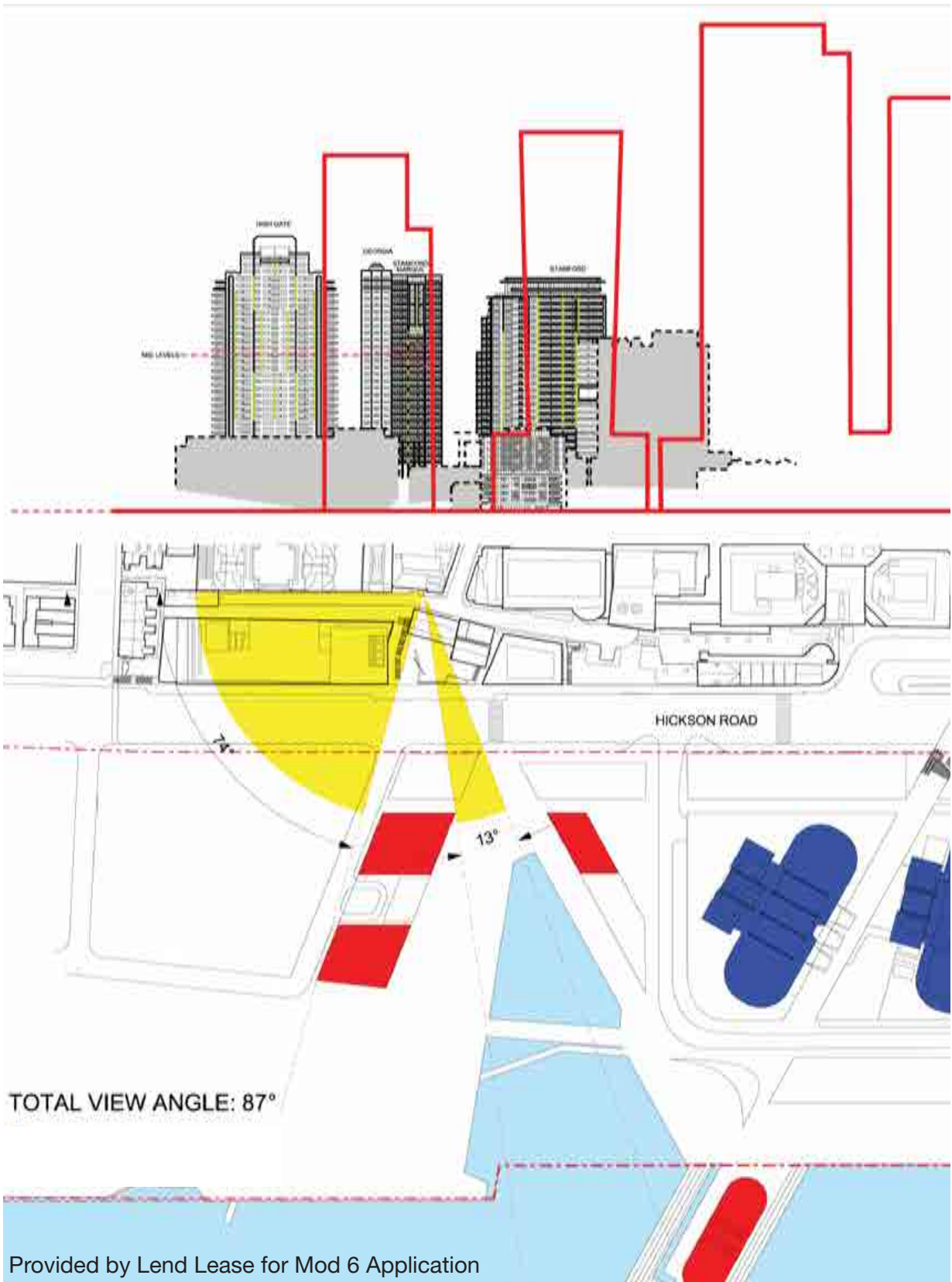
- Concept Plan Amendment (Mod 6) Option 2 Indicative Design
Existing uninterrupted view angle 87°
- Proposed Barangaroo South Masterplan Indicative Uninterrupted
view angle 79°

Uninterrupted view greater than 54° is maintained

Image showing view from Level 15 from Stamford Marquee
Concept Plan Amendment (Mod 6) - Indicative Design



