

Attachment J9

Submissions

Our Ref: 960
Your Ref: NSWLEC 2023/00440488

8 August 2024

Andrew D Simpson
Senior Solicitor
Legal and Governance Division
City of Sydney Council



(By email: [REDACTED])

Dear Mr Simpson,

Re: Amended Proposal - Billyard Ave Developments Pty Ltd ATF Billyard Avenue Development Trust v The Council of the City of Sydney NSWLEC 2023/00440488

Property: 21C Billyard Avenue & 10 Onslow Avenue, Elizabeth Bay (Site)

Development Application No. D/2023/727 (DA)

I refer to the written objections which I have submitted to Council on behalf of the owners of 12 Onslow Avenue (No.12) seeking refusal of the original DA. Those submissions are linked below. I included those objections in submissions to the Court at the Section 34 Conciliation Conference (**Annexure 6**).

After examining the *amended proposal*¹, the further view analyses from URBIS for the Applicant and Urbaine for No.13 (**Annexures 4 & 5**), it remains clear that the DA (as amended) should be refused for the following key reasons:

- (i) unacceptable visual impacts and loss of views (absent equitable view sharing);
- (ii) height of building development standard is exceeded, and the clause 4.6 variation request does not justify the proposed variation to that standard noting the failure of the proposal to demonstrate that it is consistent with the objective of clause 4.3(1)(c) of the LEP to “*promote the sharing of views outside Central Sydney*”; and
- (iii) the amended proposal is not in the public interest - it does not enhance housing supply or affordability but instead involves demolishing two existing buildings which provides 28 strata apartments, and erecting a building designed for 20 luxurious residences (a 29% reduction in dwellings), and the new buildings lead to a greater negative impact on neighbours.

The limited benefits of the DA (as amended) do not outweigh the material impacts arising from the DA on, not only No.13 but also many other adjoining buildings and residential apartments.

This submission is supported by additional technical advice from Urbaine in relation to the view loss associated with this proposal being **Annexures 4 & 5** to this further submission.

¹ 20240724 - Amended Proposal 22 to 20 Units -

<https://www.dropbox.com/scl/fo/vnq0rii4fz8mvv95jud78/ACBxAwSspstkl6fNQtdcH8U?rlkey=x6tm21jwb5y2xh7ycqis97low&dl=0>

It is critical that Council's experts in this appeal review Annexures 4 & 5 to this further submission in relation to the impacts upon No.12.

Unacceptable Visual Impacts

The loss of views from No.12 is much greater than URBIS' assessment of that impact (claimed to be negligible or minor) – particularly the loss of the iconic view of Fort Denison from Unit 12 and the losses over views to the northeast from all apartments, the lower apartments being most severely effected.

Urbaine's assessment (see Annexures 4 & 5) and the application of standard planning principles² to evaluate view impacts reveal moderate to devastating effects. These relate not only to Unit 12 and the loss of iconic views, but also to other harbour islands and land-water junctions, as well as cumulatively across neighbouring properties. The impacts are intolerable both individually and together.

The decision-making body has the authority to decide that the loss of view for even one neighbouring property, resulting from surpassing the Height of Buildings (HOB) criterion or the designated setbacks, may be deemed unacceptable.

This determination could lead to the conclusion that a variation under clause 4.6 cannot be justified. In *Kamenev v Woollahra Municipal Council (No 2)* [2018] NSWLEC 1228³ the Court made it clear in paragraphs [26-29] & [47] that a building can meet all the standards and still be considered unacceptable, it being a "monopolisation of the harbour views in the locality and it does not achieve the equitable distribution of views between properties, contrary to the view sharing objectives and controls".

Clause 4.6 Variation – Not Justified

Whether one adopts the *Bettar v Council of the City of Sydney* [2014] NSWLEC 1070 (an interpolation approach) or the *Merman Investments Pty Ltd v Woollahra Municipal Council* [2021] NSWLEC 1582 (measuring HOB from GL(E) as defined), this proposal still breaches the HOB in a quantitatively significant sense.

Utilising the Bettar methodology, as shown in Figure 5 of the Clause 4.6, the Height of Building (HOB) ranges from 2.6m to 3.5m above the interpolated ground levels. Applying the findings from the Bettar analysis indicates that the exceedance of 2.6m to 3.5m would render the upper portion of the building effectively one storey higher than permitted.

Applying the Merman method, the breach in height of the upper building ranges from 5.3m to 5.8m, which is almost equivalent to two additional storeys. The Development Control Plan (DCP) stipulates a maximum of six storeys. The current proposal features an eight-storey building on Onslow Avenue. By following the Merman approach and beginning construction at a reference level of 14.5m AHD, the proposed structure would adhere to the HOB standard and any potential issues with HOB would be adequately mitigated.

² Tenacity Consulting Pty Ltd v Warringah Council [2004] NSWLEC 140 - <https://www.caselaw.nsw.gov.au/decision/549f893b3004262463ad0cc6>

³ Kamenev v Woollahra Municipal Council (No 2) [2018] NSWLEC 1228 - <https://www.caselaw.nsw.gov.au/decision/5af8d006e4b087b8baa88fb2>

The lower GL(E) presents an opportunity for the Applicant to lower the budling significantly consistent with clause 4.3(1)(c) of the LEP. The proposal breaches HOB to take views for itself and does not “promote the sharing of views” in a qualitative sense.

Compliance with the HOB development standard measured from GL(E) “Merman” would adequately mitigate view loss. Providing a HOB outcome measures by interpolation “Bettar”, would mitigate, but would still not “promote the sharing of views”.

Clause 4.6 of the LEP sets a higher threshold for granting development consent when there is an exceedance of the HOB development standard in that LEP. This is because the consent authority is effectively prohibited from granting development consent to development that exceeds the HOB development standard unless the consent authority is satisfied that:

- (i) compliance with the development standard is unreasonable or unnecessary in the circumstances, and
- (ii) there are sufficient environmental planning grounds to justify the contravention of the development standard.

At page 15 of the Clause 4.6 the Applicant relies upon an assessment that:

“The potential view loss for the closest and most affected neighbours ranges between negligible (the lowest on the Tenacity qualitative rating scale) to minor for mid-level dwellings in 13 Onslow Avenue and minor for dwellings at Darnley Hall.”

After evaluating the Urbaine analysis (Annexures 4 & 5), it should be clear to the Council and the Court that the proposal will have moderate to severe effects on the apartments at No.12, and similarly on No.13, both of which will suffer the most in terms of view loss. It's worth mentioning that there are separate submissions for No.13.

This heightened elevation isn't driven by architectural design, strategic planning, or any other requirement.

In relation to the ‘unreasonable or unnecessary’ test, the developer has relied solely on the first method outlined in *Wehbe v Pittwater Council* [2007] NSWLEC 827 which requires the objectives of the standard to be achieved despite the non-compliance with that standard.

On any reasonable assessment compliance is reasonable and necessary to ensure that views are shared and reasonable solar access to neighbours is maintained.

The DA (as amended) does not achieve the HOB standard objective ‘To promote sharing of views outside Central Sydney’. The amended development proposal monopolises significant views for the upper and does not achieve the equitable distribution of views between properties because it will adversely impact views from No.12 as well as apartments in No.13.

We have previously submitted that the proposal is not consistent with the objectives to ensure a HOB appropriated the site and its context as well as provision of an appropriate height transition between new development and the heritage item “Elizabeth Bay House.

In relation to the sufficient environmental planning grounds test, the proposal does not 'justify' contravening the HOB development standard for the following key reasons:

- As above, the proposed HOB is not consistent with the view sharing objective (Cl.4.3(1)(c)) as the impact of the exceedance is not negligible or minor. On any proper assessment (Annexure 4 & 5) the view impacts are moderate to devastating and even a moderate impact caused by breach of a development standard should be considered unacceptable.
- GFA is not as of right and the objectives for HOB must be given determinative weight.
- The upper Onslow building is not affected by flood levels. Any overland flow can be managed without exceeding the HOB.
- The upper building is not 6 storeys as claimed (p.17 of the Clause 4.6). The Onslow Avenue building is proposed to be 8 storeys, a 6-storey building taken from RL14.5m AHD would achieve a height of RL 33.5m a HOB of around 19m to its parapet, complying with the 22m maximum HOB and allow head room for a recessive lift overrun and services.
- The HOB of the lower building's excessively large POS and appurtenant roof is also unreasonable and unnecessary.
- The LEP height plan must be measured as per Merman, therefore Figure 10 in the Clause 4.6 is erroneous and irrelevant to the quantum of the breaches of HOB, both in term of the footprint and the vertical extents of the breaches.
- The built form does not transition in HOB from No.8 Onslow to No.12 Onslow. This is shown in Figure 11 of the Applicant's Clause 4.6.
- The taller buildings to the west of Onslow Avenue don't provide environmental planning grounds to increase HOB on the eastern side of Onslow Avenue.
- The statements of "general" DCP compliance are not correct, the 6-storey desired future character will not be achieved by an 8-storey building to Onslow Avenue and these statements of general compliance do not make out sufficient environmental planning justification.
- The breach of the HOB will cause additional overshadowing to the southern neighbours.

At the Section 34 site inspection, the Council and the Court would have noted that the views of Fort Denison, other islands in the harbour, and the points where land meets water, which are highly valued, would be significantly reduced. The revised proposal makes minor changes to the design but fails to address the previously noted issues. It will result in fewer apartments, larger units, and heightened losses of views and shadows. This will have a collectively detrimental effect on the living conditions for residents at No.12, among other neighbours.

Moreover, the proposal fails to meet the objectives of clause 4.3(1) (a, b & c) of the Sydney Local Environmental Plan 2012 (LEP), which is designed to encourage view sharing, and the Applicant has not adequately justified exceeding building height limits under clause 4.6.

This submission is supported by the Annexures, most importantly the revised analysis and submissions of Urbaine (Annexures 4 & 5).

Please don't hesitate to contact me on [REDACTED] or by email [REDACTED] if any additional information is required.

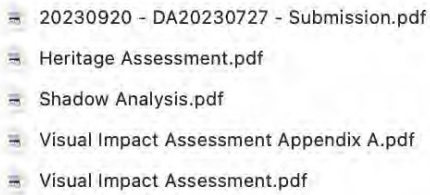
Yours faithfully,

[REDACTED]

Brett Daintry, MPIA, MAIBS, MEHA, MEPLA
Director

cc. [Nina Pearce](#) [REDACTED]

Annexures - Links to submissions and detailed annexures

1. 20230920 - No.12 Submission and Annexures – Original Submission
<https://www.dropbox.com/scl/fo/zd0wmjkexgw4i4q3zqj2m/h?rlkey=cf097htdj35avynor32tao82t&dl=0>

 - 20230920 - DA20230727 - Submission.pdf
 - Heritage Assessment.pdf
 - Shadow Analysis.pdf
 - Visual Impact Assessment Appendix A.pdf
 - Visual Impact Assessment.pdf
2. 20240607 - URBIS View Sharing Reports -
https://www.dropbox.com/scl/fo/n1rarm43o8uy47llw2ek4/AlqAyu6_jG1MK-QLqhilhR4?rlkey=2zpclwrg1kq86zo1vec0scop&dl=0
3. 20240611 - Urbaine Objection – (original submission)
<https://www.dropbox.com/scl/fi/yc0cvtup3ktoecsfk6r8g/20240611-Urbaine-Objection.pdf?rlkey=5xgboa71674s81swln9ucr486&dl=0>
4. 20240807 – Urbaine - Analysis
<https://www.dropbox.com/scl/fi/s85ip5gbp6uzlewhpx7wm/Annexure-4-13-Onslow-Visual-Impact-7.8.2024.pdf?rlkey=6lwlz2d5c2p206rl9cabj5d3b&dl=0>
5. 20240807 – Urbaine – Annexure A
<https://www.dropbox.com/scl/fi/61zedh79y9he67vvgthds/Annexure-5-13-Onslow-Visual-Impact-Appendix-A-7.8.2024.pdf?rlkey=80jxhh73jg73gdbf8sbxq0e0&dl=0>
6. 20240612 - Letter to Commissioner Walsh @ s.34 -
<https://www.dropbox.com/scl/fi/e0wpne8vfzwtj9kc707ti/20240612-Letter-to-Commissioner-Walsh-s.34.docx?rlkey=6cqds6ucbx2sktnry5nw0d6ro&dl=0>



**Combined Objection to a Development Application: D/2023/727 - Revised.
No.10, Onslow Avenue and No.21C, Billyard Avenue,
Elizabeth Bay - Residential Flat Building
Visual Impact Assessment Report: Revised Scheme, July 2024**

urbaine design group

Visual Impact Assessment Report

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1. 1. INTRODUCTION

1.1 Scope and Purpose of Report.

This Visual Impact Report has been prepared by Urbaine Design Group for an objection to the revised development proposal at 10, Onslow Avenue and 21C, Billyard Avenue, Elizabeth Bay, NSW 2011: D/2023/727. The objection is being raised by various residents of the residential apartment building to the south of the subject site, at No.12, Onslow Avenue, Elizabeth Bay, being the residents of Units 3,5,7,8,9,11 and 12.

Urbaine Design, and its Director, John Aspinall, BA(Hons), BArch(Hons) have been preparing 3d imagery and Visual Impact Assessments, both in Australia and Internationally for over 25 years. Their methods are regularly published in planning and architectural journals and John Aspinall has lectured in Architectural Design at both the University of Technology Sydney and The University of New South Wales.

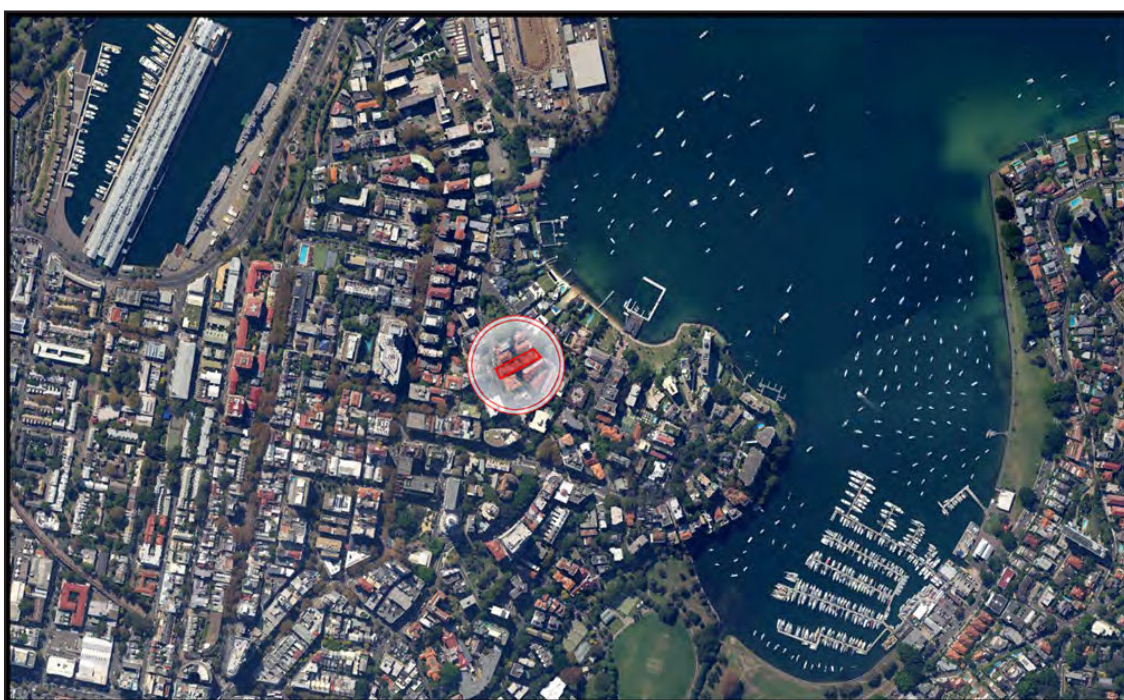


Figure 1 – site location shown in red overlay.

1.2 The Proposed Development

1.2.1. The Site and existing property:

The subject site is known as 21C, Billyard Avenue and 10 Onslow Avenue, or known formally as S.P.9561. The site falls within the boundaries of City of Sydney Council. The closest crossroads are Greenknowe Avenue, Elizabeth Bay Road and Ithaca Road.

The site is not listed as an item of heritage significance in Schedule 5 of the Sydney Local Environmental Plan (LEP) 2012. However, it falls within C21 Elizabeth and Rushcutters Bay Heritage Conservation Area (HCA) as noted in Schedule 5, Part 2 of the Sydney LEP 2012. It is also identified as a neutral item in the Sydney Development Control Plan (DCP) 2012, Building Contribution Map.

The site is in the vicinity of a number of heritage items including: 3 items of State significance - 7–9 Onslow Avenue “Elizabeth Bay House” (I594) - 14–16 Onslow Avenue ‘Grotto site of Elizabeth Bay House’ (I596) - 42 Billyard Avenue “Boomerang” (I575), and 3 items of Local significance - 13 Onslow Avenue “Meudon” (I595) -

Onslow Place 'Cliff face behind Elizabeth Bay House' (I597) - 36 Billyard Avenue "Berthong" (I574); The site area is 1464 sqm and the site is occupied by two brick residential flat buildings.

The subject site is classed as Zone R and also Zone O. The subject site is therefore considered to have two maximum permissible heights of 15 metres to the north-east and 22 metres to the south-west. The proposed development is confined to the 22 metre height limit portion of the site. The proposal exceeds both of these building height controls, which will require a Clause 4.6 Variation Request to justify this exceedance, particularly in relation to view loss and visual impact to neighbouring properties.

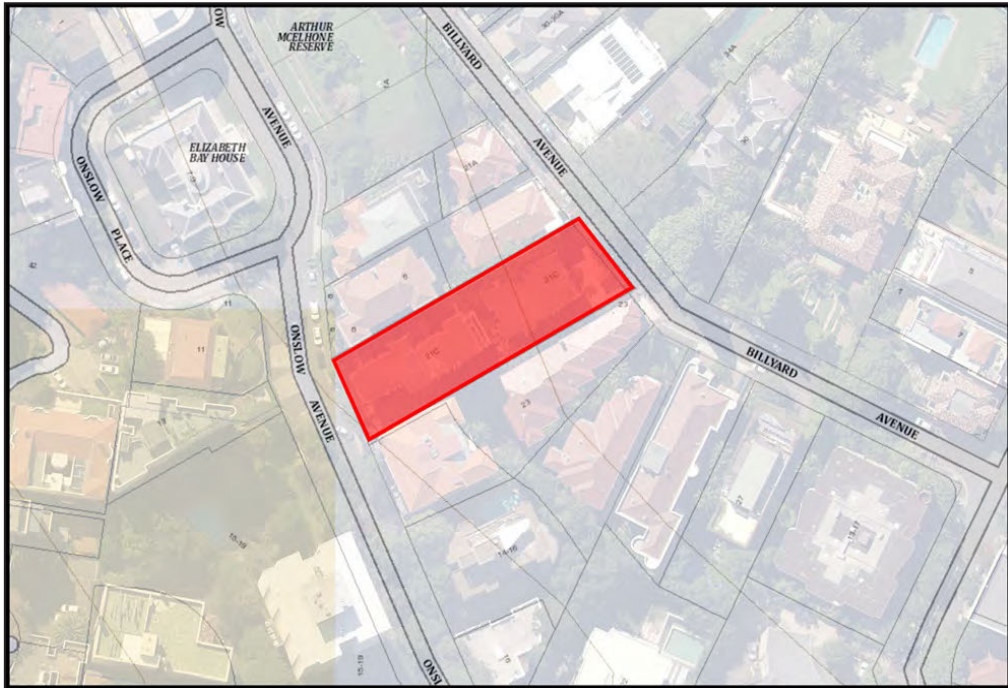


Figure 2 – site location shown in red overlay.



Figure 3 – Isometric views of the development showing the revised height exceedance. Smart Design Studio.

1.2.2. Proposed Land Use and Built Form:

The original development proposal included: the demolition of existing buildings, tree removal, excavation and construction of two new residential flat buildings, 6 to 8 storeys in height, with 22 apartments, 4 basement levels containing 27 car spaces, rooftop terraces, swimming pools and associated landscaping works including new tree plantings. The application is Integrated Development requiring the approval of Water NSW under the Water Management Act, 2000.

Following the deemed refusal of the application, a Section 34 Conference was held on 12 June 2024, with a series of amendments proposed to the application (on a without prejudice basis) following this. A summary of the amendments is as follows:

- Overall apartment numbers reduced from 22 to 20 (Onslow GF – 2 apartments consolidated into 1), & (Onslow L04 Penthouse removed, leaving 1x 2 level Penthouse on L04 & L05).
- Billyard front setback increased by 1m – rear, southern building alignment remained same, therefore building footprint, bulk & scale reduced.
- Billyard building width reduced by 400mm.
- Billyard balconies reduced in depth to min 2.4m & splayed outline updated.
- Onslow front setback increased by 1.8m – rear, northern building alignment remained same, therefore building footprint, bulk & scale reduced.
- Splayed balcony for to Onslow northern balconies reduced/ straightened.
- Onslow northern balconies reduced in depth to min 2.4m & splayed outline updated.
- Onslow front setback of the upper form increased from 3m to 4.2m (S-W corner) and from 4.2m to 5.4m (S-E corner).
- Onslow L04 & L05 side setbacks: east setback increased by 1.6m (from 3m to 4.6m), west setback increased by 1.7m (from 3.3m to 5m). Please note upper setback to the east is currently under review – as annotated on the drawings.
- Onslow L05 – front (northern) setback increased by 8.2m (from 3.8m to 12m).
- Building services changed from traditional mechanical heating & cooling to geothermal with large reduction in rooftop plant & equipment.
- Billyard building rooftop: private penthouse rooftop terrace removed - whole rooftop used for communal space.
- Onslow L05 – Communal Terrace proposed.
- Additional basement B08 added to accommodate internal communal open space.



Figure 4 – Typical floor plan of proposed design by Smart Design Studio - extent of revisions indicated within red cloud.

1.3 Methodology of Assessment:

The methods used by Urbaine, for the generation of photomontaged images, showing the proposed development in photomontaged context are summarised in an article prepared for New Planner magazine in December 2018 and contained in Appendix B. A combination of the methods described were utilised in the preparation of the photomontaged views used in this visual impact assessment report, below.

1.3.1.Process:

Initially, a fully contoured 3d model was created of the site and surrounding buildings to the extent of the designated viewpoints, with detailed modelling matching the building envelope of the latest Smart Design Studio design and its associated interaction with the surrounding site (see Figure 4 for typical floor plan). Virtual cameras were placed into the 3D model to match various selected viewpoints, in both height and position. These locations were measured on-site, relative to known, existing physical elements, such as trees, light poles, walls etc. From these cameras, rendered views have been generated and photomontaged into the existing photos, using the ground plane for alignment (allowing 2 set camera heights, where necessary, for standing and sitting positions being at 1600mm and 1100mm respectively). Several site location poles were placed, both physically and also into the 3d model to allow accurate alignment with the original photo. The final selection of images shows these stages, including the block montage of the original development application and concluding with an outline, indicating the potential visual impact and view loss. The images within the report are of a standard lens format, as are the views contained within Appendix A. The Visual Impact Assessment includes detailed evaluation of views from several neighbouring properties at various levels, as described further below.

1.3.2.Assessment Methodology:

There are no set guidelines within Australia regarding the actual methodology for visual impact assessment, although there are a number of requirements defined by the Land and Environment Court (LEC) relating to the preparation of photomontages upon which an assessment can be based (Appendix C).

Where a proposal is likely to adversely affect views from either private or public land, Council will give consideration to the Land and Environment Court's Planning Principle for view sharing established in *Tenacity Consulting v Warringah Council* [2004] NSWLEC 140. This Planning Principle establishes a four-step assessment to assist in deciding whether or not view sharing is reasonable:

- Step 1: assessment of views to be affected.
- Step 2: consider from what part of the property the views are obtained.
- Step 3: assess the extent of the impact.
- Step 4: assess the reasonableness of the proposal that is causing the impact.

It is noted that the preliminary proposal complies with the development standards of the City of Sydney Council LEP 2012 and some private view loss is unavoidable within a highly urbanised environment, such as Potts Point.

An additional source of reference in relation to view sharing and visual impact in this area is found within the neighbouring Woolahra Council DCP, 2012. This states:

'View sharing concerns the equitable distribution of views between properties. The view sharing controls in this DCP seek to strike a balance between accommodating new development while providing, where practical, reasonable access to views from surrounding properties. Development should be designed to reflect the view sharing principles in *Tenacity Consulting v Warringah Council* [2004] NSWLEC 140.'

However, although these reference documents provide guidelines for assessment, there is no peer review system for determining the accuracy of the base material used for such visual impact assessments. As a result, Urbaine Design provides a detailed description of its methodologies and the resultant accuracy verifiability – this is contained within Appendix B.

The methodology applied to the visual assessment of the current design proposal has been developed from consideration of the following key documents:

- Environmental Impact Assessment Practice Note, Guideline for Landscape Character and Visual Impact Assessment (EIA-N04) NSW RMS (2013);

- Visual Landscape Planning in Western Australia, A Manual for Evaluation, Assessment, Siting and Design, Western Australia Planning Commission (2007);
- Guidelines for Landscape and Visual Impact Assessment, (Wilson, 2002);

In order to assess the visual impact of the Design Proposal, it is necessary to identify a suitable scope of publicly, or privately accessible locations that may be impacted by it, evaluate the visual sensitivity of the Design Proposal to each location and determine the overall visual impact of the Design Proposal. Accessible locations that feature a prominent, direct and mostly unobstructed line of sight to the subject site are used to assess the visual impact of the Design Proposal. The impact to each location is then assessed by overlaying an accurate visualisation of the new design onto the base photography and interpreting the amount of view loss in each situation, together with potential opportunities for mitigation.

Views of high visual quality are those featuring a variety of natural environments / landmark features, long range, distant views and with no, or minimal, disturbance as a result of human development or activity. Views of low visual quality are those featuring highly developed environments and short range, close distance views, with little or no natural features.

Visual sensitivity is evaluated through consideration of distance of the view location to the site boundary and also to proposed buildings on the site within the Design Proposal. Then, as an assessment of how the Design Proposal will impact on the particular viewpoint. Visual sensitivity provides the reference point to the potential visual impact of the Design Proposal to both the public and residents, located within, and near to the viewpoint locations.

Site Inspections:

2 site inspections were undertaken to photograph the site and surrounding area to investigate:

- The topography and existing urban structure of the local area
- The streetscapes and houses most likely to be affected by the Proposal
- Important vistas and viewsheds
- Other major influences on local character and amenity

The site map, see figure 5, indicates chosen locations for site photography – also shown in Appendix A.



Figure 5: Selected neighbouring property viewpoint locations for visual impact assessments.

Contextual Analysis

An analysis was undertaken of the visual and statutory planning contexts relevant to the assessment of visual impacts in a Development Application.

Visual Impact Analysis

The visual impacts of the proposed development were analysed in relation to the visual context and assessed for their likely impact upon the local area and upon specific residential properties.

Statutory Planning Assessment

The results of the local view impact assessment are included in Section 3 of this report, with large format images included in Appendix A.

1.4 References:

The following documentation and references informed the preparation of this report:

- The design drawings and information relied upon for the preparations of this report were prepared by Smart Design Studio, Revision F .18/7/2024.
- City of Sydney Council DCP, 2012.
- Creating Places for People - An Urban Design Protocol for Australian Cities:
- Australia and New Zealand Urban Design Protocol:
www.mfe.govt.nz/publications/urban/design-protocol-mar05/urban-design-protocol-colour.pdf
- The Value of Urban Design:
www.designcouncil.org.uk/Documents/Documents/Publications/CABE/the-value-of-urban-design.pdf
- Fifteen Qualities of Good Urban Places:
www.goldcoast.qld.gov.au/planning-and-building/fifteen-qualities-of-good-urban-places-3774.html
- The Image of the City (1960), Kevin Lynch

2. THE SITE AND THE VISUAL CONTEXT.

Visual impacts occur within an existing visual context where they can affect its character and amenity. This section of the report describes the existing visual context and identifies its defining visual characteristics. Defining the local area relevant to the visual assessment of a proposed development is subject to possible cognitive mapping considerations and statutory planning requirements. Notwithstanding these issues, the surrounding local area that may be affected by the visual impact of the proposed development is considered to be the area identified on in the topographical area map, Figure 6.

Although some individuals may experience the visual context from private properties with associated views, the general public primarily experiences the visual context from within the public realm where they form impressions in relation to its character and amenity. The public realm is generally considered to include the public roads, reserves, open spaces and public buildings. This shows the rising landform to the south and east of the subject site.

The visual context is subject to “frames of reference” that structure the cognitive association of visual elements. The “local area” (as discussed above) provides one such frame of reference. Other “frames of reference” include the different contextual scales at which visual associations are established and influence the legibility, character and amenity of the urban environment. Within the scope of this report three contextual scales are considered relevant to the analysis of the visual context and the visual impact of the proposed development.

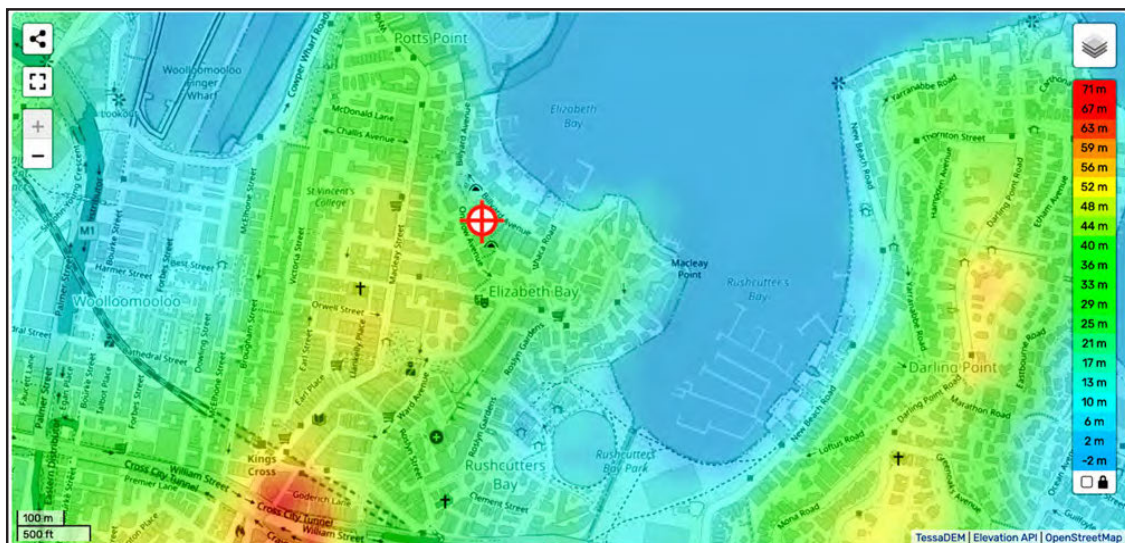


Figure 6: Onslow Avenue. - subject area topographical map.

The 'Street Context' provides a frame of reference for reviewing the visual relationship of the new development (and in particular its facades) in relation to the adjoining pedestrian spaces and roads. Elements of the development within this frame of reference are experienced in relatively close proximity where, if compatible with the human scale they are more likely to facilitate positive visual engagement and contribute to the "activation" of adjoining pedestrian spaces.

The 'Neighbourhood Context' provides a broader frame of reference that relates the appearance of the development as a whole to the appearance of other developments within the local area. As a frame of reference, it evolves from the understanding gained after experiencing the site context and the low density of development. Within this context the relative appearance, size and scale of different buildings are compared for their visual compatibility and contribution to a shared character from which a unique "sense of place" may emerge. This frame of reference involves the consideration of developments not necessarily available to view at the same time. It therefore has greater recourse to memory and the need to consider developments separated in time and space. The neighbourhood context is relevant to the visual 'legibility' of a development and its relationship to other developments, which informs the cognitive mapping of the local area to provide an understanding of its arrangement and functionality.

The 'Town / City Context' provides a frame of reference that relates the significance of key developments or neighbourhoods to the town as a whole. The contribution that distinctive neighbourhoods make (or may potentially make) to the image of the city can be affected by the visual impact of an individual development through its influence on the neighbourhood's character and legibility. Within this context, it is also important to be aware of other proposed developments in the area.

2.1 The Visual Context:

Within the street context, there is a mix of property types, sizes and architectural styles, most of which maximise viewlines to the north and west in their orientation.

Within the urban context, there is a very diverse fabric, in terms of planning and scale, consisting of a mix of Residential properties of many varying architectural designs and styles. There are also several heritage listed buildings in this area, Elizabeth Bay House in particular.

2.2 Visual Features and Local Landmarks:

Particular elements in the urban pattern, through either location and/or built form provide visual nodes and landmarks that assist in differentiating locations within the broader visual context. The following visual nodes are

considered to be of the greatest significance in terms of their contribution to the character and legibility of the local and surrounding area:

Views are observed from this area to Sydney Harbour, Rushcutters Bay, Elizabeth Bay, Garden Island, Clark Island, lower North Shore Harbour suburbs and the far distant locations of Manly, Watsons Bay and the Harbour Heads.

2.3 Streetscapes:

Within the immediate and surrounding areas, the streetscapes are typical of the suburbs of Elizabeth Bay, being a mixture of individual houses and apartments blocks of varying scales. There are several heritage buildings within the area and the landscaping is predominantly mature and well established.

2.4 The selected view locations for the local view analysis:

As a result of the site's topography, the visual impact is primarily relevant to the residential properties to the south and west northwest and southeast of the subject site.

A large number of site photos were taken and a smaller number of specific views selected from these, relevant for private viewing locations, as described above. These are all static viewpoints, namely, fixed locations where potential view loss could be considered significant

The selected photos are intended to allow consideration of the visual and urban impact of the new development at a local level and, specifically, from the neighbouring properties on Onslow Avenue and Billyard Avenue. They incorporate private viewing locations with more distant, elevated, or panoramic views, where the subject site falls within, and impacts on the midground and background views.

2.5 Context of View:

The context of the view relates to where the proposed development is being viewed from. The context is different if viewed from a neighbouring building, or garden, as is the case in parts of this assessment, where views can be considered for an extended period of time, as opposed to a glimpse obtained from a moving vehicle.

2.6 Extent of View:

The extent to which various components of a development would be visible is critical. In this case, the proposal is for a new residential apartment building, larger than the existing. It is therefore considered to have a local scale visual impact. If the development proposal was located in an area containing buildings of a similar scale and height, it would be considered to have a lower scale visual impact.

The capacity of the landscape to absorb the development is to be ranked as high, medium or low, with a low ranking representing the highest visual impact upon the scenic environmental quality of the specific locality, since there is little capacity to absorb the visual impact within the landscape, apart from within the existing street trees surrounding the subject site.

3. VISUAL IMPACT OF THE PROPOSED DEVELOPMENT.

3.1 Visual Impact Assessments from 12 viewpoint locations – from apartments within the residential flat building at No.12, Onslow avenue.

3.1.1. Method of Assessment:

In order to allow a quantitative assessment of the visual impact, photos were selected that represented relevant viewing locations from the specific locations likely to be affected. Within these areas, photographs were taken

from the property boundaries, equating to standing height views within the relevant buildings.

A Canon EOS Full Frame Digital Camera with fixed focal length 35mm lens was used to take all viewpoint photos, at an eye level of 1600mm. This was tripod-mounted and levelled.

The photos include location descriptions, to be read in conjunction with the site map, contained in Appendix A. Additionally, information is supplied as to the distance from the site boundary for each location and the distance to the closest built form is provided in Section 3.1.2 below.

To assess the visual impact, there are 2 relevant aspects - view loss of actual substance (landscape, middle and distance view elements etc.) and also direct sky view loss. To a large extent, the value associated with a view is subjective, although a range of relative values can be assigned to assist with comparing views. Figure 7 is a scale of values from 0 to 15, used to allow a numeric value to be given to a particular view, for the purposes of comparison.

On the same table are a series of values, from zero to 15, that reflect the amount of visual impact.

The second means of assessment relates to assigning a qualitative value to the existing view, based on criteria of visual quality defined in the table – also in figure 7.

The % visual content is then assessed, together with a visual assessment of the new development's ability to blend into the existing surroundings.

Scale	Value	Visual Quality	Visual Impact	Tenacity Value
0	Negligible	N/A	No negative impact on the pre-existing visual quality of the view.	Nil
1		Predominant presence of low quality manmade features. Minimal views of natural formations (e.g. cliffs, mountains, coastlines, waterways, ridges etc). Uniformity of land form.	A minor negative impact on the pre-existing visual quality of the view. Examples: <ul style="list-style-type: none">– Minor impacts on natural landscapes.– No impact on iconic views– Impacts on a small number of receivers.– Significant distance between the development and receiver.	Negligible
2				
3				
4				
5	Low			Minor
6	Medium	Presence of some natural features mixed with manmade features. Some views of distinct natural formations (e.g. cliffs, mountains, coastlines, waterways, ridges etc).	A medium negative impact on the pre-existing visual quality of the view: Examples: <ul style="list-style-type: none">– Moderate impacts on iconic views or natural landscapes.– Impacts on a moderate number of receivers.– Located nearby the receiver.	Moderate
7				
8				
9				
10				
11	High	Predominantly natural features. Minimal manmade features, however if present of a high architectural standard. Significant views of distinct natural formations (e.g. cliffs, mountains, coastlines, waterways, ridges etc). Presence of iconic regional views or landmark features.	A high negative impact on the pre-existing visual quality of a view: Examples: <ul style="list-style-type: none">– Loss of iconic views.– Impacts on a significant number of receivers.– Overshadowing effect.– Directly adjacent the receiver.	Severe
12				
13				
14				
15				
				Devastating

Figure 7 – Urbaine Design Visual Assessment Scale

3.1.2 Assessment at selected viewpoints.

Viewpoint no.01 - Unit 3



P58 PXL_2405603 a.jpg

Existing site photo

From main living room, 1600mm, behind glazing line, facing north-northeast towards subject site

RL: +20.59m

Distance to site boundary: 9.91m

Distance to centre of subject site: 30.111m



P58 PXL_2405603 c.jpg

Photomontage of proposal



P58 PXL_2405603 d.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact – Amount of new building visible in view – 28%

Visual impact ratio of view loss to sky view loss in visible portion. 63%: 37%

Existing Visual Quality Scale no: 9 /15 Visual Impact Assessment Scale no:10 /15.

This is a static, private viewpoint from the main living room of Unit 3 in the residential apartment building at no.12, Onslow Avenue, looking north-northeast over the subject site.

The existing, partial view is across Elizabeth Bay, to Port Jackson, Bradleys Head and Athol Bay foreshore in the distance. Further to the east, the North Harbour National Park is observed in the far distance.

The revised development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. This height exceedance causes significant view loss to the entirety of the visible portion of the Athol Bay and Bradleys Head foreshore from this location, both being high value visual features. The upper levels of the new proposal also impact upon the Bradleys Head ridgeline beyond and a portion of the sky view above the existing building on the site.

When comparing the revised proposal to the previous submission, there is a small reduction in the visual impact at the upper level, of the lower building on the site, with a very small portion of the water and foreshore component of the view to the northeast retained, together with a minor increase in sky view above. The minor increase in view is not sufficiently significant to reassess the general value of view loss, since this is a very high-value existing view from this location.

Tenacity Assessment Summary:

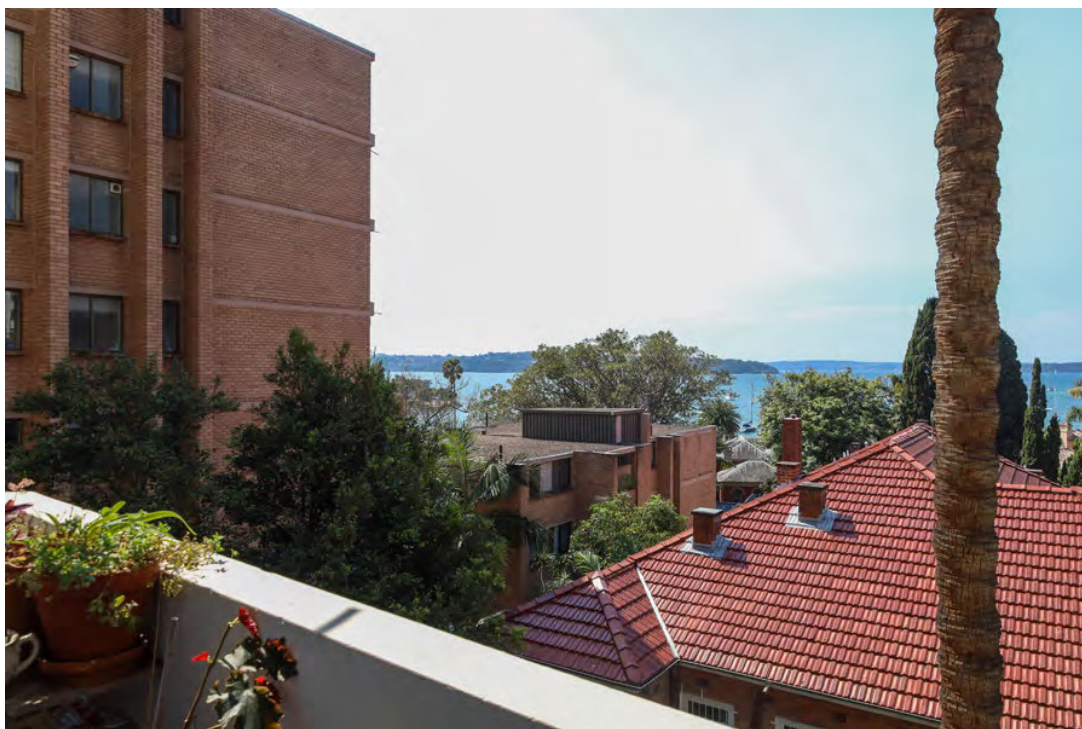
Value of view: Medium-to-High (filtered)

View location: Primary, indoor living space – standing 1m behind glazing line.