Provided by Virtual Ideas



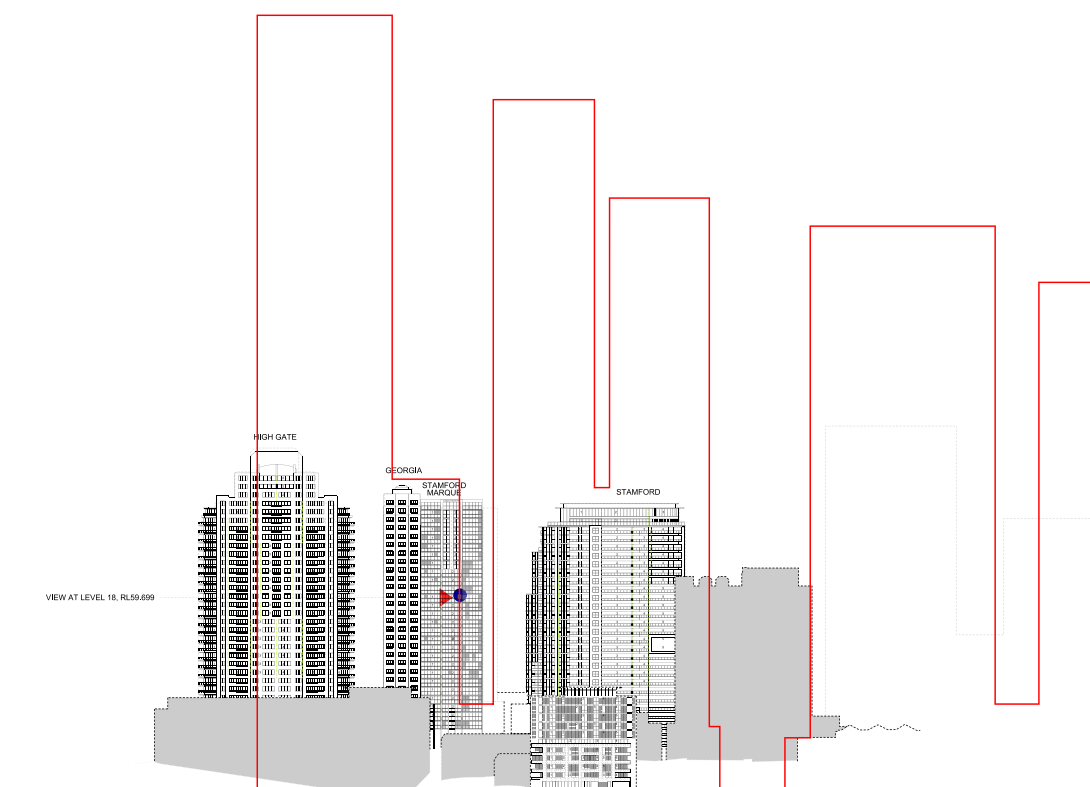
Provided by Lend Lease for Mod 6 Application

- Oblique view of the Concept Plan Amendment (Mod 6) indicative design
- Concept Plan Amendment (Mod 6) indicative design building footprint
- Concept Plan Amendment (Mod 6) indicative design tower footprint

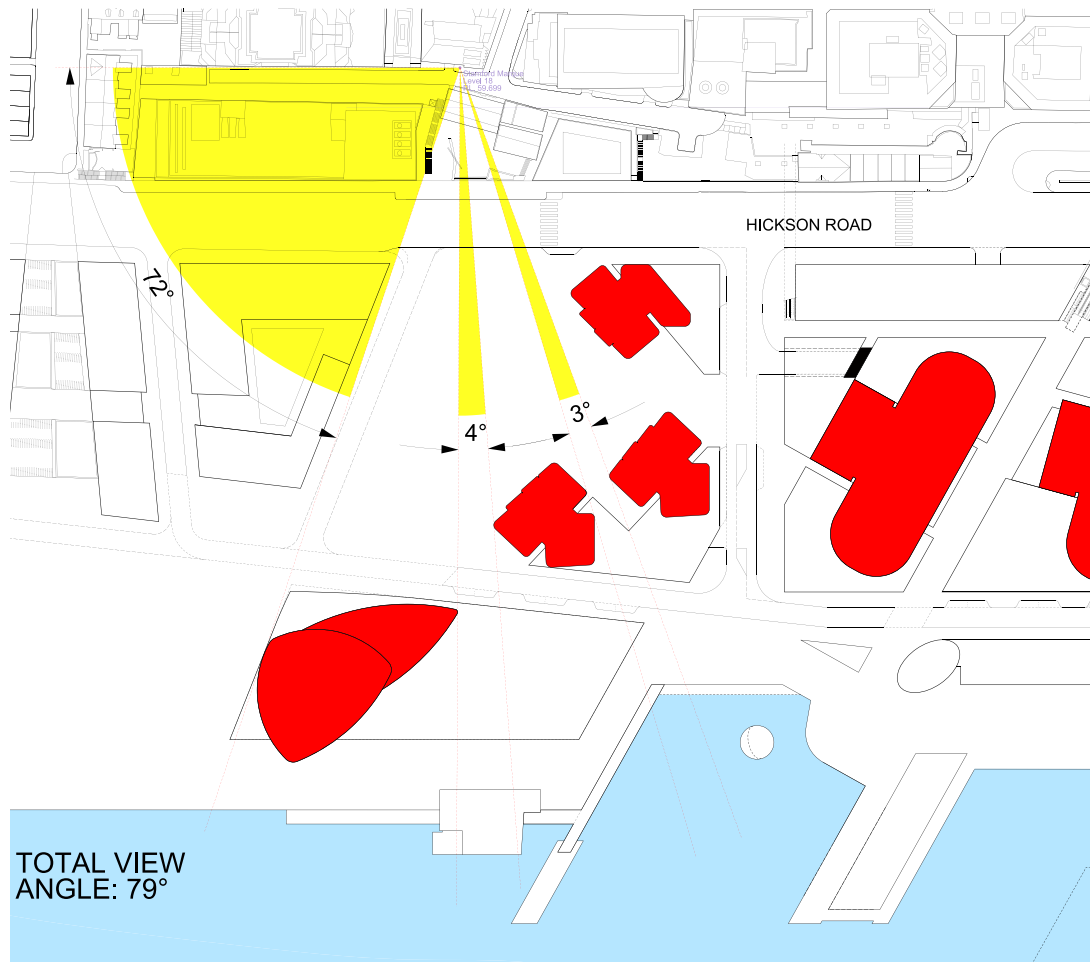
Stamford Marque - Lower Levels

Proposed Barangaroo South Masterplan Indicative Design

Level 15 - RL59.699



WEST ELEVATION



- Oblique view of the proposed Barangaroo South Masterplan indicative design
- Proposed Barangaroo South Masterplan indicative design building footprint

Image showing view from Level 15 from Stamford Marque
Proposed Barangaroo South Masterplan Indicative Design



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Stamford Marque - Upper Levels