Extent of impact: Moderate-to-Severe

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

Viewpoint no.02 - Unit 5



P27 IMG_8681 a.jpg

Existing site photo

From external balcony at standing height, 1600mm facing northeast towards subject site

RL: +23.745m

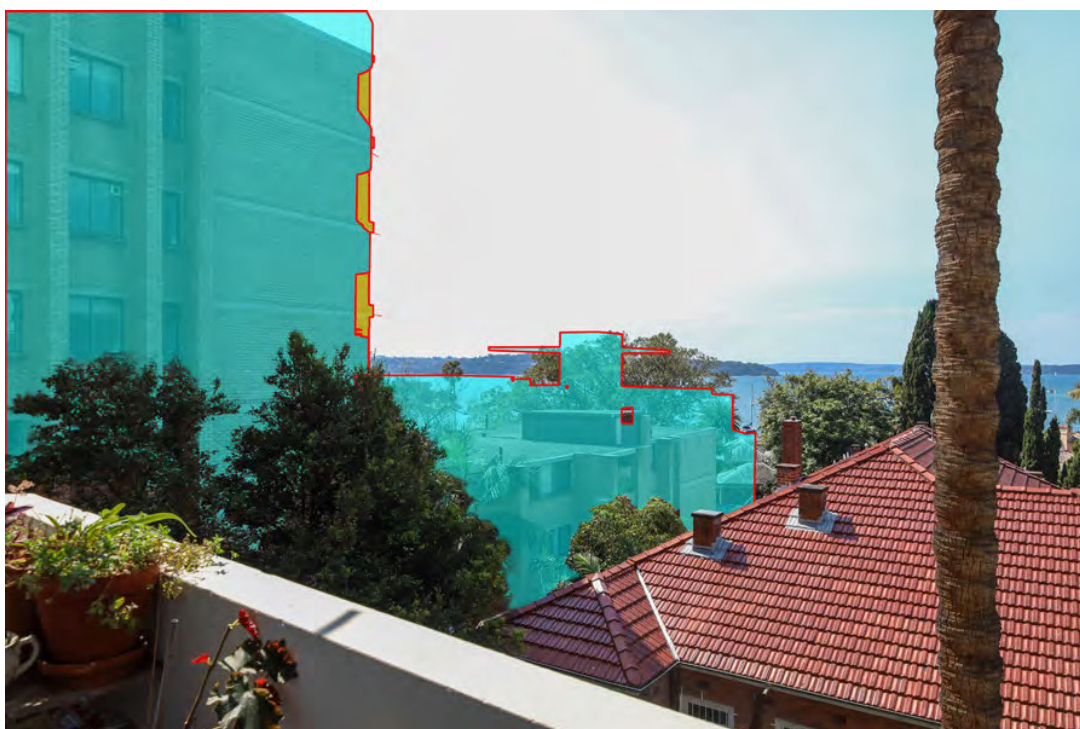
Distance to site boundary: 12.041m

Distance to centre of subject site: 30.111m



P27 IMG_8681 c.jpg

Photomontage of proposal



P27 IMG_8681 d.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact – Amount of new building visible in view – 33%

Visual impact ratio of view loss to sky view loss in visible portion. 86%: 14%

Existing Visual Quality Scale no: 11 /15 Visual Impact Assessment Scale no: 10 /15.

This is a static, private viewpoint from the balcony of Unit 5 in the residential apartment building at no.12, Onslow Avenue, looking north-northeast over the subject site.

The existing, filtered view is across Elizabeth Bay, to Port Jackson, Bradleys Head and Athol Bay foreshore in the distance. Further to the east in the view is Clark Island, Rose Bay, Neilsen Park, Watsons Bay, South Head and North Harbour in the far distance.

The revised development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. This height exceedance causes significant view loss to a significant portion of the Athol Bay and Bradleys Head foreshore and the ridgeline above, both being high value visual features.

When comparing the revised proposal to the previous submission, there is a small reduction in the visual impact at the upper level, of the lower building on the site, with a very small portion of the far distant ridgeline, to the north, retained, together with a minor increase in sky view above the ridgeline. The minor increase in view is not sufficiently significant to reassess the general value of view loss, since this is a very high-value existing view from this location.

Tenacity Assessment Summary:

Value of view: High (filtered)

View location: Primary, outdoor living space – standing 1m behind balcony edge.

Extent of impact: Moderate-to-Severe

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

Viewpoint no.03 - Unit 5



P32 IMG_8730 a.jpg

Existing site photo

From dining room at standing height, 1600mm facing northeast towards subject site

RL: +23.77m

Distance to site boundary: 6.225m

Distance to centre of subject site: 25.133m



P32 IMG_8730 c.jpg

Photomontage of proposal



P32 IMG_8730 d.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact – Amount of new building visible in view – 26%

Visual impact ratio of view loss to sky view loss in visible portion. 89%: 11%

Existing Visual Quality Scale no: 8 /15 Visual Impact Assessment Scale no: 7 /15.

This is a static, private viewpoint from the dining room of Unit 5 in the residential apartment building at no.12, Onslow Avenue, looking north-northeast over the subject site.

The existing view is partially screened by mature trees in the middle distance. Beyond these are views to Port Jackson, Bradleys Head and Athol Bay foreshore and ridgeline in the far distance. From this location, views to the east are terminated by the window aperture.

The revised development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. This height exceedance causes moderate view loss to Port Jackson, parts of the Athol Bay and Bradleys Head foreshore, both being high value visual features. The profile of the non-compliant upper levels of the new proposal also breach the profile of the distant ridgeline beyond Bradleys Head.

When comparing the revised proposal to the previous submission, there is a small reduction in the visual impact at the upper level, of the lower building on the site, with a very small portion of the water view retained, together with a minor increase in sky view above. The minor increase in view is not sufficiently significant to reassess the general value of view loss, since this is a very high-value existing view from this location.

Tenacity Assessment Summary:

Value of view: Medium (filtered)

View location: Secondary living space – standing 1m behind balcony edge.

Extent of impact: Moderate.

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

Viewpoint no.04 - Unit 5



P36 IMG_8757 a.jpg

Existing site photo

From living room at standing height, 1600mm facing northeast towards subject site

RL: +24.039m

Distance to site boundary: 13.451m

Distance to centre of subject site: 32.718m



P36 IMG_8757 c.jpg

Photomontage of proposal



P36 IMG_8757 d.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact – Amount of new building visible in view – 30%

Visual impact ratio of view loss to sky view loss in visible portion. 89%: 11%

Existing Visual Quality Scale no: 10 /15 Visual Impact Assessment Scale no: 11 /15.

This is a static, private viewpoint from the main living room of Unit 5 in the residential apartment building at no.12, Onslow Avenue, looking north-northeast over the subject site.

The existing view is partially filtered through mature trees and is then observed across parts of Elizabeth Bay, to Port Jackson, Bradleys Head headland and Athol Bay foreshore in the distance. Further to the east in the view is a filtered view of Clark Island, Rose Bay, North Harbour and North Harbour National Park in the far distance.

The revised development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. This height exceedance causes significant view loss to Port Jackson and a approximately 50% of the Athol Bay and Bradleys Head foreshore, both being high value visual features.

When comparing the revised proposal to the previous submission, there is a small reduction in the visual impact at the upper level, of the lower building on the site, with a very small portion of the water and distant foreshore and ridgeline of the view to the northeast retained, together with a minor increase in sky view above. Variations to the southeastern corner of the proposal have almost no effect on the visual impact. The minor increase in view is not sufficiently significant to reassess the general value of view loss, since this is a very high-value existing view from this location.

Tenacity Assessment Summary:

Value of view: High (filtered)

View location: Primary, indoor living space – standing 1m behind glazing line.

Extent of impact: Severe

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

Viewpoint no.05 - Unit 7



P38 IMG_8773 a.jpg

Existing site photo

From living area/office at standing height, 1600mm facing north east towards subject site

Distance to site boundary: 13.454m

Distance to centre of subject site: 32.718m



P38 IMG_8773 c.jpg

Photomontage of proposal



P38 IMG_8773 d.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact – Amount of new building visible in view – 27%

Visual impact ratio of view loss to sky view loss in visible portion. 100%: 0%

Existing Visual Quality Scale no: 11 /15 Visual Impact Assessment Scale no: 9 /15.

This is a static, private viewpoint from a primary living space, being a living room in Unit 7 of the residential apartment building at no.12, Onslow Avenue, looking north-northeast over the subject site.

The existing view, partially filtered though existing, mature trees, is across Elizabeth Bay, to Port Jackson, Bradleys Head and Athol Bay foreshore in the distance. Further to the east in the view is Clark Island, Rose Bay, Neilsen Park, Watsons Bay, South Head and North Harbour in the far distance.

The revised development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. This height exceedance causes view loss to parts of Port Jackson and the water at the northeastern portion of Elizabeth Bay.

When comparing the revised proposal to the previous submission, there is a small reduction in the visual impact at the upper level, of the lower building on the site, which does not vary to any significant degree to the original visual impact.

Tenacity Assessment Summary:

Value of view: High (filtered)

View location: Primary, indoor living space – standing 1m behind glazing line.

Extent of impact: Moderate.

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

Viewpoint no.06 - Unit 7



P42 IMG_8838 a.jpg

Existing site photo

From external balcony at standing height, 1600mm facing north east towards subject site

RL: +27.141m

Distance to site boundary: 12.302m

Distance to centre of subject site: 29.788m



P42 IMG_8838 c.jpg

Photomontage of proposal



P42 IMG_8838 d.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact – Amount of new building visible in view – 60%

Visual impact ratio of view loss to sky view loss in visible portion. 79%: 21%

Existing Visual Quality Scale no: 12 /15 Visual Impact Assessment Scale no: 10 /15.

This is a static, private viewpoint from a private outdoor space on the balcony of Unit 7 of the residential apartment building at no.12, Onslow Avenue, looking north-northeast over the subject site.

The existing view, partially filtered though exisiting trees, is across the northern portions of Elizabeth Bay, the eastern headlands of Potts Point and Garden Island, to Port Jackson, Robertsons Point, Little Sirius Cove, Athol Bay and Bradleys Head and foreshore in the distance. Further to the east in the view is Clark Island, Rose Bay, Neilsen Park, Watsons Bay, South Head and North Harbour in the far distance.

The revised development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. This height exceedance causes view loss to parts of Port Jackson and Elizabeth Bay. Beyond this, a small portion of the eastern headlands of Potts Point and Garden Island and the Athol Bay foreshore is impacted, together with a significant impact upon the sky above th existing building, much of which is caused by the non-compliant portion of the new proposal.

When comparing the revised proposal to the previous submission, there is a small reduction in the visual impact at the upper level, of the lower building on the site, with a very small portion of the water and foreshore component of the view to the north, being Garden Island, retained, together with a minor increase in sky view above. The minor increase in view is not sufficiently significant to reassess the general value of view loss, since this is a very high-value existing view from this location.

Tenacity Assessment Summary:

Value of view: High (filtered)

View location: Primary, private outdoor living space – standing 1m behind balcony egde.

Extent of impact: Moderate-to-Severe

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

Viewpoint no.07 - Unit 8



P14 IMG_8584 a.jpg

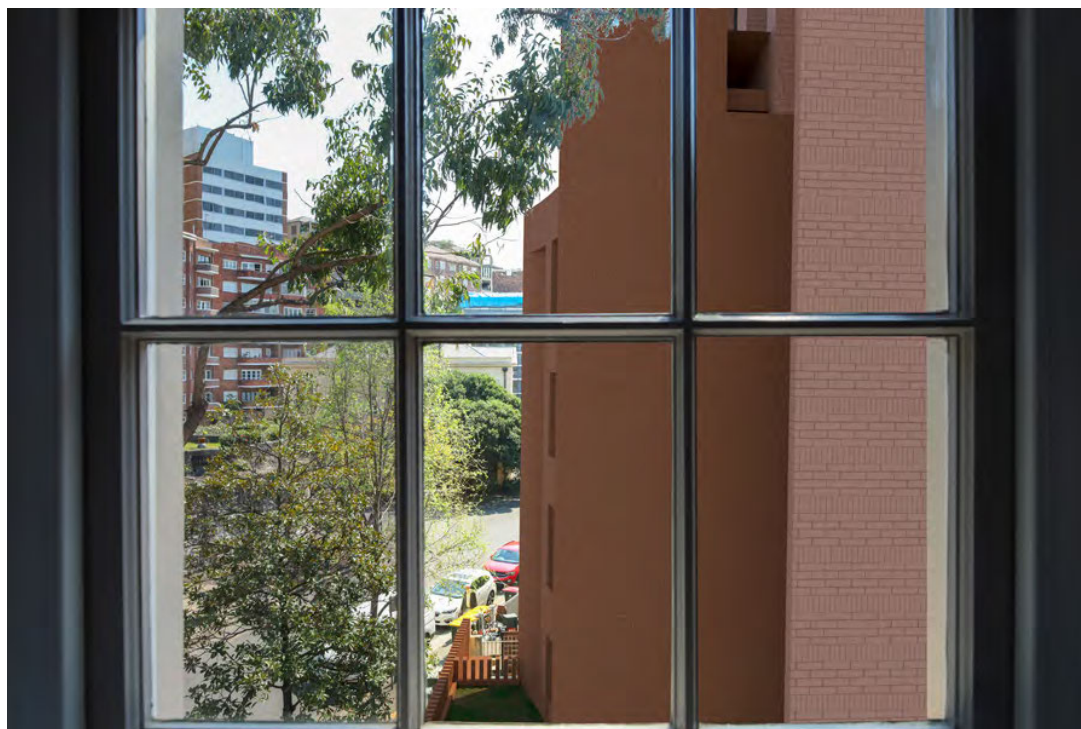
Existing site photo

From living room / rumpus / study at standing height, 1600mm facing northwest towards northern end of the subject site.

RL: +29.779m

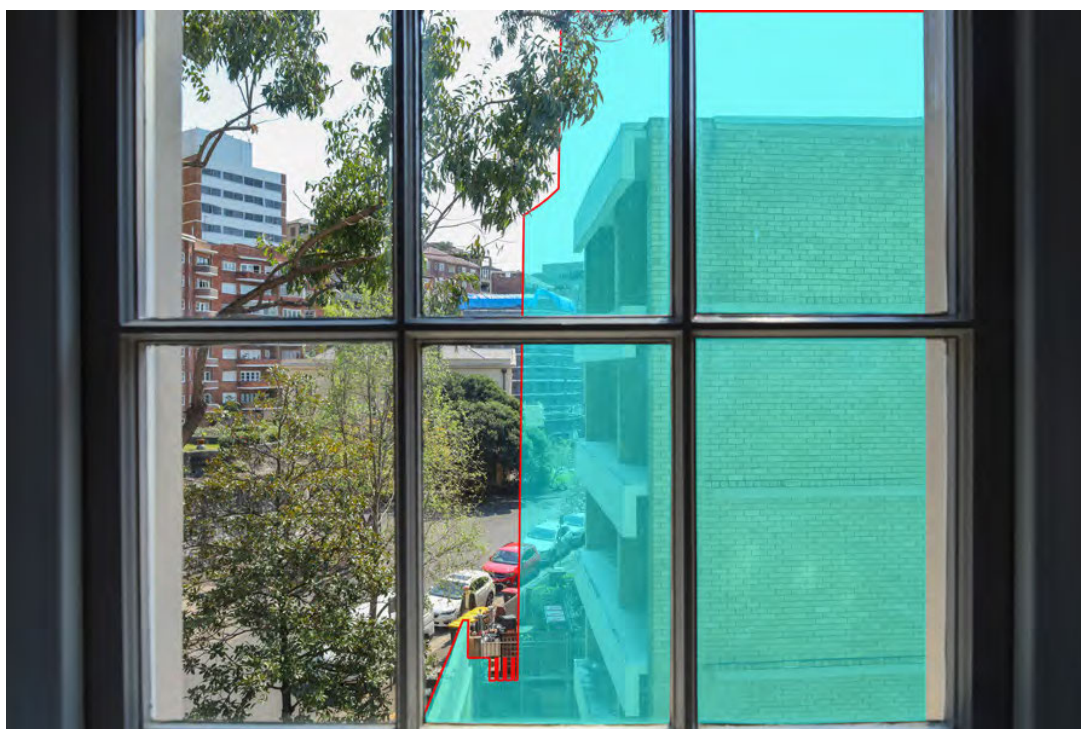
Distance to site boundary: 1.807m

Distance to centre of subject site: 36.985m



P14 IMG_8584 c.jpg

Photomontage of proposal



P14 IMG_8584 d.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact – Amount of new building visible in view – 8%

Visual impact ratio of view loss to sky view loss in visible portion. 68%: 32%

Existing Visual Quality Scale no: 7 /15 Visual Impact Assessment Scale no: 9 /15 (Heritage Building).

This is a static, private viewpoint from the second living room / rumpus / study of Unit 8 in the residential apartment building at no.12, Onslow Avenue, looking northwest over the northern portion of the subject site. The existing view, partially filtered though existing trees, is to a portion of the existing building on the site, with Onslow Avenue to the west of this and Elizabeth Bay House (heritage listed) in the middle distance. Beyond this are the many residential apartment buildings around Onslow Place, Onslow Avenue and Macleay Street to the west.

The new development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. The view loss from the new proposal includes the entirety of the heritage-listed Elizabeth Bay House, which represents the highest value component of the existing view. Views to Onslow Avenue and its street landscape are also impacted. In the distance, sky views and distant apartment views are also obscured.

When comparing the revised proposal to the previous submission, there is a small reduction in the visual impact at the upper level, of the upper building on the site, as a result of the increased setback from the western site boundary. There is a small increase in the view towards Elizabeth Bay House, although sky view loss remains the same. There would be a small reduction in the view loss calculation as a result

Tenacity Assessment Summary:

Value of view: Medium-to-High.(Heritage building).

View location: Primary indoor living space – standing 1m behind glazing line.

Extent of impact: Moderate-to-Severe

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

Viewpoint no.08 - Unit 9



P24 IMG_8644 a.jpg

Existing site photo

From study at standing height, 1600mm facing north east towards subject site

RL: +30.031m

Distance to site boundary: 4.803m

Distance to centre of subject site: 24.469m



P24 IMG_8644 c.jpg

Photomontage of proposal



P24 IMG_8644 d.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact – Amount of new building visible in view – 21%

Visual impact ratio of view loss to sky view loss in visible portion. 77%: 23%

Existing Visual Quality Scale no: 11 /15 Visual Impact Assessment Scale no: 10 /15.

This is a static, private viewpoint from the study of Unit 9 in the residential apartment building at no.12, Onslow Avenue, looking north-northeast over the subject site.

The existing view is across the northern portions of Elizabeth Bay, with mature trees in the foreground, to Port Jackson, Athol Bay and Bradleys Head and foreshore in the distance. Further to the northeast in the view is North Harbour National Park in the far distance.

The new development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. This height exceedance causes view loss to parts of Port Jackson and Elizabeth Bay. Beyond this, parts of Bradleys Head and the sky view above the line of the existing building are impacted.

When comparing the revised proposal to the previous submission, there is a small reduction in the visual impact at the upper level, of the lower building on the site, which does not vary to any significant degree to the original visual impact.

Tenacity Assessment Summary:

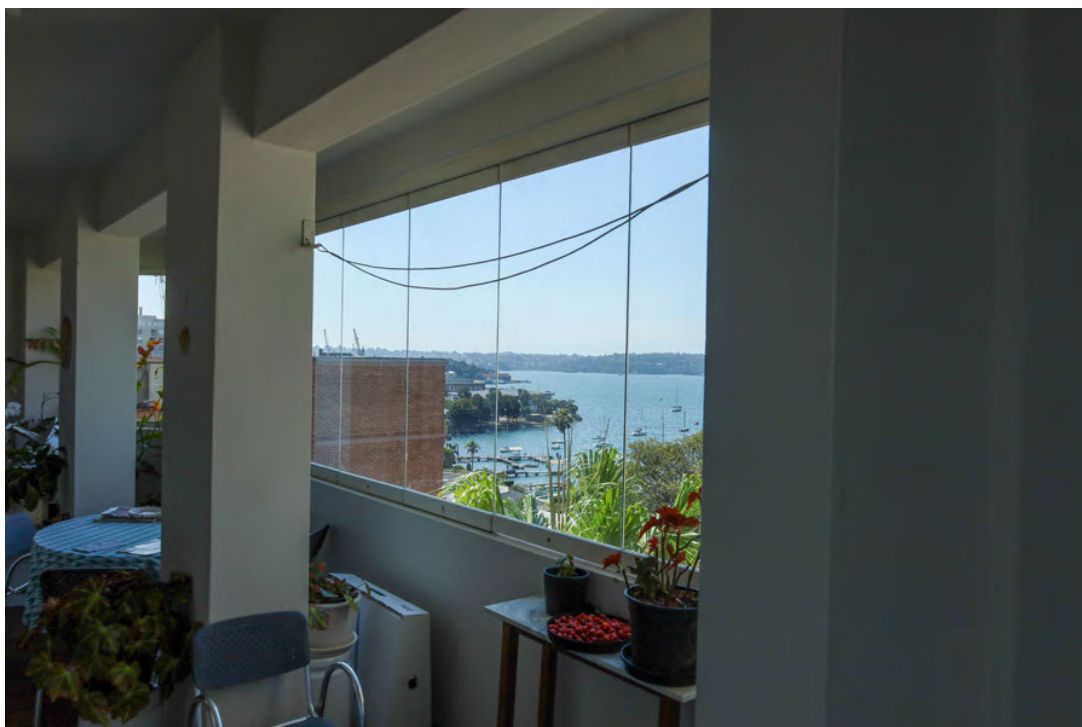
Value of view: High.

View location: Primary living space – standing 1m behind glazing line.

Extent of impact: Moderate-to-Severe.

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

Viewpoint no.09 - Unit 11



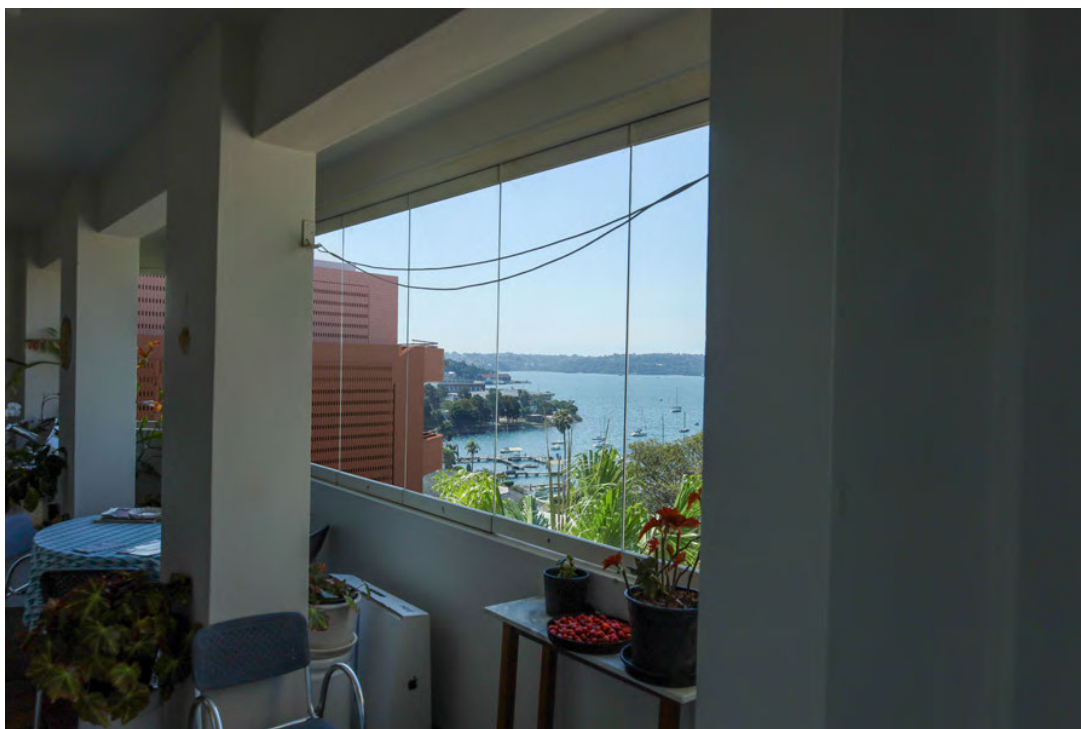
P57 IMG_8976 a.jpg

Existing site photo

From kitchen at standing height, 1600mm facing north east towards subject site

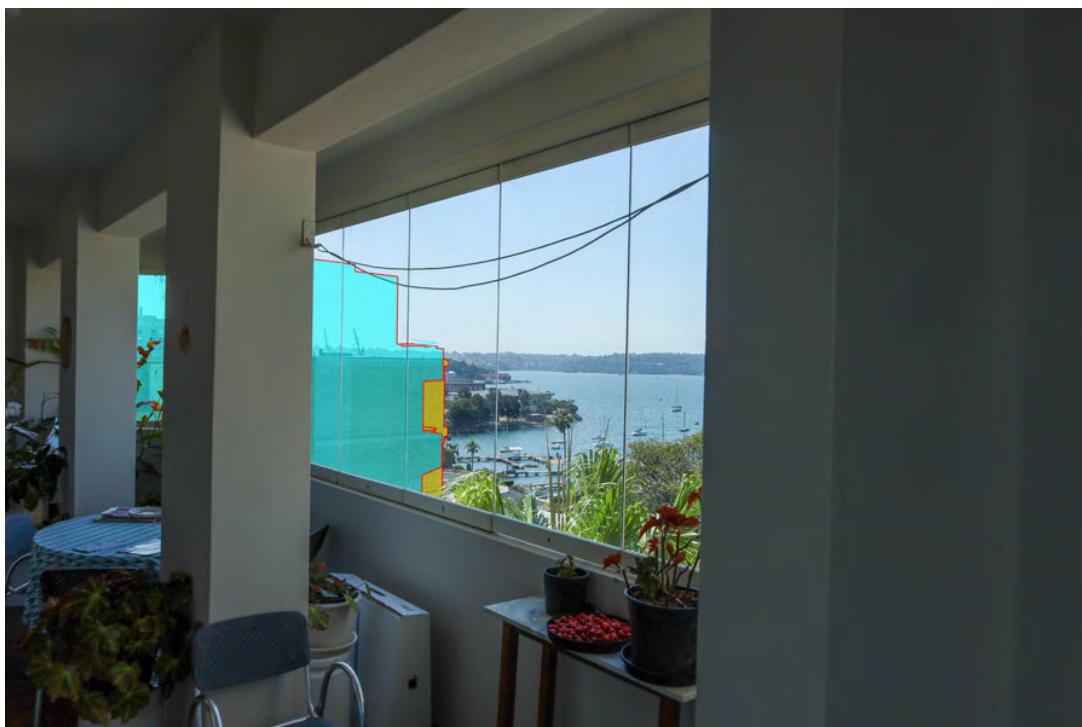
Distance to site boundary: 15.683m

Distance to centre of subject site: 33.149m



P57 IMG_8976 c.jpg

Photomontage of proposal



P57 IMG_8976 d.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact – Amount of new building visible in view – 13%

Visual impact ratio of view loss to sky view loss in visible portion. 48%: 52%

Existing Visual Quality Scale no: 10 /15 Visual Impact Assessment Scale no: 7 /15.

This is a static, private viewpoint from the kitchen, being a primary living space, of Unit 11 in the residential apartment building at no.12, Onslow Avenue, looking north-northeast over the subject site.

The existing view, above existing trees in the foreground, is across the northern portions of Elizabeth Bay, the eastern headlands of Potts Point and Garden Island, to Port Jackson, Robertsons Point, Little Sirius Cove, Athol Bay and Bradleys Head and foreshore in the distance. The ridgeline of Cremorne and Mosman is also visible above the roof of the existing building to the west of the view.

The new development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. This height exceedance causes view loss to parts of Port Jackson and Elizabeth Bay. Beyond this, parts of the distant ridgeline of Cremorne and the sky view above the line of the existing building are impacted.

When comparing the revised proposal to the previous submission, there is a small reduction in the visual impact at the upper level, of the upper building on the site, as a result of the increased setback from its eastern elevation. There is a very small increase in the view towards Garden Island, although sky view loss remains the same. There would be a small reduction in the view loss calculation as a result

Tenacity Assessment Summary:

Value of view: Medium-to-High.

View location: Primary living space - kitchen - standing 1m behind glazing line.

Extent of impact: Moderate.

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

Viewpoint no.10 - Unit 12



P01_IMG_8477 a.jpg

Existing site photo

From external balcony at standing height, 1600mm facing north east towards subject site

RL: +36.634m

Distance to site boundary: 10.488m

Distance to centre of subject site: 28.264m



P01_IMG_8477 d.jpg

Photomontage of proposal

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CLIENT:

PROJECT:

2353

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DWG NO:

VIA_31

urbaine
DESIGN GROUP
Urbaine Design Group Pty Ltd, 19c / 74, The Corso, Manly, NSW 2095



P01_IMG_8477 c.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact - Amount of new building visible in view - 39%

Visual impact ratio of view loss to sky view loss in visible portion: 82%: 18%

Existing Visual Quality Scale no: 13 /15 Visual Impact Assessment Scale no: 12 /15.

This is a static, private viewpoint from the outdoor private space on the main balcony, of Unit 12 in the residential apartment building at no.12, Onslow Avenue, looking north-northeast over the subject site.

The view, above the existing buildings on the site, is across the northern portions of Elizabeth Bay, the eastern headlands of Potts Point and Garden Island, to Port Jackson and Fort Denison, Kurraba Point, Robertsons Point, Little Sirius Cove, Athol Bay and Bradleys Head and foreshore in the distance. The ridgeline of Cremorne and Mosman is also visible above the roof of the existing building to the west of the view. Further to the east in the view is Clark Island, Watsons Bay, South Head and North Harbour National Park in the far distance.

The new development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. This height exceedance causes significant view loss to parts of Port Jackson and Elizabeth Bay. Beyond this, Garden Island, Fort Denison and the foreshore of the suburbs around Kurraba Point are also impacted.

When comparing the revised proposal to the previous submission, there is a minor reduction in the visual impact at the upper level, of the upper building on the site, as a result of the increased setback of its top level built form. There is a minor increase in the water and foreshore view toward Garden island and in the sky view towards the north and the upper profile of the distant ridgeline also becomes visible.

Tenacity Assessment Summary:

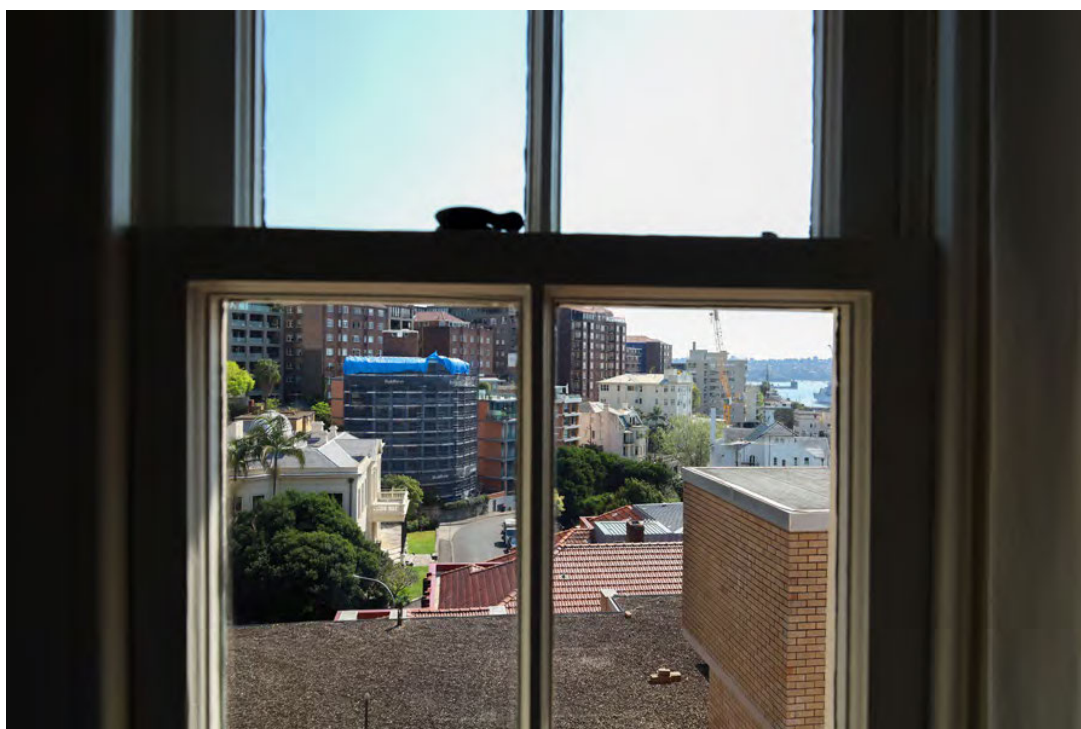
Value of view: High

View location: Primary living space - kitchen - standing 1m behind glazing line.

Extent of impact: Severe-to-Devastating.

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

Viewpoint no.11 - Unit 12



P05 IMG_8541 a.jpg

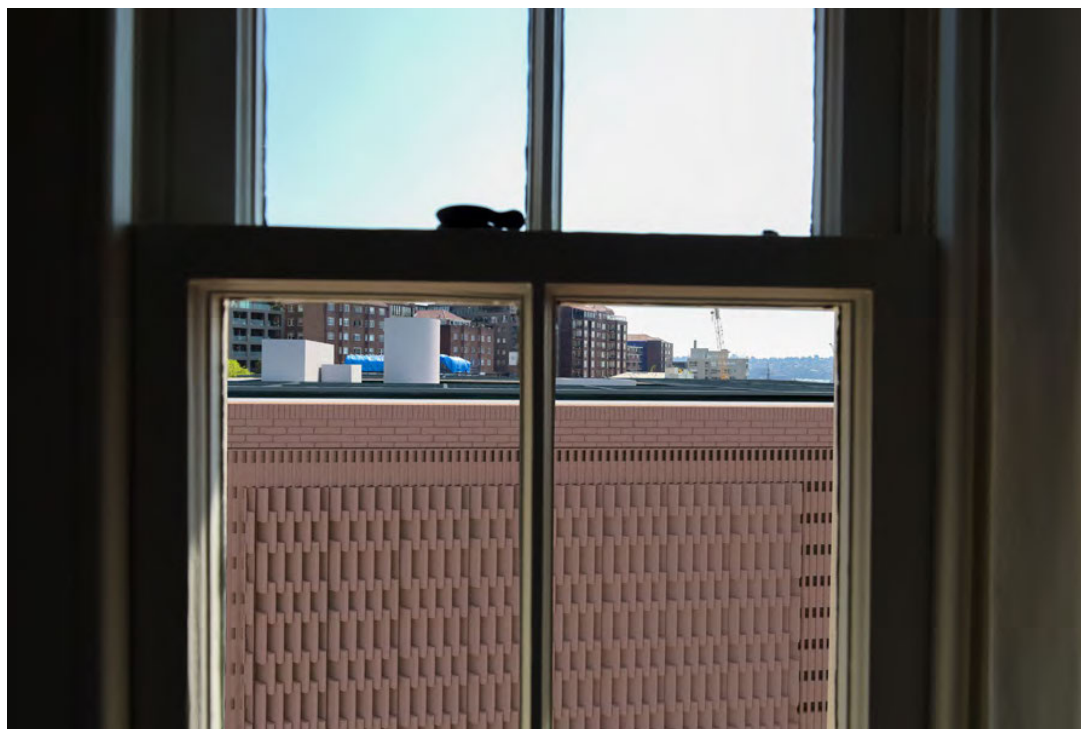
Existing site photo

From office at seated height, 1300 mm facing north towards subject site.

RL: +39.389m

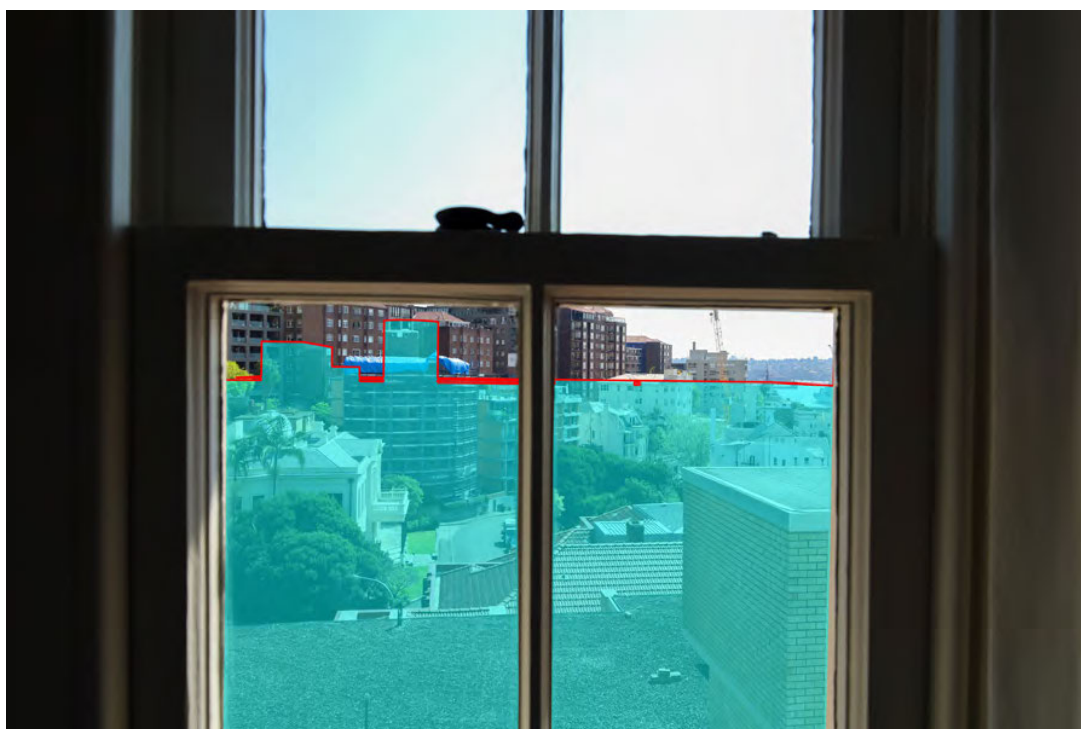
Distance to site boundary: 2.826m

Distance to centre of subject site: 29.356m



P05 IMG_8541 c.jpg

Photomontage of proposal



P05 IMG_8541 d.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact - Amount of new building visible in view - 13%

Visual impact ratio of view loss to sky view loss in visible portion: 79%: 21%

Existing Visual Quality Scale no: 9 /15 Visual Impact Assessment Scale no: 11 /15.

This is a static, private viewpoint from a secondary indoor living space (office), of Unit 12 in the residential apartment building at no.12, Onslow Avenue, looking north-northwest over the subject site.

The existing view, is to a portion of the existing building's roof on the site, with Onslow Avenue to the west of this and Elizabeth Bay House (heritage listed) in the middle distance. Beyond this are the many residential apartment buildings around Onslow Place, Onslow Avenue and Macleay Street to the east and the western headland of Garden Island, to Port Jackson, Fort Denison and Kurraba Point in the far distance. The ridge line of Cremorne and Mosman is also visible beyond this.

The new development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. The view loss from the new proposal includes the entirety of the heritage-listed Elizabeth Bay House, which represents the highest value component of the existing view. Views to Onslow Avenue and its street landscape are also impacted. In the distance, the Harbour water view, Fort Denison, Kurraba Point and the distant ridge line, together with sky views and distant apartment views are totally obscured by the new proposal.

When comparing the revised proposal to the previous submission, there is a reduction in the visual impact at the upper level, of the upper building on the site, as a result of the increased setback of its top level built form. There is an increase to the amount of view available to the buildings along Billyard Avenue, although the entirety of Elizabeth Bay House is still impacted. The distant ridge line to the northwest becomes visible, although the water view remains concealed by the new design.

Tenacity Assessment Summary:

Value of view: Medium-to-High.(Heritage building).

View location: Secondary indoor living space – standing 1m behind glazing line.

Extent of impact: Severe.

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

Viewpoint no.12 - Unit 12



P09 IMG_8551 a.jpg

Existing site photo

From office at standing height, 1600mm facing north east towards subject site

RL: +39.689m

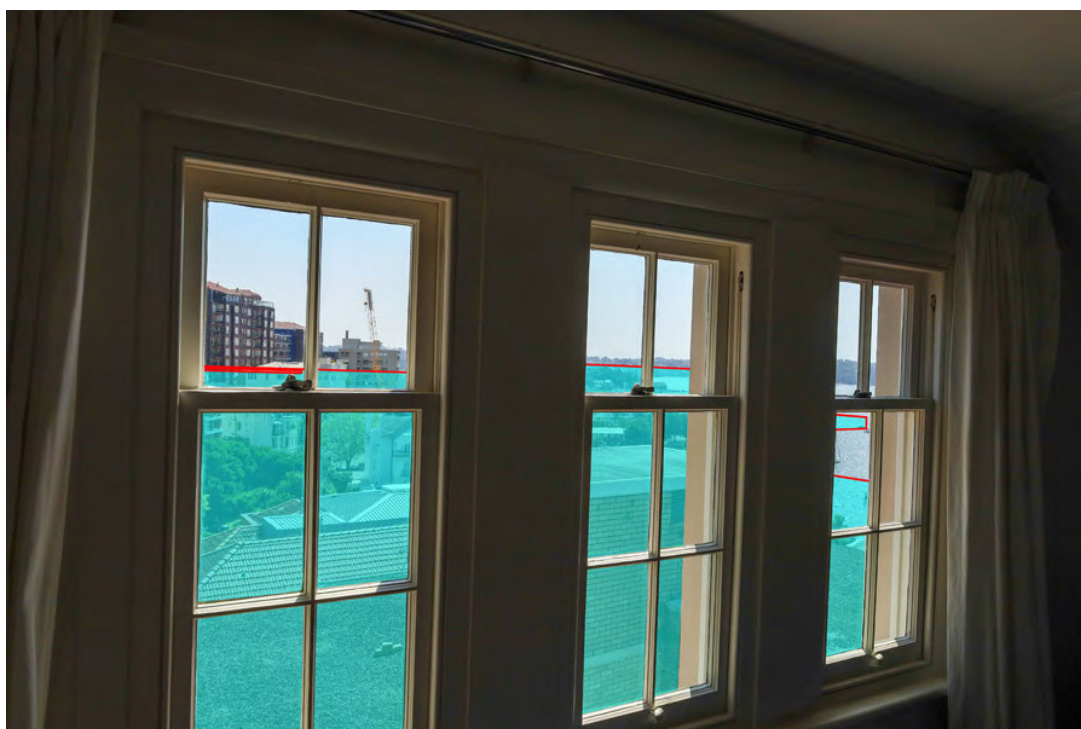
Distance to site boundary: 3.022m

Distance to centre of subject site: 31.329m



P09 IMG_8551 c.jpg

Photomontage of proposal



P09 IMG_8551 d.jpg

Extent of visual impact of proposed development indicated in cyan with red outline

Visual Impact Assessment:

Visual impact - Amount of new building visible in view - 22%

Visual impact ratio of view loss to sky view loss in visible portion: 88%: 12%

Existing Visual Quality Scale no: 10 /15 Visual Impact Assessment Scale no: 11 /15.