Concept Plan Amendment (Mod 6) Indicative Design

Level 25 - RL90.187

Stamford Marque - Views at Level 28 at RL90.187

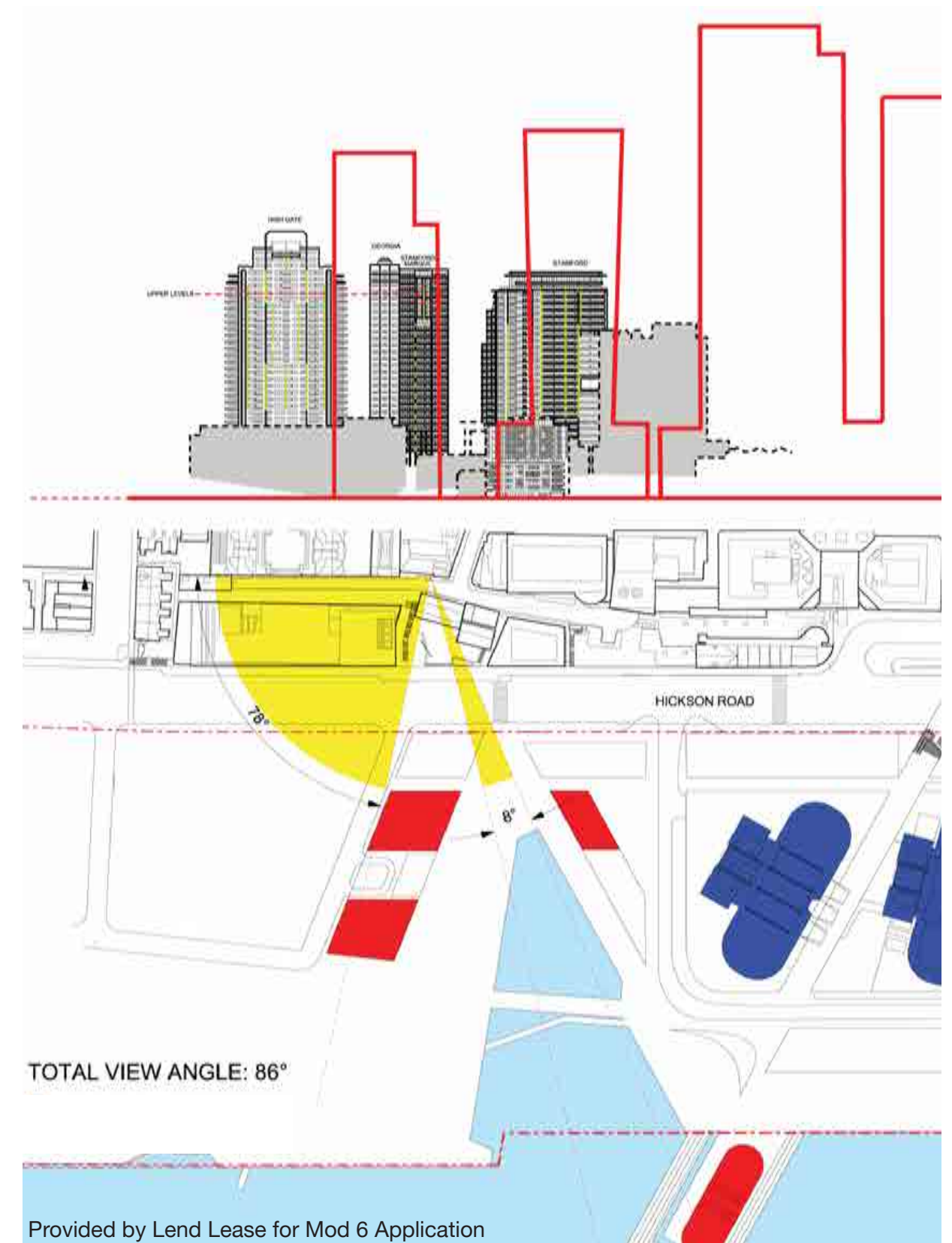
- Concept Plan Amendment (Mod 6) Option 2 Indicative Design
Existing uninterrupted view angle 87°
- Proposed Barangaroo South Masterplan Indicative Uninterrupted
view angle 79°

Uninterrupted view greater than 54° is maintained

Image showing view from Level 25 from Stamford Marque
Concept Plan Amendment (Mod 6) - Indicative Design