This is a static, private viewpoint from secondary indoor living space (office), of Unit 12 in the residential apartment building at no.12, Onslow Avenue, looking north-northwest over the subject site.

The existing view, is to a portion of the existing building's roof on the site, with Onslow Avenue to the west of this and Elizabeth Bay House (heritage listed) in the middle distance. Beyond this are the many residential apartment buildings around Onslow Place, Onslow Avenue and Macleay Street to the east and the eastern headland of Garden Island, to Port Jackson and Kurraba Point in the far distance. The ridgeline of Cremorne and Mosman is also visible. Further to the east, Bradleys Head and the water of Elizabeth Bay is clearly seen above the existing buildings on the subject site.

The new development proposal, at No.10, Onslow Avenue and No.21C, Billyard Avenue, rises to a height that is above the permitted building envelope designated to this site. The view loss from the new proposal includes the entirety of the heritage-listed Elizabeth Bay House, which represents the highest value component of the existing view. Views to Onslow Avenue and its street landscape are also impacted.

When comparing the revised proposal to the previous submission, there is a reduction in the visual impact at the upper level, of the upper building on the site, as a result of the increased setback of its top level built form. There is an increase to the amount of view available to the buildings along Billyard Avenue, although the entirety of Elizabeth Bay House is still impacted. The distant ridgeline to the northwest becomes visible, although the water view remains concealed by the new design. There is a reduction in the loss of sky view.

Tenacity Assessment Summary:

Value of view: Medium-to-High.(Heritage building).

View location: Secondary indoor living space – standing 1m behind glazing line.

Extent of impact: Severe-to-Devastating.

Reasonableness of proposal: The extent of view loss, caused by the upper levels of the proposal, including a non-compliant height exceedance, creates view loss to this residence that would be considered unacceptable, in relation to the visual quality of the view being impacted, particularly the iconic elements.

4. CONCLUSIONS + PLANNING SCHEME PROVISIONS RELATING TO VISUAL IMPACTS

This Visual Impact Assessment from Urbaine Design Group seeks to provide an objective approach to the likely visual impact and potential view loss from neighbours, surrounding the site of a new proposed development at No.10, Onslow Avenue and No.21C, Billyard Avenue. The view loss assessment is submitted to support an objection to the development, in relation to the adjoining residential property on the southern side of the subject site, at No.12, Onslow Avenue.

In reviewing the information, supplied to Sydney City Council, on behalf of the landowner and developer, there are a number of issues to address, in terms of visual impact and the design's response to the City of Sydney Council DCP, 2012.

Firstly, it is important to acknowledge the extent of visual impact and view loss incurred as a result of the existing building on the site. Alongside this, the architectural and material quality of the existing building can also be considered in the overall assessment, when viewed alongside the new proposal. Significantly, the City of Sydney Council DCP, 2012 also contains a series of guidelines as to the architectural quality of any proposal:

- 1 To ensure that the built form is compatible with the streetscape and the desired future character of the area
- 2 To ensure that development is of high visual quality and enhances the street.
- 3 To maintain the evolution of residential building styles through the introduction of well-designed contemporary buildings.
- 4 To ensure that roof forms are consistent with the existing predominant roof forms in the street and minimise impacts to neighbouring properties.

View loss and visual impact is observed from a number of neighbouring properties, including the ones reviewed above. Several of these apartment buildings experience their existing views across primary boundaries, which is significantly more relevant within the terms of the Tenacity Judgement. Others have views that are constrained by the adjoining, or neighbouring buildings.

Some of the most severe potential for visual impact is experienced by the apartments at No.12, Onslow Avenue, who currently enjoy views to the north and east, including iconic elements and landscape features of very high value

The planning principle of 'view sharing' requires that the collective of neighbouring buildings be considered and, within this context, the increase view loss at No.12, Onslow Avenue is deemed unacceptable. The neighbouring Council has a similar approach to view sharing: Woollahra Council DCP, 2015, Section B3.5.3: Public and Private Views. This states:

'View sharing concerns the equitable distribution of views between properties. The view sharing controls in this DCP seek to strike a balance between accommodating new development while providing, where practical, reasonable access to views from surrounding properties. Development should be designed to reflect the view sharing principles in Tenacity Consulting v Warringah Council [2004] NSWLEC 140.'

In this instance, the design does not satisfy the requirements for view sharing, particularly as a result of its non-compliant upper levels of accommodation.

In conclusion, the new, revised proposal represents a variation to the existing visual impact and view loss to neighbouring residential properties along Onslow Avenue. The highest value views are middle and distant views to the east and southeast, namely to Arthur McElhone Reserve and the Elizabeth Bay foreshore. From here there are varying degrees of view to the water in Elizabeth Bay, Rushcutters Bay and the main harbour, with Clark Island and Shark Island also observable from some properties. Although a very small reduction of the view loss is noted, this is not of sufficient significance to reduce the assessment of overall visual impact to the residents of this neighbouring property.

The extent of additional view loss varies from 'Severe' to 'Severe-to-Devastating', which, for a non-compliant building proposal is not considered acceptable.

John Aspinall BA(Hons) BArch(Hons), Director: urbane design group

5. APPENDICES

- 5.1 APPENDIX A: Photomontages of the Proposed and Wireframe Images – LEC Compliance.
- 5.2 APPENDIX B: Methodology article – Planning Australia, by Urbaine Architecture.
- 5.3 APPENDIX C: Land and Environment Court guidelines for photomontages.

APPENDIX B:

Aspinall CV and Expert Witness experience.
Methodology article – Planning Australia, by Urbaine Architecture

JOHN ASPINALL. director: urbaine design group

UK Qualified Architect RIBA BA(Hons) BArch(Hons) Liverpool University, UK.

24 years' architectural experience in London and Sydney.

Halpin Stow Partnership, London, SW1

John Andrews International, Sydney

Cox and Partners, Sydney

Seidler and associates

NBRS Architects, Milsons Point

Urbaine Pty Ltd (current)

Design Competitions:

UK 1990 – Final 6. RIBA 'housing in a hostile environment'. Exhibited at the Royal Academy, London

UK Design Council – innovation development scheme finalist – various products, 1990.

Winner: International Design Competition: Sydney Town Hall, 2000

Finalist: Boy Charlton Swimming pool Competition, Sydney, 2001

Finalist: Coney Island Redevelopment Competition, NY 2003

Design Tutor: UTS, Sydney, 1997 – 2002

This role involved tutoring students within years 1 to 3 of the BA Architecture course. Specifically, I developed programs and tasks to break down the conventional problem-solving thinking, instilled through the secondary education system. Weekly briefs would seek to challenge their preconceived ideas and encourage a return to design thinking, based on First Principles.

Design Tutor: UNSW, Sydney 2002 – 2005

This role involved tutoring students within years 4 to 6 of the BArch course. Major design projects would be undertaken during this time, lasting between 6 and 8 weeks. I was focused on encouraging rationality of design decision-making, rather than post-rationalisation, which is an ongoing difficulty in design justification.

Current Position: URBaine GROUP Pty Ltd

Currently, Principal Architect of Urbaine - architectural design development and visualisation consultancy: 24 staff, with offices in: Sydney, Shanghai, Doha and Sarajevo.

Urbaine specialises in design development via interactive 3d modelling.

Urbaine's scale of work varies from city master planning to furniture and product design, while our client base consists of architects, Government bodies, developers, interior designers, planners, advertising agencies and video producers.

URBAINE encourages all clients to bring the 3D visualisation facility into the design process sufficiently early to allow far more effective design development in a short time frame. This process is utilised extensively by many local and international companies, including Lend Lease, Multiplex, Hassell, PTW, Foster and Partners, City of Sydney, Landcom and several other Governmental bodies. URBaine involves all members of the design team in assessing the impact of design deci-

sions from the earliest stages of concept design. Because much of URBANE's work is International, the 3D CAD model projects are rotated between the various offices, effectively allowing a 24hr cycle of operation during the design development process, for clients in any location. An ever-increasing proportion of URBANE'S work is related to public consultation visualisations and assessments. As a result, there has also been an increase in the Land And Environment Court representations. Extensive experience in creating and validating photomontaged views of building and environmental proposals. Experience with 3D photomontages began in 1990 and has included work for many of the world's leading architectural practices and legal firms.

Co-Founder Quicksmart Homes Pty Ltd. , 2007 - 2009

Responsible for the design and construction of 360 student accommodation building at ANU Canberra, utilising standard shipping containers as the base modules.

Design Principal and co-owner of Excalibur Modular Systems Pty Ltd: 2009 to present.

High specification prefabricated building solutions, designed in Sydney and being produced in China.

Excalibur has developed a number of modular designs for instant delivery and deployment around the world. Currently working with the Cameroon Government providing social infrastructure for this rapidly developing country.

The modular accommodation represents a very low carbon footprint solution

Expert Legal Witness, 2005 to present

In Australia and the UK, for the Land and Environment Court. Expert witness for visual impact studies of new developments.

Currently consulting with many NSW Councils and large developers and planners, including City of Sydney, Lend Lease, Mirvac, Foster + Partners, Linklaters.

Author of several articles in 'Planning Australia' and 'Architecture Australia' relating to design development and to the assessment of visual impacts, specifically related to the accuracy of photomontaging.

Currently preparing a set of revised recommendations for the Land and Environment Court relating to the preparation and verification of photomontaged views for the purposes of assessing visual impact

VISUAL IMPACT ASSESSMENTS: A REALITY CHECK.

BY JOHN ASPINALL.

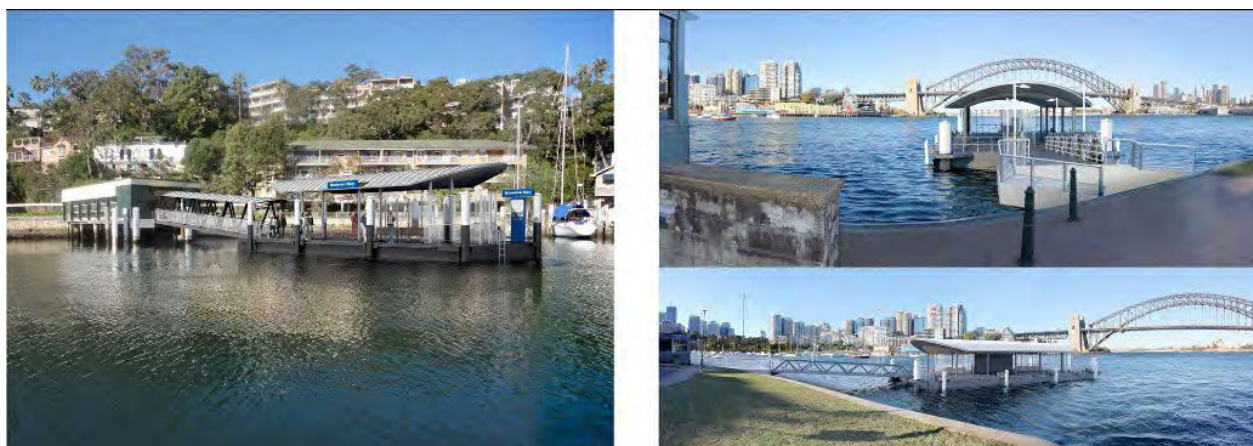


Photomontaged views of new apartment building at Pyrmont: Urbaine

Australia's rapid construction growth over the past 10 years has coincided with significant advances in the technology behind the delivery of built projects. In particular, BIM (Building Information Modelling). Virtual Reality and ever-faster methods of preparing CAD construction documentation.

Alongside these advances, sits a number of potential problems that need to be considered by all of those involved in the process of building procurement. Specifically, the ease with which CAD software creates the appearance of very credible drawn information, often without the thoroughness and deliberation afforded by architects, and others, in years past.

Nowhere is this more apparent than in the area of visual impact assessments, where a very accurate representation of a building project in context is the starting point for discussion on a project's suitability for a site. The consequences of any inaccuracies in this imagery are significant and far-reaching, with little opportunity to redress any errors once a development is approved.



Photomontaged views of new Sydney Harbour wharves: Urbaine

Urbaine Architecture has been involved in the preparation of visual impact studies over a 20 year period, in Australia and Internationally. Urbaine's Director, John Aspinall, has been at the forefront of developing methods of verifying the accuracy of visualisations, particularly in his role as an expert witness in Land and Environment Court cases.

In Urbaine's experience, a significant majority of visualisation material presented to court is inaccurate to the

point of being invalid for any legal planning decisions. Equally concerning is the amount of time spent, by other consultants, analysing and responding to this base material, which again can be redundant in light of the frequent inaccuracies. The cost of planning consultant reports and legal advice far exceeds that of generating the imagery around which all the decisions are being made.

Over the last 10 years, advances in 3d modelling and digital photography have allowed many practitioners to claim levels of expertise that are based more on the performance of software than on a rigorous understanding of geometry, architecture and visual perspective. From a traditional architect's

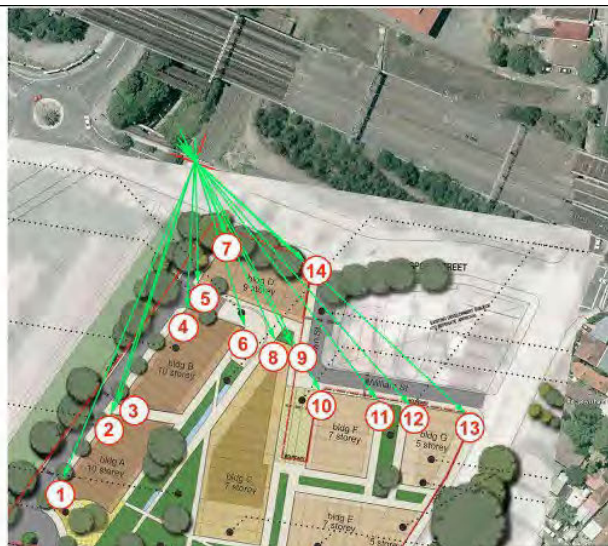
training, prior to the introduction of CAD and 3d modelling, a good understanding of the principles of perspective, light, shadow and building articulation, were taught throughout the training of architects.

Statutory Authorities, and in particular the Land and Environment Court, have attempted to introduce a degree of compliance, but, as yet, this is more quantitative, than qualitative and is resulting in an outward appearance of accuracy verification, without any actual explanation being requested behind the creation of the work.

Currently, the Land and Environment Court specifies that any photomontages, relied on as part of expert evidence in Class 1 appeals, must show the existing surveyed elements, corresponding with the same elements in the photograph. Often, any surveyed elements can form such a small portion of a photograph that, even by overlaying the surveyed elements as a 3d model, any degree of accuracy is almost impossible to verify. For sites where there are no existing structures, which is frequent, this presents a far more challenging exercise. Below is one such example, highlighted in the Sydney Morning Herald, as an example of extreme inaccuracy of a visual impact assessment. Urbaine was engaged to assess the degree to which the images were incorrect – determined to be by a factor of almost 75%.



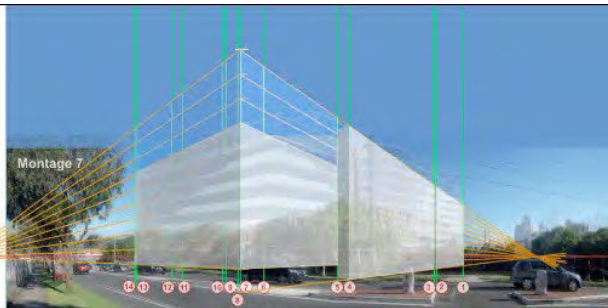
SMH article re inaccurate visualisations



Key visual location points on site: Urbaine



Photomontage submitted by developer



Assessment of inaccuracy by Urbaine

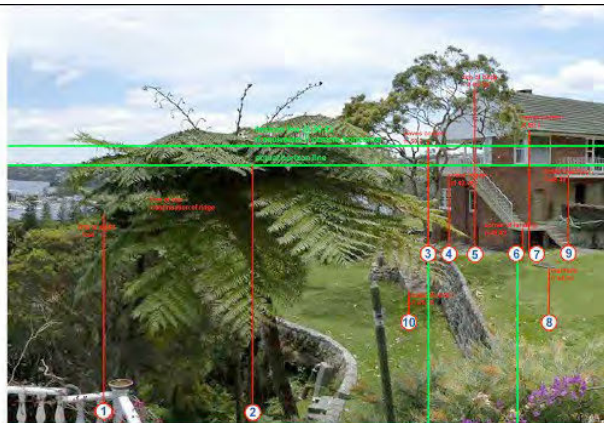
Urbaine has developed a number of methods for adding verification data to the 3d model of proposed buildings and hence to the final photomontages. These include the use of physical site poles, located at known positions and heights around a site, together with drones for accurate height and location verification and the use of landscaped elements within the 3d model to further add known points of references. Elements observed in a photograph can be used to align with the corresponding elements of the new building in plan. If 4 or more known positions can be aligned, as a minimum, there is a good opportunity to create a verifiable alignment.

Every site presents different opportunities for verification and, often, Urbaine is required to assess montages from photographs taken by a third party. In these cases, a combination of assessing aerial photography, alongside a survey will allow reference points to be placed into the relevant 3d model prior to overlaying onto the photos for checking.

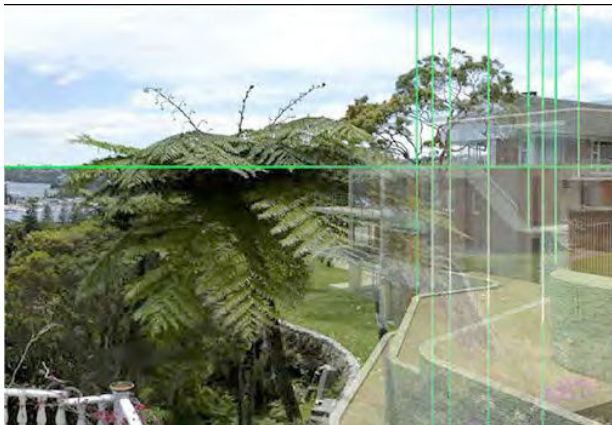
The following example clearly demonstrates this – a house montaged into a view, by others, using very few points of reference for verification. By analysing the existing photo alongside the survey, the existing site was able to be recreated with a series of reference elements built into the model. A fully rendered version of all the elements was then placed over the photo and the final model applied to this. As can be seen, the original montage and the final verified version are dramatically different and, in this case, to the disadvantage of the complainant.



Photomontage submitted by developer



Key visual location points on site: Urbaine



Key points and 3d model overlaid onto existing photo



Final accurate photomontage: Urbaine

Often, Urbaine's work is on very open sites, where contentious proposals for development will be relying on minimising the visual impact through mounding and landscaping. In these cases, accuracy is critical, particularly in relation to the heights above existing ground levels. In the following example, a business park was proposed on very large open site, adjoining several residential properties, with views through to the Blue Mountains, to the West of Sydney. Urbaine spent a day preparing the site, by placing a number of site poles, all of 3m in height. These were located on junctions of the various land lots, as observed in the survey information. These 3d poles were then replicated in the 3d CAD model in the same height and position as on the actual site. This permitted the buildings and the landscaping to be very accurately positioned into the photographs and, subsequently, for accurate sections to be taken through the 3d model to assess the actual percentage view loss of close and distant views.



Physical 3000mm site poles placed at lot corners 3d poles located in the 3d model and positioned on photo



Proposed buildings and landscape mounding applied



Proposed landscape applied – shown as semi-mature



Final verified photomontage by Urbaine

Further examples, below, show similar methods being used to give an actual percentage figure to view loss, shown in red, in these images. This was for a digital advertising hoarding, adjoining a hotel. As can be seen, the view loss is far outweighed by the view gain, in addition to being based around a far more visually engaging sculpture. In terms of being used as a factual tool for legal representation and negotiation, these images are proving to be very useful and are accompanied by a series of diagrams explaining the methodology of their compilation and, hence verifying their accuracy.