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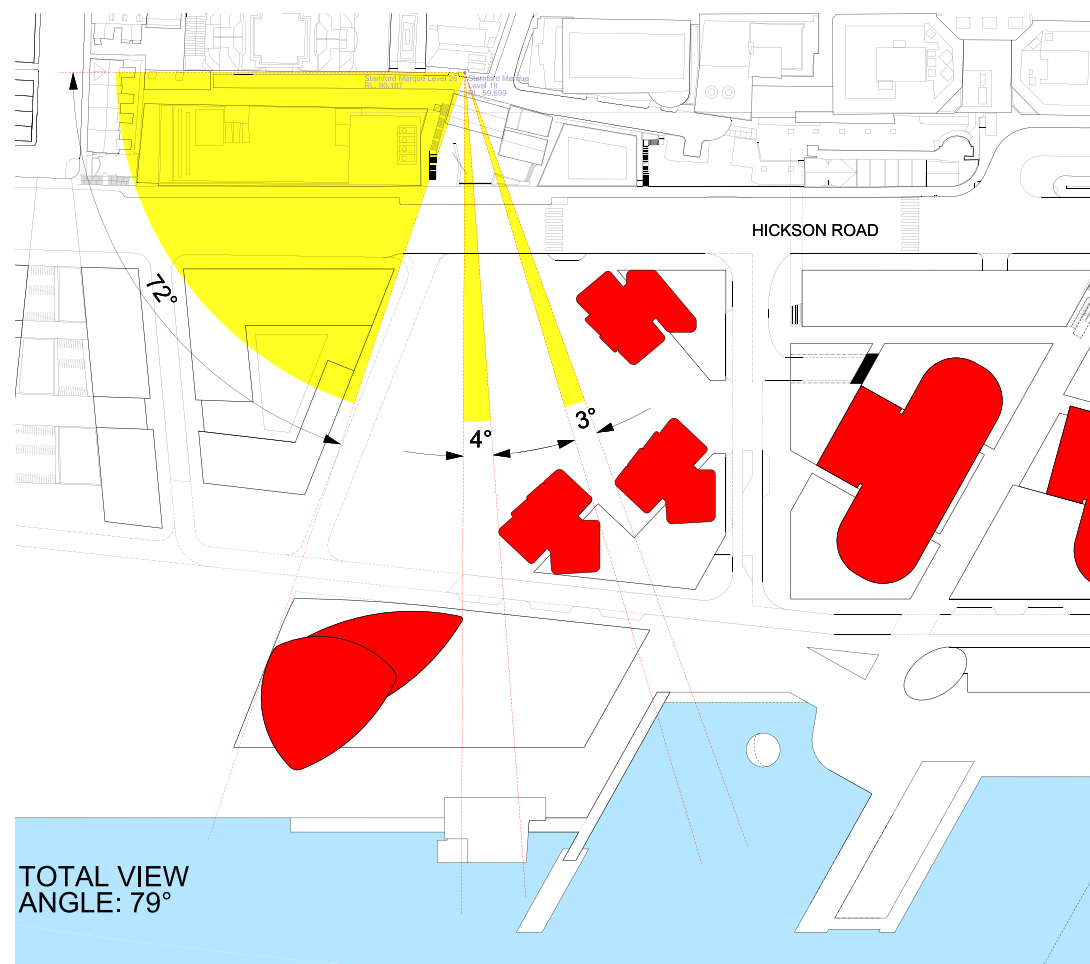
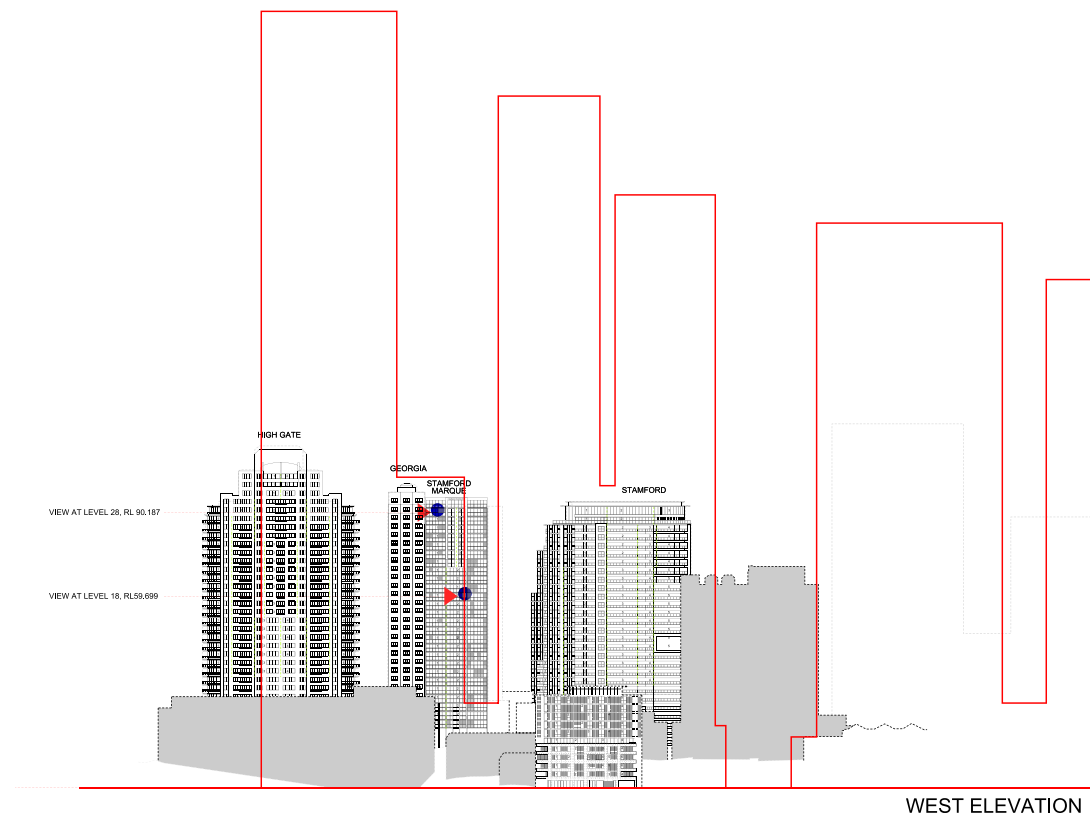


Provided by Lend Lease for Mod 6 Application

- Oblique view of the Concept Plan Amendment (Mod 6) indicative design
- Concept Plan Amendment (Mod 6) indicative design building footprint
- Concept Plan Amendment (Mod 6) indicative design tower footprint

Stamford Marquee - Upper Levels

Proposed Barangaroo South Masterplan Indicative Design
Level 25 - RL90.187



- Oblique view of the proposed Barangaroo South Masterplan indicative design
- Proposed Barangaroo South Masterplan indicative design building footprint

Image showing view from Level 25 from Stamford Marquee
Proposed Barangaroo South Masterplan Indicative Design



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Stamford on Kent - Lower Levels

Concept Plan Amendment (Mod 6) Indicative Design

Level 15 - RL59.699

Georgia - Views at Level 15 at RL59.699

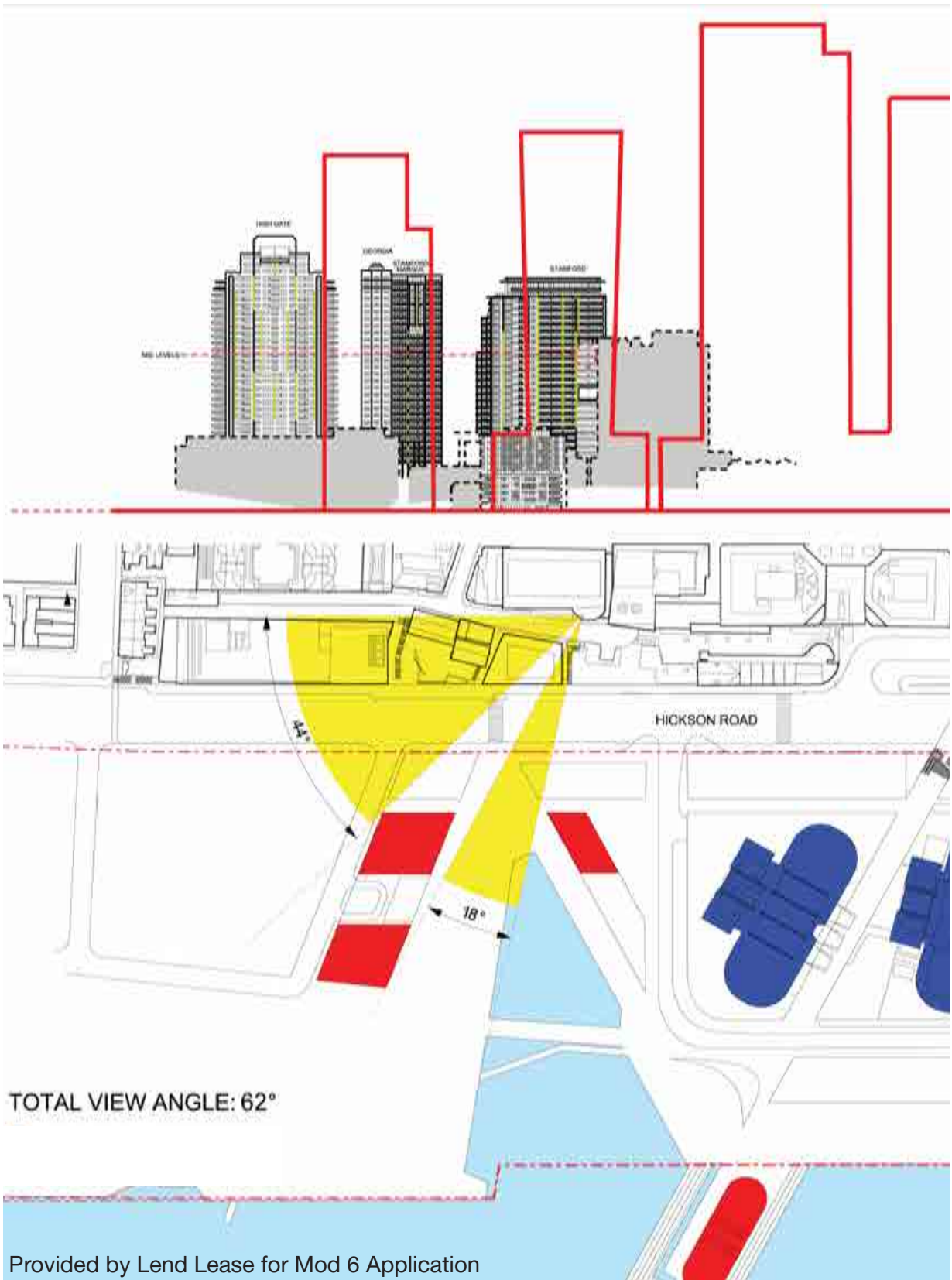
- Concept Plan Amendment (Mod 6) Option 2 Indicative Design
Existing uninterrupted view angle 62°
- Proposed Barangaroo South Masterplan Indicative Uninterrupted view angle 67°

Uninterrupted view greater than 54° is maintained

Image showing view from Level 15 Stamford on Kent
Concept Plan Amendment (Mod 6) - Indicative Design



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Provided by Lend Lease for Mod 6 Application

- Oblique view of the Concept Plan Amendment (Mod 6) indicative design
- Concept Plan Amendment (Mod 6) indicative design building footprint
- Concept Plan Amendment (Mod 6) indicative design tower footprint