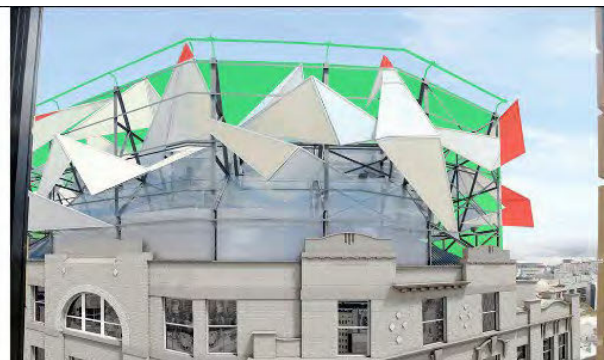
Photomontage of proposed building for digital billboard



Existing situation – view from adjoining hot

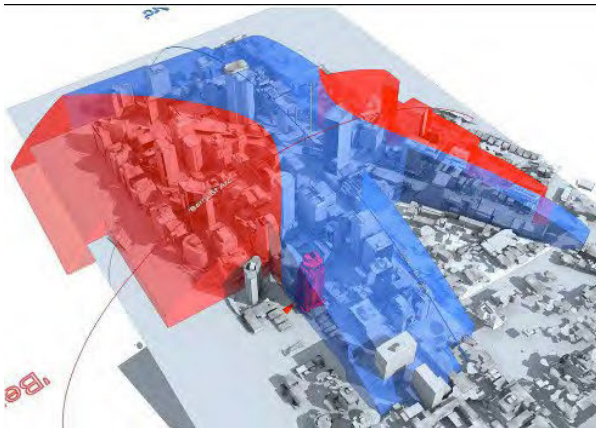


Photomontage of view from hotel

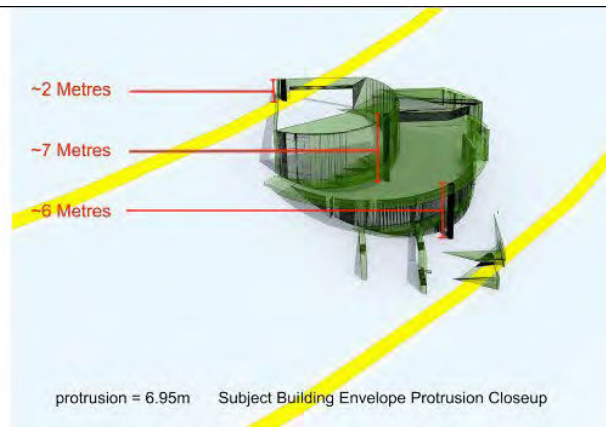


View loss – green = view gain / red = view loss

There are also several areas of assessment that can be used to resolve potential planning approval issues in the early stages of design. In the case below, the permissible building envelope in North Sydney CBD was modelled in 3d to determine if a building proposal would exceed the permitted height limit. Information relating to the amount of encroachment beyond the envelope allowed the architect to re-design the plant room profiles accordingly to avoid any breach.



3d model of planning height zones



Urbaine's experience in this field has place the company in a strong position to advise on the verification of imagery and also to assist in developing more robust methods of analysis of such imagery. As a minimum, Urbaine would suggest that anyone engaging the services of visualisation companies should request the following information, as a minimum requirement:

1. Height and plan location of camera to be verified and clearly shown on an aerial photo, along with the sun position at time of photography.
2. A minimum of 4 surveyed points identified in plan, at ground level relating to elements on the photograph and hence to the location of the superimposed building.

APPENDIX C:

Land and Environment Court guidelines for photomontages.

Use of photomontages

The following requirements for photomontages proposed to be relied on as or as part of expert evidence in Class 1 appeals will apply for proceedings commenced on or after 1 October 2013. The following directions will apply to photomontages from that date:

Requirements for photomontages

1. Any photomontage proposed to be relied on in an expert report or as demonstrating an expert opinion as an accurate depiction of some intended future change to the present physical position concerning an identified location is to be accompanied by:

Existing Photograph.

- a) A 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);
- b) 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. The wire frame overlay represents the existing surveyed elements which correspond with the same elements in the existing photograph; and
- c) A 2D plan showing the location of the camera and target point that corresponds to the same location the existing photograph was taken.

Survey data.

- d) Confirmation that accurate 2D/3D survey data has been used to prepare the Photomontages. This is to include confirmation that survey data was used:
 - i. for depiction of existing buildings or existing elements as shown in the wire frame; and
 - ii. to establish an accurate camera location and RL of the camera.
2. Any expert statement or other document demonstrating an expert opinion that proposes to rely on a photomontage is to include details of:
 - a) The name and qualifications of the surveyor who prepared the survey information from which the underlying data for the wire frame from which the photomontage was derived was obtained; and
 - b) The camera type and field of view of the lens used for the purpose of the photograph in (1) (a) from which the photomontage has been derived.



**Combined Objection to a Development Application: D/2023/727 - Revised.
No.10, Onslow Avenue and No.21C, Billyard Avenue,
Elizabeth Bay - Residential Flat Building
Visual Impact Assessment Report: Revised Scheme, July 2024**

Appendix A

VIEWPOINT 01



Site image

P58 RKL_2405603 qPg



Photomontage of proposal

P58 RKL_2405603 qPg



P58 PKL_2405603 dPg

Visual impact in cyan with red outline

VIEWPOINT 02



P27 IMg_8681 ajPg

Site image



P27 IMg_8681 cjPg

Photomontage of proposal



P271Mg_8681 dJpG

Visual impact in cyan with red outline

VIEWPOINT 03



Site image

P32 IMg_8730 ajPg



Photomontage of proposal

P32 IMg_8730 cjPg



P32 IMG_8730 dJpG

Visual impact in cyan with red outline

VIEWPOINT 04



P36 IMg_8757 ajPg

Site image



P36 IMg_8757 cjPg

Photomontage of proposal



P36 IMG_8757 djPg

Visual impact in cyan with red outline

VIEWPOINT 05



P38 IMg_8773 ajPg

Site image



P38 IMg_8773 cjPg

Photomontage of proposal



P38 IMG_8773 djPg

Visual impact in cyan with red outline

VIEWPOINT 06



P42 IMG_8838 ajPg

Site image



P42 IMG_8838 cjPg

Photomontage of proposal



P42 IMG_8838 dJpG

Visual impact in cyan with red outline

VIEWPOINT 07



P14 IMg_8584 ajPg

Site image



P14 IMg_8584 cjPg

Photomontage of proposal



P14 IMG_8584 dJpG

Visual impact in cyan with red outline

VIEWPOINT 08



P24 IMg_8644 ajPg

Site image



P24 IMg_8644 cjPg

Photomontage of proposal



P24 IMG_8644 dJpG

Visual impact in cyan with red outline

VIEWPOINT 09



P57 IMg_8976 ajPg

Site image



P57 IMg_8976 cjPg

Photomontage of proposal



P571Mg_8976 djPg

Visual impact in cyan with red outline

VIEWPOINT 10



P01_IMG_8477 ajPg

Site image



P01_IMG_8477 cjPg

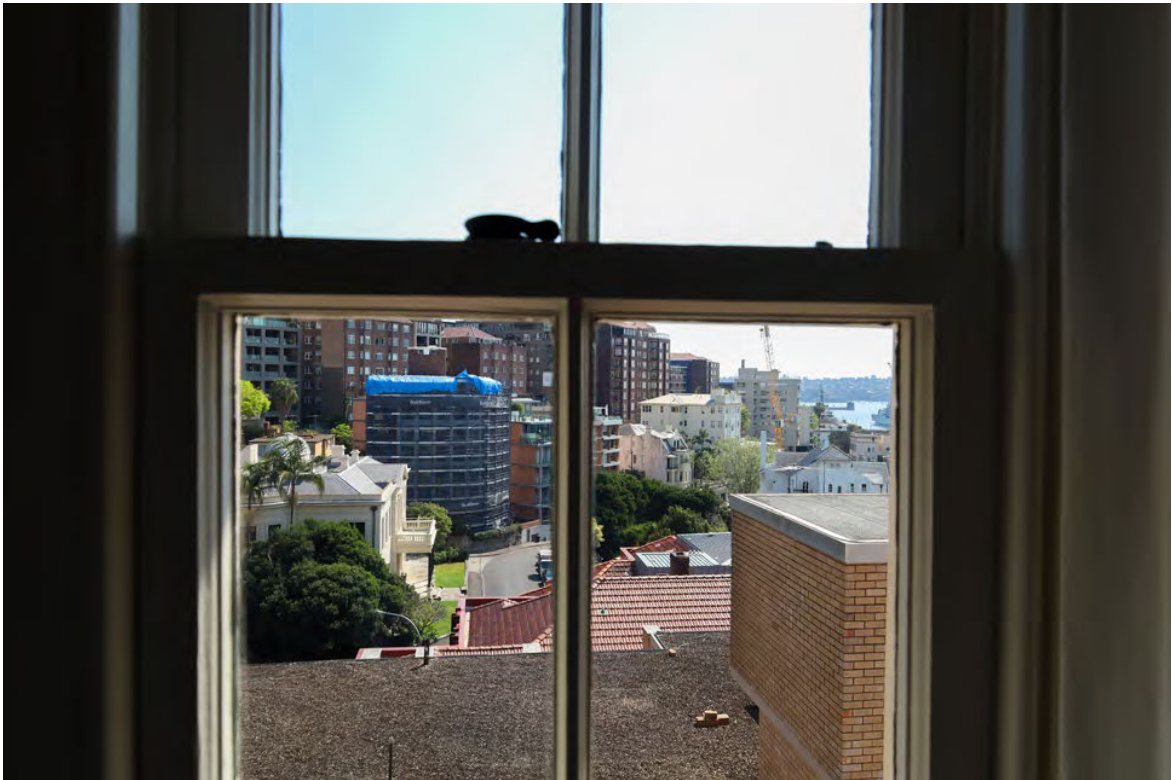
Photomontage of proposal



P01_img_8477 djPg

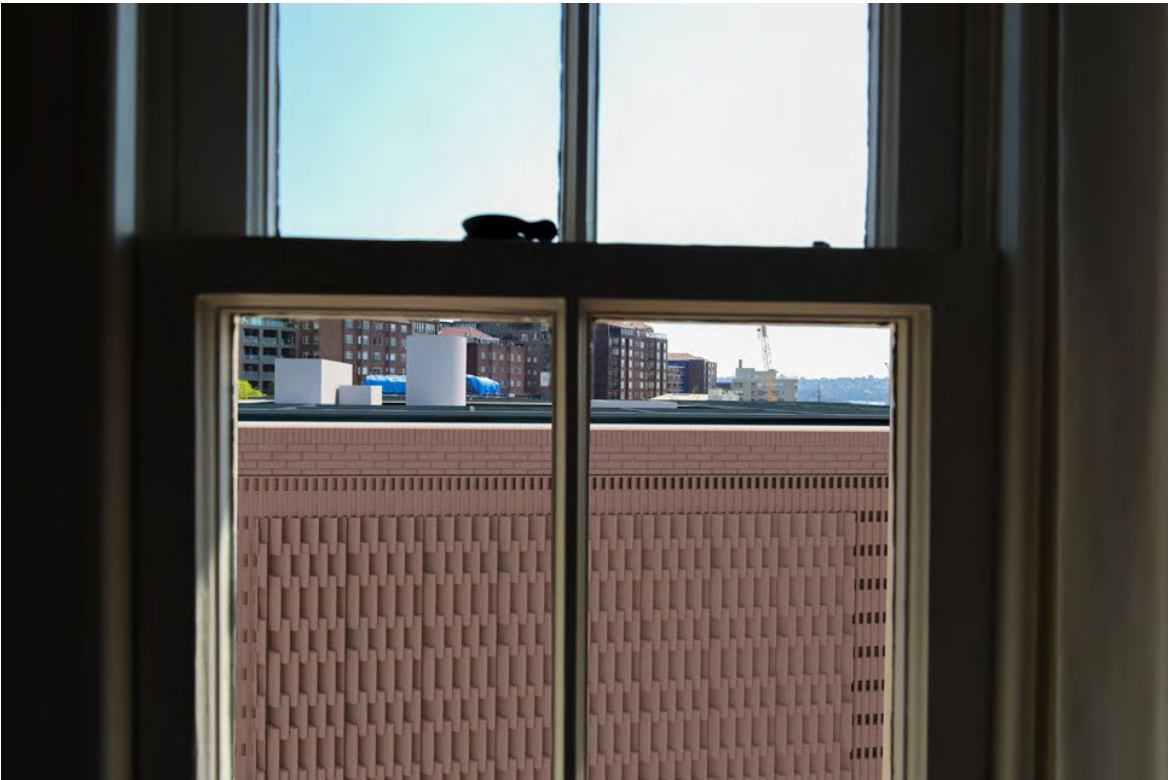
Visual impact in cyan with red outline

VIEWPOINT 11



P05 IMg_8541 ajPg

Site image



P05 IMg_8541 cjPg

Photomontage of proposal



P05 IMg_8541 djPg

Visual impact in cyan with red outline

VIEWPOINT 12



P09 IMg_8551 ajPg

Site image



P09 IMg_8551 cjPg

Photomontage of proposal



P09 IMG_8551 dJpG

Visual impact in cyan with red outline

Wireframe / Point Cloud alignment images



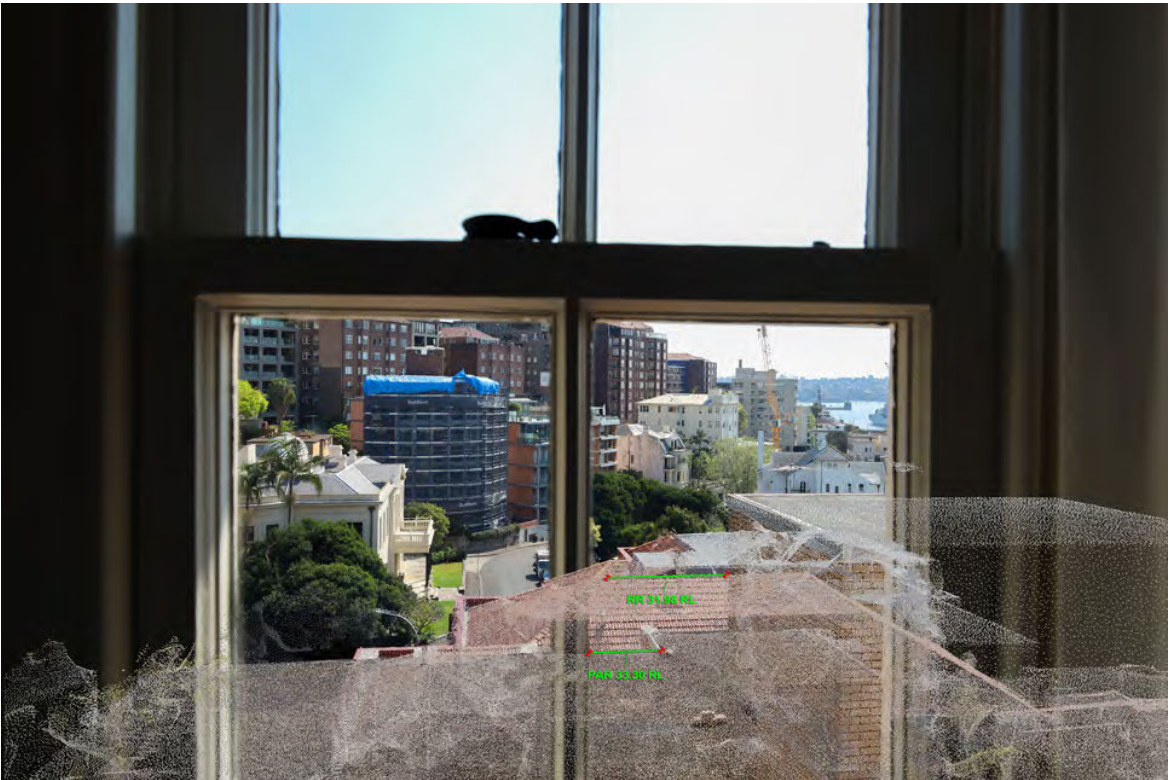
Viewpoint 01

P58 RXL_2405603 hPg



P01_IMG_8477 bjPg

Viewpoint 02



P05 IMG_8541 bjPg

Viewpoint 03



P09 IMG_8551 bJpg

Viewpoint 04



P14 IMG_8584 bJpg

Viewpoint 05



P24 IMg_8644 bjPg

Viewpoint 06



P27 IMg_8681 bjPg

Viewpoint 07



P32 IMg_8730 bjPg

Viewpoint 08



P36 IMg_8757 bjPg

Viewpoint 09



P38 IMG_8773 bJpg

Viewpoint 10



P42 IMG_8838 bJpg

Viewpoint 11



P57 IMg_8976 bjPg

Viewpoint 12



REPORT R240666R1

Revision 0

Peer Review Report
Proposed Development
21C Billyard Avenue, Elizabeth Bay

PREPARED FOR:
Natalie Ritcher Planning

7 August 2024



Peer Review Report

Proposed Development

21C Billyard Avenue, Elizabeth Bay

PREPARED BY:

Rodney Stevens Acoustics Pty Ltd

Telephone: [REDACTED]

Email: [REDACTED]

Web: www.rodneystevensacoustics.com.au

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
R240666R1	Revision 0	7 August 2024	Camilo Castillo	Desmond Raymond	Desmond Raymond

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1 INTRODUCTION

Rodney Stevens Acoustics Pty Ltd (RSA) has been engaged by Natalie Ritcher Planning to conduct a peer review of the acoustic report 230100 - EB1 Elizabeth Bay - DA Acoustic Assessment – R2 dated 12th July 2023 and Ademdum Letter 230100 - EB1 Elizabeth Bay – Updated DA Acoustic Review – R0 dated 19th July 2024 prepared by Pulse White Noise Acoustics PWNA) for the Proposed Development at 21C Billyard Avenue, Elizabeth Bay.

RSA's methodology consisted of reviewing the operation scenarios, methodology and acoustic assessment presented in both documents.

2 REVIEW

The report addresses the noise impacts from the proposed development 21C Billyard Avenue, Elizabeth Bay. The assessment forms part of the required DA documentation and covers the following acoustic aspects:

- Traffic Noise Intrusion from Onslow Avenue and Billyard Avenue
- Mechanical Plant noise
- Carpark Noise
- Communal Area
- Construction Noise Impact
- National Construction Code (NCC) formerly Building Code of Australia (BCA)

The PWNA report provides all relevant noise criteria based on standards, council and regulatory agencies in Sections 3 and 4 of the report. This is common practice in DA reports, however we note that the outdated reference to the BCA is made including the wrong section that covers acoustics. The report refers to Section F5 when the current NCC provides all requirements in Section F7

2.1 Ambient Noise Assessment and Criteria

Section 2.3.1 refers to the existing acoustic environment, the report presents the results of the ambient noise survey carried out in March 2023, the location of the noise logger and methodology falls in line with the requirements established in the Noise Policy for Industry (NPfI). The noise criteria for all time periods are correct and complies with all regulations referenced in the report

2.2 Noise Impacts and Assessment

2.2.1 Traffic Noise Intrusion

Section 5.1 of the PWNA presents the noise levels measured/predicted from both roads, the noise levels fall below the minimum required to have windows and doors closed to meet internal noise criteria. The NSW EPA Development Near Rail Corridors And Busy Roads – Interim Guideline in Section 3.6.1 states the following:

If internal noise levels with windows or doors open exceed the criteria by more than 10 dB(A), the design of the ventilation for these rooms should be such that occupants can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia

Standard window glazing of a building will typically attenuate noise ingress by 20 dB(A) with windows closed and 10 dB(A) with windows open (allowing for natural ventilation). Accordingly, the external noise threshold above which a dwelling will require mechanical ventilation is an $L_{Aeq(9\text{hour})}$ 55 dB(A) for bedrooms and $L_{Aeq(15\text{hour})}$ 60 dB(A) for other areas.

Where windows must be kept closed, the adopted ventilation systems must meet the requirements of the Building Code of Australia and Australian Standard 1668 – The use of ventilation and air conditioning in buildings.

It is common practice to design the facades most exposed to traffic noise to have an Rw30 glazing rating of 30, this is to safeguard from low frequency content from traffic noise. Table 17 provides the minimum glazing system requirements and states that a Rw 31 is required, this is in line with what would be expected from the traffic noise levels impacting on the building

Table 17 also provides indicative construction and specifies a 6.38mm laminates glass system, this system does not correlate to the required Rw rating of 31. The system is likely to achieve a Rw 35 rating (minimum). The table is misleading and can be interpreted as a requirement.

2.2.2 Mechanical Plant Noise

Section 5.3 presents the external noise emissions from the use of mechanical plant, the assessment provides generic recommendations for noise treatment. This is common practice for DA assessments where mechanical plant design is not available.