Stamford on Kent - Lower Levels

Proposed Barangaroo South Masterplan Indicative Design

Level 15 - RL59.699

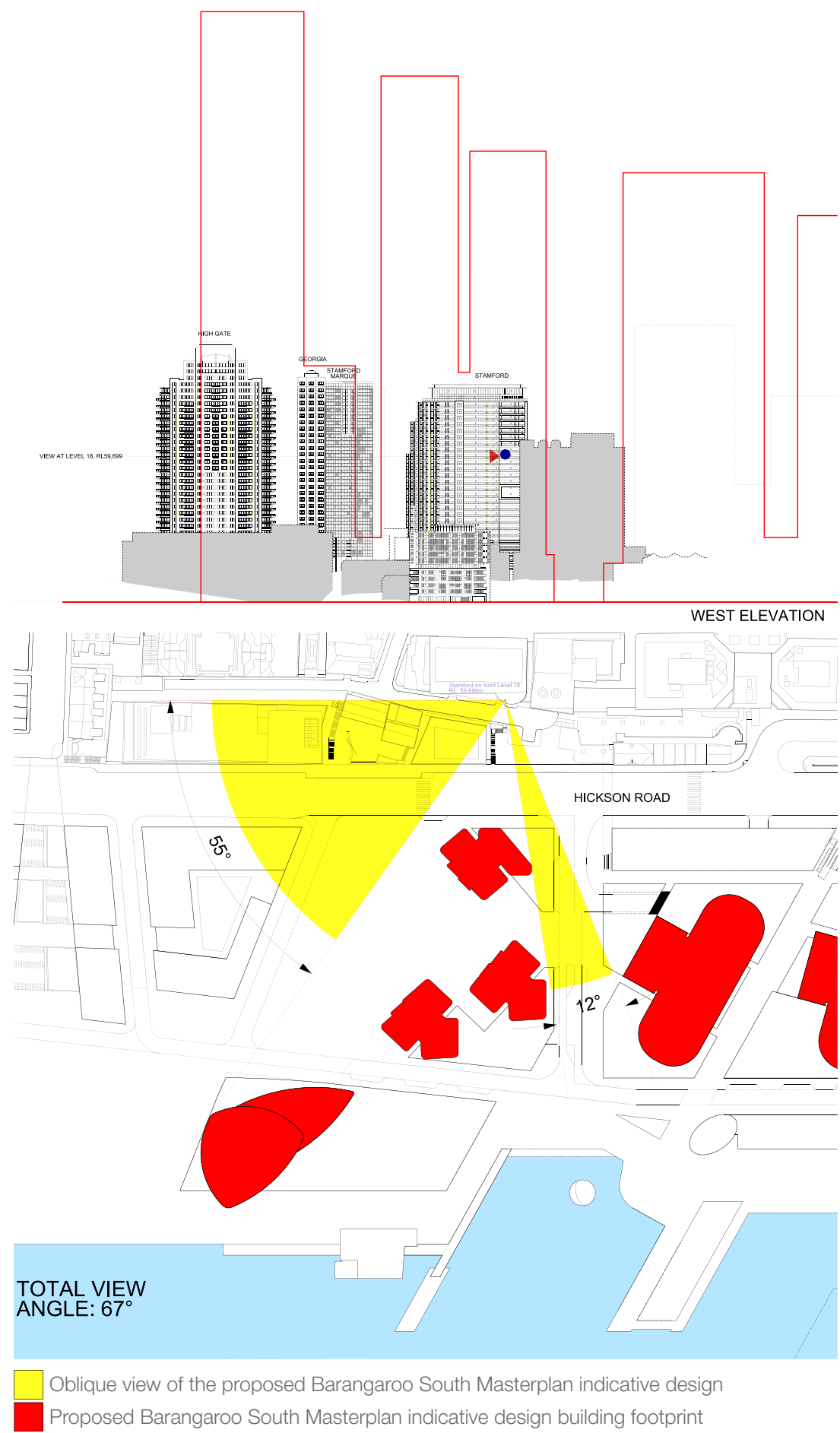


Image showing view from Level 15 Stamford on Kent

Proposed Barangaroo South Masterplan Indicative Design



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Stamford on Kent - Upper Levels

Concept Plan Amendment (Mod 6) Indicative Design

Level 25 - RL90.187

Georgia - Views at Level 25 at RL90.187

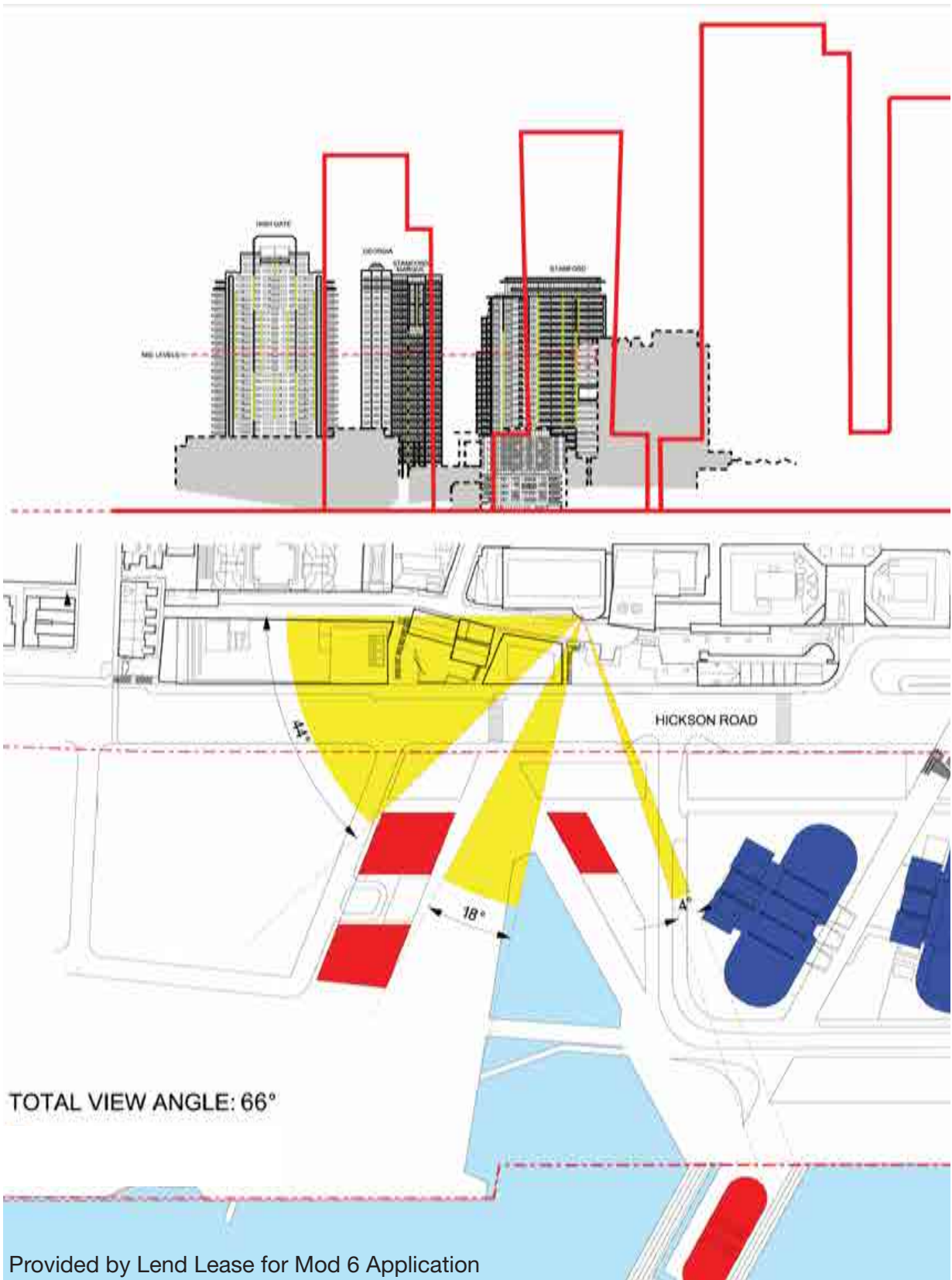
- Concept Plan Amendment (Mod 6) Option 2 Indicative Design
Existing uninterrupted view angle 66°
- Proposed Barangaroo South Masterplan Indicative Uninterrupted view angle 67°