2.2.3 Communal Area Noise

Section 5.7 fails to address the noise impact from the proposed terrace. The report makes a single mention of a noise level of 1 person being 69 dB(A). The terrace has an approximate floor area of 150m² which calculates to an estimated capacity of 100 people.

The report does not provide numeric assessment based on a scenario of 100 people (maximum) capacity and the resulting noise levels at the most affected sensitive receivers including the units within the development and presenting them against the noise criteria.

Section 5.7.2 provides a number of treatments that include limiting the use of the terrace to 20 people, the hours of operation and forbids the use of amplified music. These measures will be difficult to control as the terrace provides capacity for more than 20 people and people using the terrace can bring portable speakers

A detailed assessment of the use of the terrace must be carried out where patron sound power levels must be presented as well as the different vocal efforts as per The Association of Australasian Acoustical Consultants guidelines or any suitable published or measured noise level for vocal efforts

A scenario must be presented where the maximum patron capacity of the terrace is assessed with the correct vocal effort i.e. raised vocal and the resulting noise levels at each sensitive receiver are compared with the relevant noise criteria for day, evening and night time (where applicable)

2.2.4 Acoustic Separation NCC

The report does not provide an assessment of inter-tenancy walls and floors, this is common at DA stage there is no detailed information on what building elements will be constructed

2.2.5 Construction Noise Impacts

Section 6 presents mitigation measures that deal with noise exceedances resulting from construction noise. The report fails to provide a numeric assessment of the noise generated during the construction stages.

3 DISCUSSION

PWNA's methodology, establishment of noise criteria and noise levels used for calculation purposes are not satisfactory for the assessment of noise from the proposed development. The findings presented in PWNA's report show that under their assumptions the proposed development has the potential to comply with the noise criteria. This is based on the unclear operational scenarios and not based on specific source sound power levels.

It is our opinion that a revised noise assessment must be carried out, specific scenarios for each time period must be provided representing the worst case scenario. The sound power levels used must be revised and patron and construction machinery noise must be included in each assessment.

4 CONCLUSION

RSA has conducted a review of acoustic report 230100 - EB1 Elizabeth Bay - DA Acoustic Assessment – R2 dated 12th July 2023 and Ademdmum Letter 230100 - EB1 Elizabeth Bay – Updated DA Acoustic Review – R0 dated 19th July 2024 prepared by Pulse White Noise Acoustics. The review looks into the methodology and noise control measures in the report and can confirm, the calculations and assumptions do not satisfy the relevant requirements

A revised noise assessment using the correct methodology as per relevant guidelines must be prepared to determine if the proposed development complies with noise criteria requirements

RSA trusts the above information meets with the immediate requirements and expectations. Please do not hesitate to contact RSA if you require further information or clarification

Prepared by:



Camilo Castillo

Principal Acoustic Consultant

Approved by:



Desmond Raymond

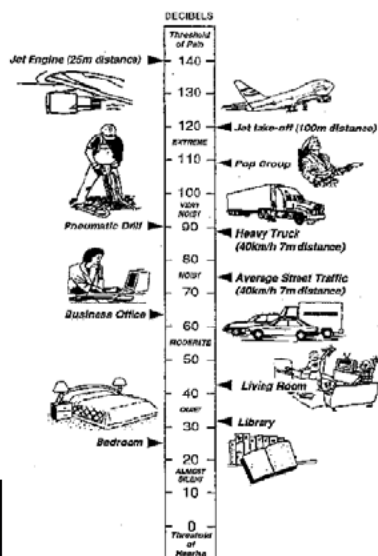
Director

Appendix A – Acoustic Terminology

A-weighted sound pressure	The human ear is not equally sensitive to sound at different frequencies. People are more sensitive to sound in the range of 1 to 4 kHz (1000 – 4000 vibrations per second) and less sensitive to lower and higher frequency sound. During noise measurement an electronic ' <i>A-weighting</i> ' frequency filter is applied to the measured sound level <i>dB(A)</i> to account for these sensitivities. Other frequency weightings (B, C and D) are less commonly used. Sound measured without a filter is denoted as linear weighted dB(linear).
Ambient noise	The total noise in a given situation, inclusive of all noise source contributions in the near and far field.
Community annoyance	Includes noise annoyance due to: character of the noise (e.g. sound pressure level, tonality, impulsiveness, low-frequency content) character of the environment (e.g. very quiet suburban, suburban, urban, near industry) miscellaneous circumstances (e.g. noise avoidance possibilities, cognitive noise, unpleasant associations) human activity being interrupted (e.g. sleep, communicating, reading, working, listening to radio/TV, recreation).
Compliance	The process of checking that source noise levels meet with the noise limits in a statutory context.
Cumulative noise level	The total level of noise from all sources.
Extraneous noise	Noise resulting from activities that are not typical to the area. Atypical activities may include construction, and traffic generated by holiday periods and by special events such as concerts or sporting events. Normal daily traffic is not considered to be extraneous.
Feasible and reasonable measures	Feasibility relates to engineering considerations and what is practical to build; reasonableness relates to the application of judgement in arriving at a decision, taking into account the following factors: Noise mitigation benefits (amount of noise reduction provided, number of people protected). Cost of mitigation (cost of mitigation versus benefit provided). Community views (aesthetic impacts and community wishes). Noise levels for affected land uses (existing and future levels, and changes in noise levels).
Impulsiveness	Impulsive noise is noise with a high peak of short duration or a sequence of

Low frequency	Noise containing major components in the low-frequency range (20 to 250 Hz) of the frequency spectrum.
Noise criteria	The general set of non-mandatory noise levels for protecting against intrusive noise (for example, background noise plus 5 dB) and loss of amenity (e.g. noise levels for various land use).
Noise level (goal)	A noise level that should be adopted for planning purposes as the highest acceptable noise level for the specific area, land use and time of day.
Noise limits	Enforceable noise levels that appear in conditions on consents and licences. The noise limits are based on achievable noise levels, which the proponent has predicted can be met during the environmental assessment. Exceedance of the noise limits can result in the requirement for either the development of noise management plans or legal action.
Performance-based goals	Goals specified in terms of the outcomes/performance to be achieved, but not in terms of the means of achieving them.
Rating Background Level (RBL)	Rating background noise level (RBL) – the overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period (as opposed to over each 24-hour period used for the assessment background level). The rating background level is the median L_{A90} noise level measured over all day, evening and night time monitoring periods.
Receptor	The noise-sensitive land use at which noise from a development can be heard.
Sleep disturbance	Awakenings and disturbance of sleep stages.
Sound and decibels (dB)	Sound (or noise) is caused by minute changes in atmospheric pressure that are detected by the human ear. The ratio between the quietest noise audible and that which should cause permanent hearing damage is a million times the change in sound pressure. To simplify this range the sound pressures are logarithmically converted to decibels from a reference level of 2×10^{-5} Pa.

The picture below indicates typical noise levels from common noise sources.



Sound power Level (SWL)

dB is the abbreviation for decibel – a unit of sound measurement. It is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure.

The sound power level of a noise source is the sound energy emitted by the source. Notated as SWL, sound power levels are typically presented in $dB(A)$.

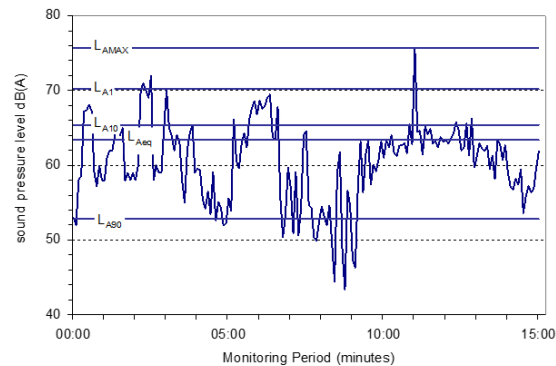
Sound Pressure Level (SPL)

The level of noise, usually expressed as SPL in $dB(A)$, as measured by a standard sound level meter with a pressure microphone. The sound pressure level in $dB(A)$ gives a close indication of the subjective loudness of the noise.

Statistic noise levels

Noise levels varying over time (e.g. community noise, traffic noise, construction noise) are described in terms of the statistical exceedance level.

A hypothetical example of A weighted noise levels over a 15 minute measurement period is indicated in the following figure:

**Key descriptors:**

L_{Amax} Maximum recorded noise level.

L_{A1} The noise level exceeded for 1% of the 15 minute interval.

L_{A10} Noise level present for 10% of the 15 minute interval. Commonly referred to the average maximum noise level.

L_{Aeq} Equivalent continuous (energy average) A-weighted sound pressure level. It is defined as the steady sound level that contains the same amount of acoustic energy as the corresponding time-varying sound.

L_{A90} Noise level exceeded for 90% of time (background level). The average minimum background sound level (in the absence of the source under consideration).

Threshold

The lowest sound pressure level that produces a detectable response (in an instrument/person).

Tonality

Tonal noise contains one or more prominent tones (and characterised by a distinct frequency components) and is considered more annoying. A 2 to 5 $dB(A)$ penalty is typically applied to noise sources with tonal characteristics

Appendix B – Curriculum Vitae

Camilo Castillo

Principal Acoustic Consultant

Qualifications

- Masters Degree in Design Science (Audio and Acoustics)
- Member of the Australian Acoustical Society

Industry Skills

I am a principal consultant at Rodney Stevens Acoustics and have been practicing in the field of acoustics for over 15 years.

I have a Masters Degree in Design Science (Audio and Acoustics) from the University of Sydney, I have experience across a broad spectrum of acoustic related projects. Main duties involve assessing noise impacts from commercial, industrial and other sources into sensitive receivers, preparation of acoustic reports for submission to councils and other regulatory bodies for the purpose of development applications, construction and occupation certificates; design, analysis and mitigation of measures to achieve compliance with relevant regulations in terms of noise and vibration.

Experience

Environmental Assessments

Greyhound Australia Bus Depot – redevelopments of current facilities; Ausgrid – review and treatment recommendation of current and future network assets; Parliament House – Assessment of proposed mechanical plant changes; Penrith Showground Race Track – Noise impact from race track on adjoining new development; Belfield College – Design and assessment of proposed upgrade; Marian Catholic College – Design of new building on campus; Sasanadhaja Temple – Design and assessment of proposed temple; Glenwood Sikh Gurdawara Temple – Design and assessment of proposed hall extensions; Child Care Center assessments for a number of councils across Sydney; Licensed venues – Chamberlain Hotel, Guildford Bowling Club, Brighton Le Sands RSL Club, Revesby Bowling Club, ABL Club, Petersham Inn, Greystanes Hotel.

Building Acoustic

F45 Gymnasium – Assessment of noise impact from F45 gyms across Sydney; St Madeleine Sophie Parish Church – Internal design and reverberation time; Office Point – Design of new fit out; 3 Corrie Road, North Manly – Acoustic assessment of inter-tenancy noise transmission; Mars Factory – Design of EWIS system; The Jazz Factory – Design of dance studios and other spaces; Show Season Salon – Design of internal spaces – Duti Studios – St Luke's Catholic School – Qualtrics Office fit out – St Agnes Catholic School

Aircraft Noise

Assessments of aircraft noise for developments from Kingsford Smith, Badgerys Creek, Bankstown and

**Vibration**

Assessment of train vibration for multiple developments across Sydney; Construction noise vibration assessment and monitoring for 1 Newland Street, Bondi Junction (Krulis Commercial); Vibration assessments for F45 gymnasiums across Sydney, ongoing vibration monitoring at Macquarie Hospital

Professional History

- August 2015 to present date – Principal Consultant
Rodney Stevens Acoustics
- November 2009 to July 2015 – Project Engineer
PKA Acoustic Consulting
- April 2008 to July 2009 – Graduate Consultant
SLR Consulting (Heggies Pty Ltd)



Date: 7 August 2024

Ref: 36892Hlet

The Owners – Strata Plan 67057
C/- GK Strata Management Pty Ltd
Locked Bag 22
HAYMARKET NSW 1240

Attention: Nicholas Campbell

Email: [REDACTED]

GEOTECHNICAL OPINION

PEER REVIEW OF PROPOSED DEVELOPMENT AT 21C BILLYARD AVENUE, ELIZABETH BAY, NSW

1 INTRODUCTION

This letter has been prepared by Adrian Hulskamp, a Principal Associate Geotechnical Engineer at JK Geotechnics, and presents his geotechnical peer review of the proposed development at the above site. I understand from a letter prepared by Bill MacKay of City of Sydney (COS) dated 24 July 2024, that the development proposal (D/2023/727) was refused by COS and is being appealed in the Land and Environment Court.

I was instructed to carry out the peer review by Natalie Richter of Natalie Richter Planning in an email dated 31 July 2024. The peer review was commissioned by Nicholas Campbell of GK Strata Management Pty Ltd, on behalf of the client, The Owners – Strata Plan 67057, by return of a signed 'Acceptance of Proposal' form, dated 1 August 2024.

A summary of the proposed development is provided in Section 2 below. A site location plan is presented as Figure 1. For the purpose of this letter, I have taken Billyard Avenue and Onslow Avenue to bound the development site to the north-east and south-west, respectively.

My peer review is presented in Section 6 below

I am a practicing Geotechnical Engineer with a Bachelor of Engineering (in Environmental Engineering) and a Master of Engineering Science (in Geotechnical Engineering) from the University of NSW. I have over 24 years experience as a Geotechnical Engineer, a significant portion of which has been providing geotechnical advice to avoid the damage to structures as a result of deep excavation, shoring and construction works for developments in Sydney, as well as carrying out inspections and providing geotechnical advice during construction. My Curriculum Vitae is attached in Appendix A.





2 SUMMARY OF PROPOSED DEVELOPMENT

From the provided architectural drawings by Smart Design Studio (Project. 2235 Billyard 21C, Issue F, dated 18 July 2024), I understand that following demolition of the existing buildings at 21C Billyard Avenue and 10 Onslow Avenue ("the site"), the proposed development will comprise construction of two residential towers up to eight storeys high over several basement levels that will extend to, or relatively close to, the north-western, south-western and south-eastern site boundaries.

The outlines of the three lowest proposed basement levels (B06, B07 and B08) are shown on the attached Existing and Proposed Basement Layout Plan presented as Figure 2. The finished floor levels (FFL) of these basement levels are at RL3.3m (B06), RL1.725m (B07) and RL0.197m (B08). To achieve the basement FFLs, I envisage that excavation to maximum depth of about 13.1m will be required most of which will be within the south-western portion of the site and below the existing basement within 10 Onslow Avenue.

The ground floor FFL of the proposed tower to be located within the north-eastern portion of the site will range from RL6.45m to RL6.9m. To achieve these levels, excavation to a maximum depth of about 4.6m will be required within the central portion of the site outside the footprint of the existing basement within 10 Onslow Avenue with the depth of excavation tapering to about on-grade along the Billyard Avenue frontage.

3 ASSESSMENT PROCEDURE

As part of the peer review, I carried out a walkover inspection within the neighbouring properties (i.e. 21B and 23 Billyard Avenue and 8 and 12 Onslow Avenue) and along Billyard Avenue and Onslow Avenue adjacent to the site on 2 August 2024, to observe the topographic, surface drainage and geological conditions of the area and its immediate environs.

No access to the site was possible at the time of my inspection, and no additional subsurface investigation was carried out.

I referred to the following relevant documents for the proposed development as part of the review:

- Survey plans prepared by Beveridge Williams (Project No. 2202698, Drawing Ref. DET-001, Sheets 1 to 11, dated 5 July 2024). The survey datum is the Australian Height Datum (AHD);
- Architectural drawings by Smart Design Studio as referenced in Section 2 above;
- Geotechnical Investigation Report by Morrow Geotechnics Pty Ltd, Ref. P2843_01 rev3, dated 2 July 2024 [Morrow2024];
- A Structural Letter by Eckersley O'Callaghan Pty Ltd (Ref. 723013.C020001.0m dated 4 July 2023); and
- A DA Acoustic Assessment report by Pulse White Noise Acoustics (Report Ref. 230100 – EB1 Elizabeth Bay – DA Acoustic Assessment – R2, dated 12 July 2023, Issue 2).

Morrow2024 included the drilling of six cored boreholes (BH1 to BH6) to the depths/RLs tabulated below. The approximate borehole locations are shown on Figure 2.



Borehole	Approximate Surface RL (mAHD)	Depth(m)/RL(mAHD)
1	6.5	5.0/1.5
2	6.5	5.0/1.5
3	10.7	9.98/0.72
4	10.7	10.69/0.01
5	14.7	15.35/-0.65
6	10.8	20.84/-10.04

4 SUBSURFACE CONDITIONS

From the results of Morrow2024, reference to the core photographs provided and my site observations, I provide the following summary of the subsurface conditions encountered in Morrow2024, along with some comments.

1. The 1:100,000 series geological map of Sydney (Geological Survey of NSW, Geological Series Sheet 9130) indicates the site, as well as the neighbouring properties to the north-west and south-east, to be underlain by man-made fill close to the contact with the underlying Hawkesbury Sandstone. From my experience, the boundaries between the different geological units shown on the geological map are approximate only, as I would expect the majority of the site to be underlain by sandstone bedrock at shallow depth noting the presence of sandstone bedrock outcrops in the neighbouring properties.
2. The boreholes generally encountered sandy or gravelly fill ranging in depth from 0.48m (BH3) to 0.8m (BH1) overlying sandstone bedrock. BH5, which was drilled inside the existing P1 basement, encountered a 100mm thick concrete floor slab directly underlain by sandstone bedrock. Morrow2024 made no assessment of the fill compaction, but from my experience on other nearby sites, I would expect the fill to be poorly compacted.
3. The sandstone bedrock was assessed by Morrow Geotechnics to be mostly highly and moderately weathered from first contact improving with depth to slightly weathered and fresh, and of predominantly medium to high strength. The rock cores show the sandstone bedrock encountered in the boreholes contained relatively few and often widely spaced defects.
4. In accordance with the paper 'Classification of Sandstones and Shales in the Sydney Region: A Forty Year Review' by Pells et al., Australian Geomechanics, June 2019, I consider that most of the sandstone bedrock encountered in the rock cores to be Class III and Class II sandstone, with some Class IV sandstone, which is broadly the same as interpreted in Morrow2024.
5. Morrow2024 reports the shallow groundwater measured in the monitoring wells installed into BH1 and BH2 to be affected by surface water infiltration so should not be relied upon. The reported groundwater levels in BH5 between 3 May 2023 and 12 June 2024, were between depths of 7.09m and 7.53m. No other long term groundwater monitoring was carried out. A groundwater monitoring well was installed into BH6 with a response zone within the bedrock, though no groundwater level monitoring from BH6 was reported in Morrow2024.



5 NEIGHBOURING BUILDINGS

Morrow2024 did not describe the neighbouring buildings to the site. To provide some context when I present by geotechnical opinion in Section 6, I note below some of the relevant observations of the neighbouring structures from my walkover inspection.

21B Billyard Avenue

The first neighbouring property to the north-west (21B Billyard Avenue) contained a brick apartment building that was set back at least 0.2m from the common boundary, though most of the building was set back about 1.8m from the common boundary.

There was a brick fence along most of the common boundary which supported ground surface levels within the neighbouring property to a maximum height of about 0.3m, but up to about 0.7m at its north-eastern end. As the rear (south-western portion) of the building had been constructed by excavating into the hillside, cut faces of moderately weathered sandstone bedrock of generally medium strength were exposed behind the rear of the building and near the staircase at the south-western corner. An exposure of sandstone bedrock is outlined by the red circle in Plate 1 below.

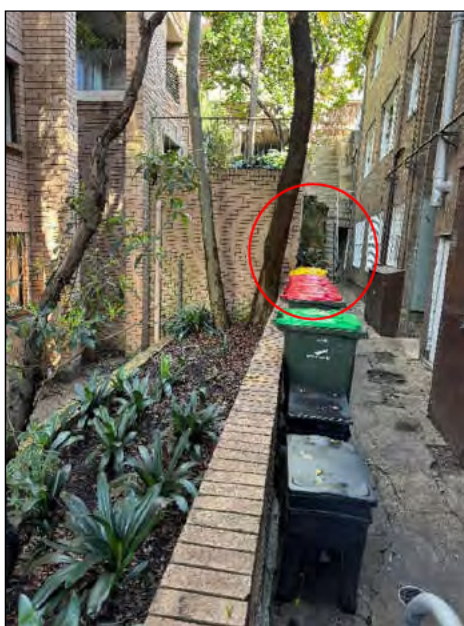


Plate 1: View looking south-west between 21C Billyard Avenue (left side) and 21B Billyard Avenue (right side).

8 Onslow Avenue

The second neighbouring property to the north-west (8 Onslow Avenue) contained a brick apartment building that abutted the common boundary. The survey plan indicates a two level basement car park below the building, however we have been advised that is incorrect based on an email from Mr Harry Hughes of 8 Onslow Avenue on 5 August 2024. From our walkover inspection and observations from Onslow Avenue, it was difficult to assess the surface levels across the common boundary but I note the adjoining basement within 10 Onslow Avenue which extends to the common boundary and is at a lower level. Refer to Plate 2 below.