Uninterrupted view greater than 54° is maintained

Image showing view from Level 25 from Stamford on Kent
Concept Plan Amendment (Mod 6) - Indicative Design



Provided by Virtual Ideas

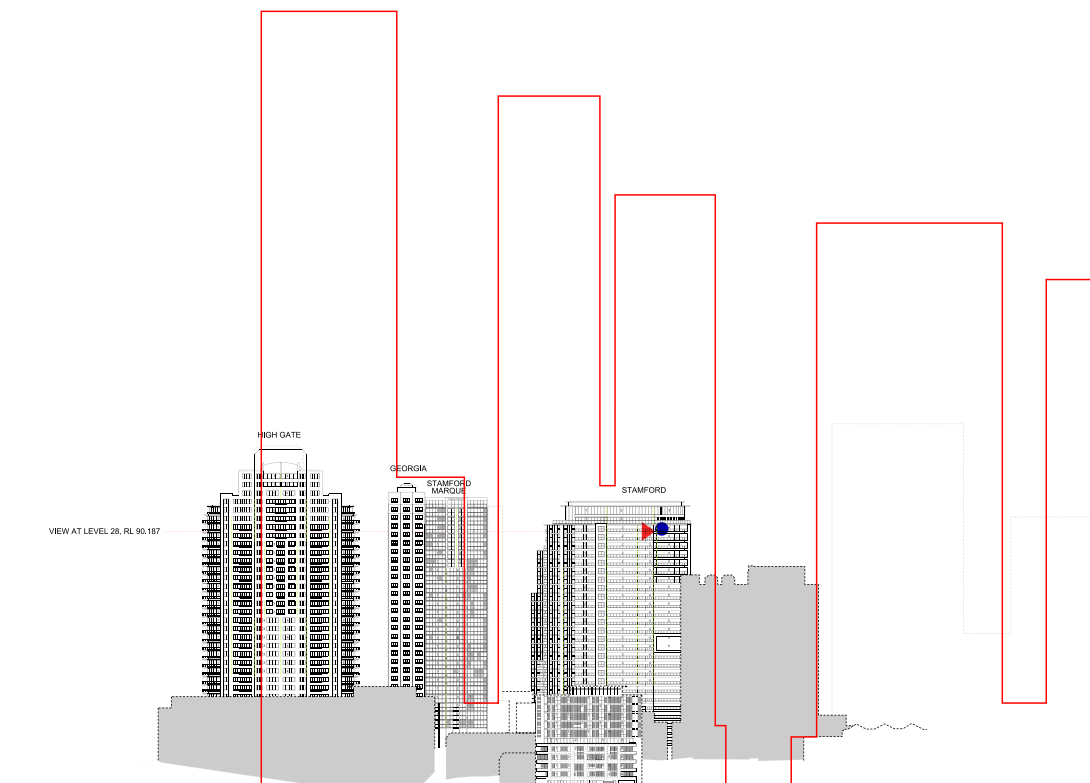


- Provided by Lend Lease for Mod 6 Application
- Oblique view of the Concept Plan Amendment (Mod 6) indicative design
 - Concept Plan Amendment (Mod 6) indicative design building footprint
 - Concept Plan Amendment (Mod 6) indicative design tower footprint

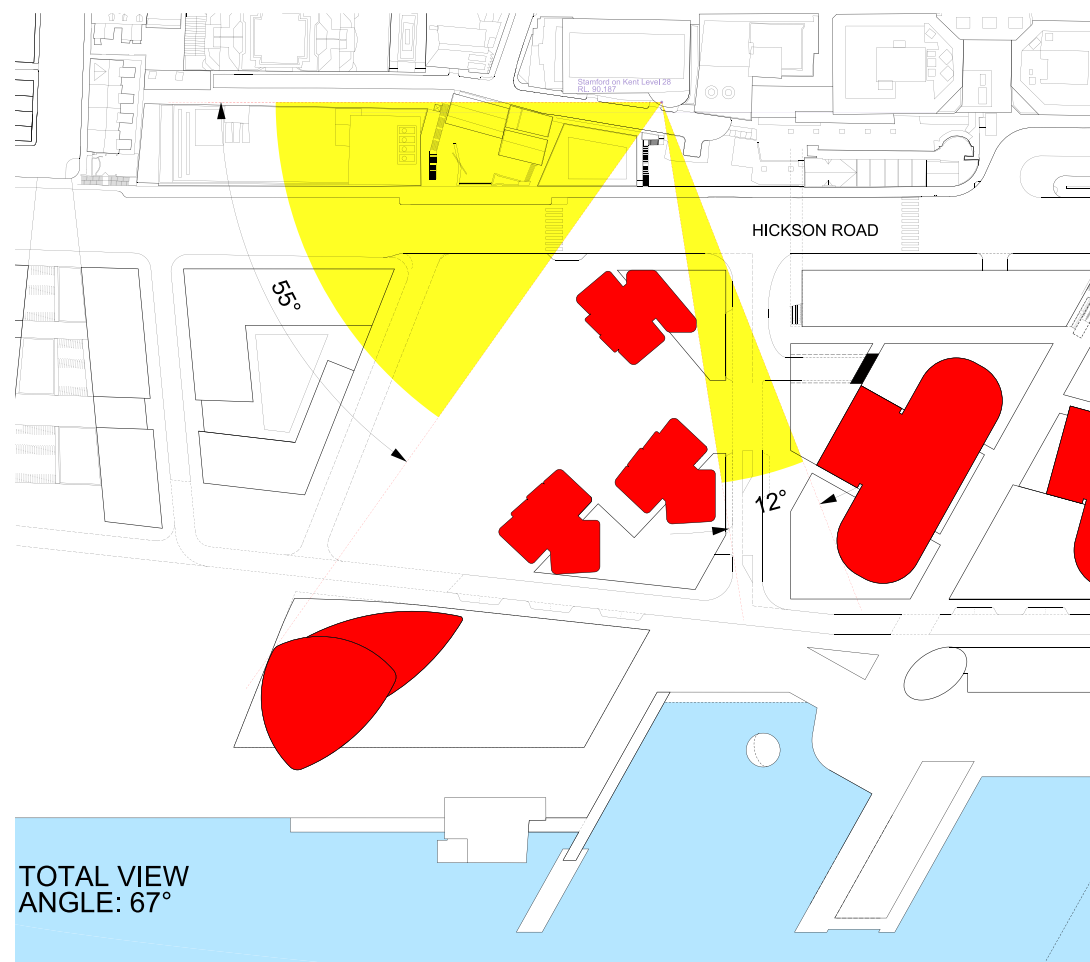
Stamford on Kent - Upper Levels

Proposed Barangaroo South Masterplan Indicative Design

Level 25 - RL90.187



WEST ELEVATION



- Oblique view of the proposed Barangaroo South Masterplan indicative design
- Proposed Barangaroo South Masterplan indicative design building footprint

Image showing view from Level 25 from Stamford on Kent
Proposed Barangaroo South Masterplan Indicative Design



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Conclusion of View Analysis from Existing Residential Units

Distance of Proposed Towers from existing Residential Towers

The results of the view analysis are summarised in the table on the opposite page.

Under the proposed Barangaroo South Masterplan, oblique views for Highgate, Georgia and Stamford Marque has decreased by a few degrees whilst there are an increase of oblique views for Stamford on Kent.

When considered within the proposed context, the distance between the Highgate and the closest tower in its orthogonal view in Mod 6 (being the residential towers) is 97m, in comparison with the proposal which places Barangaroo South’s hotel as the closest tower at 192m, almost 100m further away. For Georgia and Stamford Marque, the distance has increased to 139m from 96m in Mod 6.

The views opposite demonstrate that despite the reduced oblique view angles, the additional distance of the hotel from the residential towers provide a significantly improved wider field of view.

Stamford on Kent benefits from the repositioning of the residential buildings to the south, with the cluster of towers in the orthogonal view resulting in increased oblique views particularly for the lower levels.

The Bond Apartments on Hickson Road also benefits from an increased wider field of view with additional views to the Radial Park.

Based on the resulting angles, the results are largely unchanged from Concept Plan Amendment Mod 6 and the proposed plan continues to promote view sharing with the added benefit of increased wider field of view.



Highgate - L15 RL59.699



Approved Concept Plan Amendment (Mod 6)

Highgate - L25 RL90.187



Georgia - L15 RL59.699



Georgia - L25 RL90.187



Proposed Barangaroo South Masterplan



	Total Oblique View Angle using Concept Plan Amendment (MOD 6)	Total Oblique View Angle using proposed Barangaroo South Masterplan	Difference	Conclusion
Highgate Level 15 (RL59.699)	93°	91°	-2°	View greater than 54 ° is maintained
Highgate Level 25 (RL90.187)	93°	91°	-2°	View greater than 54 ° is maintained
Georgia Level 15 (RL59.699)	88°	85°	-3°	View greater than 54 ° is maintained
Georgia Level 25 (RL90.187)	88°	85°	-3°	View greater than 54 ° is maintained
Stamford Marque Level 15 (RL59.699)	87°	79°	-8°	View greater than 54 ° is maintained
Stamford Marque Level 25 (RL90.187)	86°	79°	-7°	View greater than 54 ° is maintained
Stamford on Kent Level 15 (RL59.699)	62°	67°	+5°	View greater than 54 ° is maintained
Stamford on Kent Level 25 (RL90.187)	66°	67°	+1°	View greater than 54 ° is maintained

Table of oblique views

Stamford Marque - L15 RL59.699



Approved Concept Plan Amendment (Mod 6)

Stamford Marque - L25 RL90.187



Stamford on Kent - L15 RL59.699



Stamford on Kent - L25 RL90.187



Proposed Barangaroo South Masterplan



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