Plate 2: View looking north-east between 8 Onslow Avenue (left side) and 10 Onslow Avenue (right side)

23 Billyard Avenue

The first neighbouring property to the south-east (23 Billyard Avenue) contained a brick apartment building that was set back about 2.0m from the common boundary. Along the north-eastern end of the common boundary was a mortared sandstone block wall, which we understand is to be retained as part of the proposed development. There was erosion of the mortar between some blocks and the wall appeared to have a slight lean to the north-west. Ground surface levels on either side of the wall were generally similar. Refer to Plates 3 and 4 below.



Plate 3: View looking north-east between 21C Billyard Avenue (left side) and 23 Billyard Avenue (right side)



Plate 4: View looking south-west between 23 Billyard Avenue (left side) and 21C Billyard Avenue (right side)

12 Onslow Avenue

The second neighbouring property to the south-east (12 Onslow Avenue) contained a rendered brick apartment building that was set back between about 1.0m and 3.0m from the common boundary. Ground surface levels across the common boundary were lower noting the adjoining ramp down into the basement within the site, however, I note the adjoining basement within 10 Onslow Avenue which extends to the common boundary and is at a lower level. Refer to Plate 5 below.



Plate 5: View looking north-east between 10 Onslow Avenue (left side) and 12 Onslow Avenue (right side)



6 GEOTECHNICAL OPINION

I outline my geotechnical opinion below in response to the subsurface investigation that has been completed, the recommendations provided in Morrow2024 and any inadequacies therein. My opinion is based on a review of the provided information, my understanding of the proposed development, my site observations, the available subsurface information and my experience as a geotechnical engineer.

Additional Geotechnical Investigation

1. Whilst Morrow2024 included the drilling of cored boreholes to assess the depth to and quality of the underlying sandstone bedrock, no advice on any further geotechnical investigation was provided. I note that five of the six boreholes were located within the north-eastern portion of the site, and only one borehole was drilled within the south-western portion of the site where the majority of the excavation will be carried out. Apart from BH6, the other boreholes were only just drilled to be below the lowest proposed basement level. In my opinion, an additional geotechnical investigation should be carried out to provide adequate site coverage and to assess whether the sandstone bedrock will likely be stable when cut vertically and the extent of any shoring.
2. I consider that at least an additional four deep cored boreholes should be drilled to at least 3m below the lowest proposed basement level within the south-western portion of the site.
3. There is an existing basement below 10 Onslow Avenue, and the basement retaining walls extend to the north-western, south-western and south-eastern site boundaries. As the existing basement structure will be demolished as part of the proposed development, care must be taken during demolition and subsequent excavation to not remove support from the site boundaries, as this may result in damage to the adjoining buildings and any boundary walls. Temporary propping of the existing basement retaining walls along with a staged removal process will probably be required, with the details of the propping to be advised by the project structural engineer.
4. Prior to or during demolition, but before the commencement of bulk excavation, the additional investigation must include test pits (to be inspected by the project geotechnical and structural engineers) along the site boundaries to assess the footing details and foundation materials of any boundary structures, so that the structural engineer can provide advice on the extent of any shoring and/or underpinning that may be required.
5. As the proposed basement excavation will extend below groundwater, construction of the basement is considered to be an aquifer interference activity. Such activities are subject to the Water Management Act 2000 and NSW Aquifer Interference Policy and are regulated by the Department of Planning, Housing and Infrastructure (DPHI) [formerly the Department of Planning, and Environment (DPE)], WaterNSW and Natural Resource Access Regulator (NRAR). DPHI's policy on basements is that ongoing or frequent dewatering of basements over their life is inconsistent with the principles of sustainable development and, where such dewatering is required, basements should be tanked. Dewatering during construction is permitted but is regulated through licencing which must either be obtained from WaterNSW. The DPE document, 'Minimum Requirements for Building Site Groundwater



Investigations and Reporting', dated October 2022 outlines the minimum scope of investigation required where a proposed basement intersects groundwater. Therefore, the additional geotechnical investigation must also meet the requirements of this document, including the requirement for long term groundwater level and quality monitoring.

Dilapidation Surveys

6. Morrow2024 provides no advice on completing dilapidation surveys on the neighbouring structures. Dilapidation survey reports can be used as a benchmark against which to set vibration limits for rock excavation and for assessing possible future claims for damage arising from the works.
7. Prior to the commencement of any demolition, dilapidation surveys should be completed on the neighbouring buildings to the north-west (8 Onslow Avenue and 21B Billyard Avenue) and south-east (12 Onslow Avenue and 23 Billyard Avenue), as well as any boundary walls/fences, or other landscape walls, which are to be retained. The respective owners should be asked to confirm in writing that the dilapidation survey report on their property presents a fair assessment of the existing conditions. As dilapidation survey reports are relied upon for the assessment of potential future damage claims, they must be carried out thoroughly with all defects rigorously described (ie. defect type, defect location, crack width, crack length etc) and defects photographed where practical. We note that Council may also request dilapidation surveys on their assets (ie. roadways, footpaths, kerb and gutters etc).
8. Dilapidation survey reports where only photographs and very brief or no defect descriptions are provided and without a plan showing the defect locations should be rejected.

Batter Slopes and Shoring

9. Morrow2024 provides general advice and earth pressure parameters in relation to excavation retention, but does not provide specific shoring recommendations for the subsurface conditions, i.e. shallow sandy fill over expected good quality sandstone bedrock. Subject to completion of the additional geotechnical investigation and inspection of the test pits as discussed above, the likely scenario for the shoring along the site boundaries would be concrete gravity retaining walls constructed in stages along the crest of sandstone cut faces to support the soils, with permanent sandstone cut faces below. The exception might be where there is already a boundary wall, that is either founded on bedrock, or underpinned to the bedrock.
10. Although unlikely, if the results of the additional investigation indicate areas of potentially deeper soils or poorer quality bedrock, alternative shoring would need to be installed such as an anchored soldier pile or contiguous pile wall terminated in the underlying better quality sandstone bedrock.
11. Subject to completion of, and confirmation by, the additional geotechnical investigation, as well as frequent geotechnical inspection of the cut faces at regular depth intervals during excavation (usually not more than about 1.5m apart), it is likely the sandstone bedrock along the sides of the excavation can be cut vertically. The purpose of the inspections is to identify adversely orientated defects which can isolate blocks or wedges of sandstone and/or bands of weaker rock which may require



stabilisation, such as with rock bolts, reinforced shotcrete, etc. Temporary rock bolts which extend across the site boundary will require permission from the neighbouring property owner to install. In the permanent case, a retaining wall would need to be constructed in front of the cut face and backfilled with no-fines concrete, as I expect permission to install permanent rock bolts will not be provided by the neighbours as an easement would be required.

Excavation and Vibration Monitoring

12. Whilst Morrow2024 provides advice on the type of plant and rock excavation equipment to excavate the fill and sandstone bedrock, Morrow2024 states that '*Monitoring of vibration levels may be required to ensure vibrations levels remain below threshold values during the construction period*'. In my opinion, the use of hydraulic rock hammers on the site must be strictly controlled as there will almost certainly be transmission of ground vibrations to the neighbouring buildings which are all expected to be founded on sandstone bedrock, and buried services.
13. Rather than recommending 'safe working distances for vibration intensive plant' as stated in Morrow2024, I consider it more appropriate to carry out continuous quantitative vibration monitoring whenever hydraulic rock hammers are used during demolition and excavation to check that the vibrations are within acceptable limits. If the vibrations are too high, such vibrations may cause damage to nearby structures. Vibration monitors should therefore be set up on the neighbouring buildings to the north-west and south-east and the monitors fitted with flashing warning lights and sirens which would warn if vibrations exceed the pre-set limits.
14. The vibrations on the neighbouring buildings should be tentatively limited to a peak particle velocity of 5mm/sec, subject to confirmation by the structural engineer following their review of the dilapidation survey reports. A lower vibration limit may be applicable for any sandstone block walls, or other more sensitive structures. If higher vibrations are recorded, they should be assessed against the values in the German Standard DIN 4150 – Part 3: 1999, as higher velocities may be acceptable depending on the associated vibration frequency.
15. Where vibrations are monitored and within acceptable limits, they may still be perceptible to humans inside the neighbouring buildings.
16. Apart from advising on 'safe working distances' depending on the type of plant being used, Morrow2024 does not provide any other specific advice on ways to manage or reduce vibrations, such as by providing saw cuts around the perimeter of the rock excavation, ahead of the bulk excavation, or what precautions should be implemented if the transmitted vibrations are excessive, such as changing to alternative lower vibration emitting excavation equipment like a smaller rock hammer, rotary grinder or sawing into blocks, etc.
17. Depending on the set back and construction methodology of the neighbouring basement structures, there is a possibility that the proposed excavation may result in rock plinths being formed along some sections of the site boundaries. Prior to bulk excavation, a surveyor under the direction of the architect,



should prepare sections across the north-western and south-eastern site boundaries at approximately 3m intervals. If a potentially unstable rock plinth may be formed, then the plinth will need to be supported such as by using vertical rock bolts or a retaining wall, or may be able to be removed, subject to further geotechnical assessment.

Stress Relief

18. Morrow2024 provides no comment that in Sydney, there is a relatively high in-situ horizontal stress field. When an excavation extends into sandstone bedrock, horizontal stresses can be relieved, resulting in possible movement of the cut faces into the excavation. These movements can be in the order of about 0.5mm but up to 2.5mm for each metre depth of excavation into sandstone bedrock. These movements are expected to reduce with distance away from the cut faces and are expected to occur during excavation.
19. As the site is on the side of a hill and there has already been excavation carried out for the existing basement below 10 Onslow Avenue, these factors will counteract the effects of any further stress relief and I would expect the range of possible movement to be towards the lower to mid-range of the values reported above in item 18.
20. Due to the insitu stresses in the bedrock, it is not feasible to restrain the cut faces from these movements. To predict the magnitude of possible lateral ground movements due to horizontal stress relief, the additional geotechnical investigation should allow for 3D finite element modelling of the proposed basement excavation. Once the magnitude of ground movements due to stress relief are predicted, the project structural engineer must advise how the effects of such will be managed during construction with such advice to be included in the GHMP and CMS; refer to items 21 and 22 below.

Concluding Remarks and Preparation of a Geotechnical and Hydrogeological Monitoring Program (GHMP)

21. The proposed development will require demolition of the existing buildings within the site followed by a deep excavation that is expected to extend through shallow fill but mostly into sandstone bedrock of at least medium strength. The neighbouring buildings are in close proximity to the existing/proposed basement excavation and all within the 'zone of influence' of the excavation. Therefore, demolition, temporary support measures, shoring and retaining wall construction, excavation, provision of drainage and subsequent construction activities will require careful sequencing so that support is not removed from the site boundaries and any transmitted vibrations are kept within acceptable limits.
22. Prior to the commencement of any site works, the builder should submit a Construction Method Statement (CMS). The CMS should include, but not be limited to, the proposed demolition, shoring and excavation sequencing, the type of equipment and plant to be used and the various inspection intervals and/or hold points. Each activity must be satisfactorily completed and signed off by the relevant consultant, before the next activity is commenced. The project geotechnical engineer and structural engineer must review and approve the CMS, prior to its implementation.
23. Prior to any site works, the project geotechnical engineer should prepare a GHMP which must set out the geotechnical and hydrogeological monitoring required during construction. Part of the GHMP is to



review and approve the structural and hydraulic drawings for the development. The GHMP must set out a Vibration Monitoring Program (VMP) and a Movement Monitoring Program (MMP). The VMP is to prescribe the vibration limits, the type of vibration monitoring instrumentation to be used, the monitoring frequency and a recommended work procedure. The MMP is to prescribe settlement and lateral deflection limits, the proposed monitoring locations, the survey monitoring instrumentation, the monitoring frequency and a recommended work procedure.

24. Once the GHMP has been prepared, it should also be peer reviewed.

Should you require any further information regarding the above, please do not hesitate to contact the undersigned.

Yours faithfully
For and on behalf of
JK GEOTECHNICS

Adrian Hulskamp
Principal Associate I Geotechnical Engineer
NSW Fair Trading RPE No. PRE0000739

Figure 1: Site Location Plan

Figure 2: Existing and Proposed Basement Layout Plan

Appendix A: Curriculum Vitae for Adrian Hulskamp

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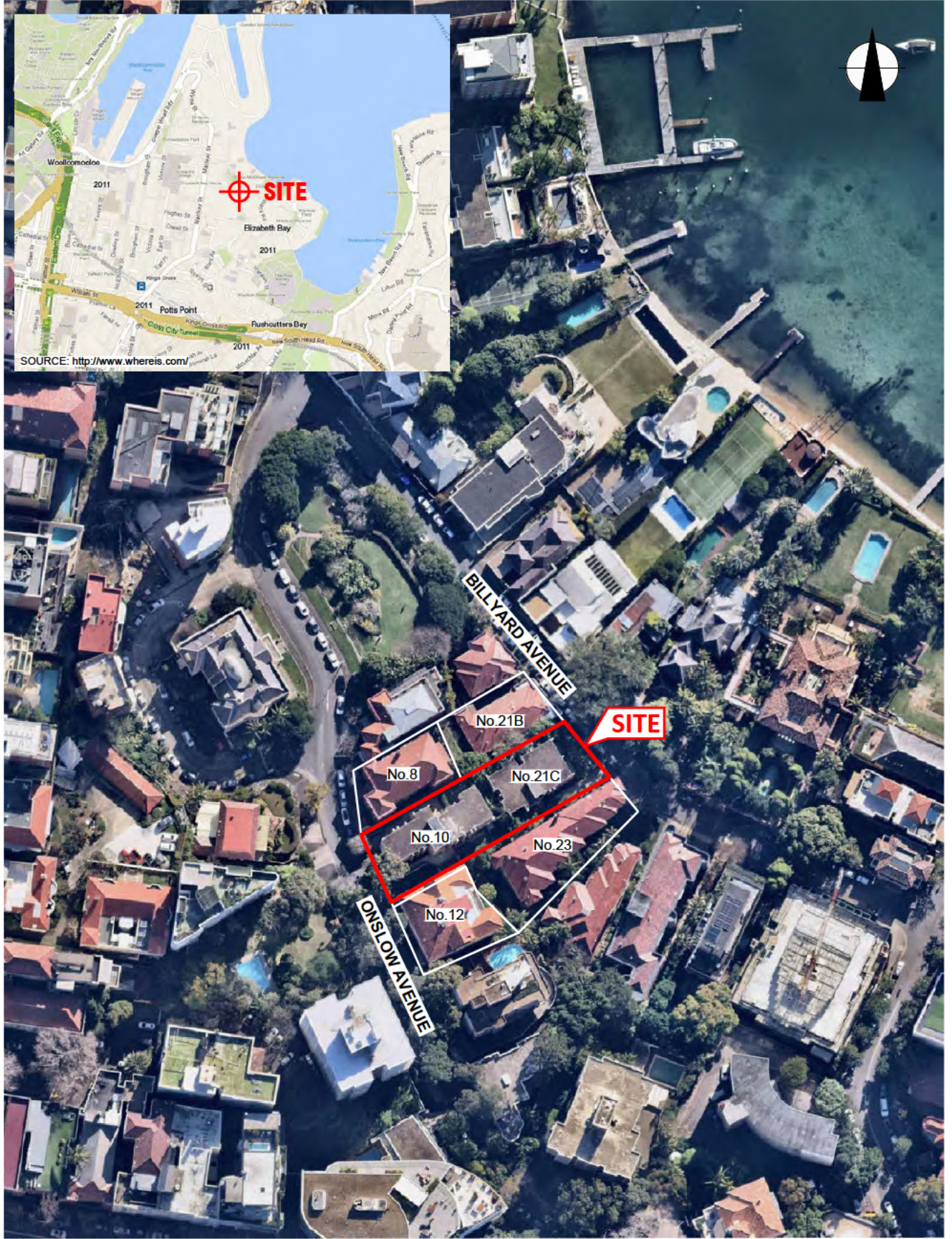
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AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

Title:

SITE LOCATION PLAN

Location: 21C BILLYARD AVENUE AND 10 ONSLOW AVENUE, ELIZABETH BAY, NSW

Report No: 36892PH

Figure No:

1

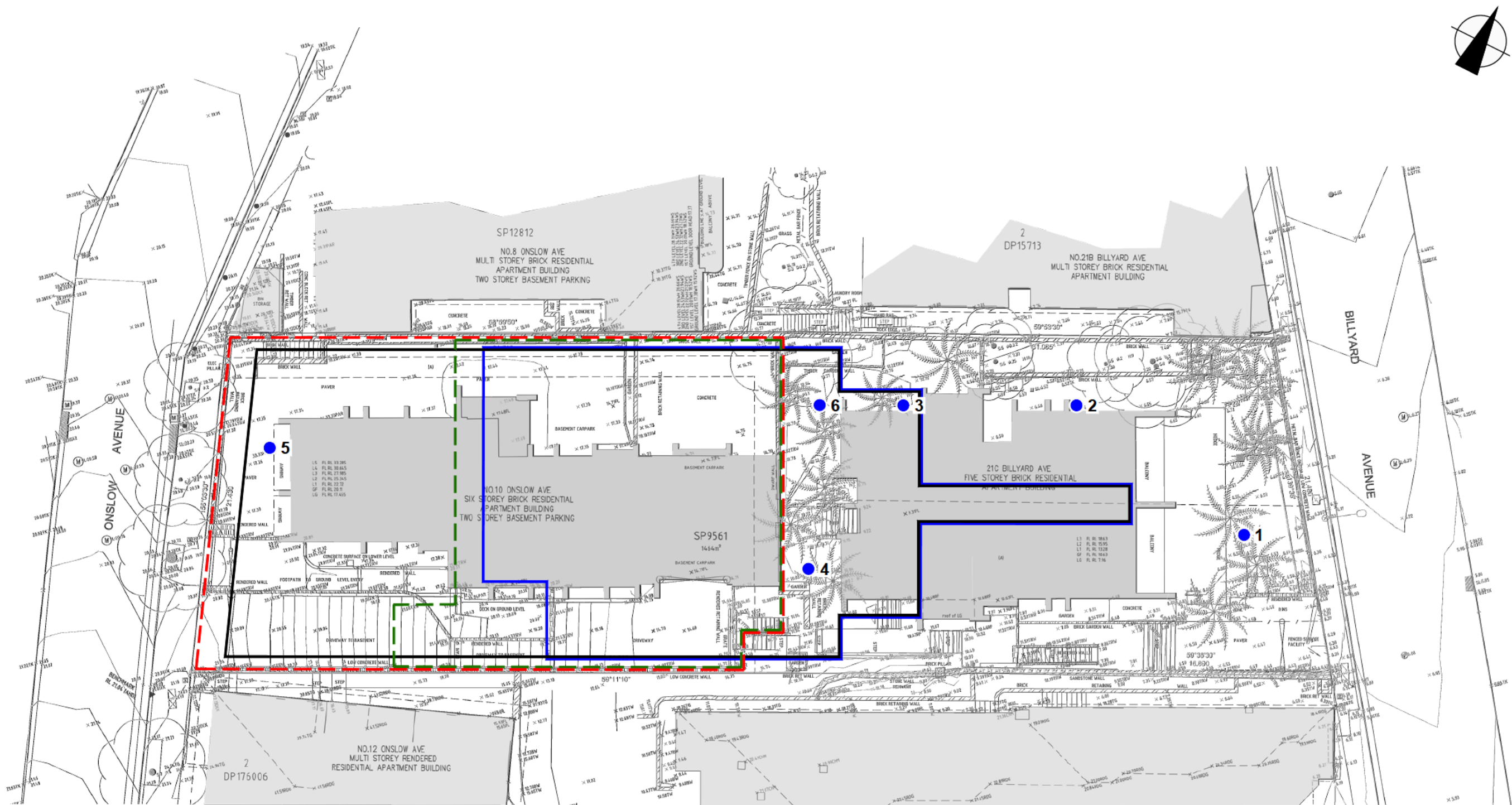
This plan should be read in conjunction with the JK Geotechnics report.

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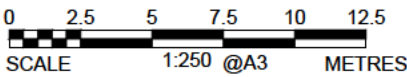
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LEGEND

- APPROXIMATE PREVIOUS BOREHOLE LOCATION BY MORROW GEOTECHNICS
- - - APPROXIMATE OUTLINE OF EXISTING BASEMENT LEVEL P1 RL14.73
- - - APPROXIMATE OUTLINE OF EXISTING BASEMENT LEVEL P2 RL12.10
- APPROXIMATE OUTLINE OF PROPOSED BASEMENT LEVEL B07-B06 RL1.725 AND RL3.300
- APPROXIMATE OUTLINE OF PROPOSED BASEMENT LEVEL B08 RL0.197



This plan should be read in conjunction with the JK Geotechnics report.

Title: EXISTING AND PROPOSED BASEMENT LAYOUT PLAN	
Location: 21C BILLYARD AVENUE AND 10 ONSLOW AVENUE, ELIZABETH BAY, NSW	
Report No: 36892PH	Figure No: 2
JKGeotechnics	





APPENDIX A

Adrian Hulskamp

EDUCATIONAL QUALIFICATIONS	Bachelor of Engineering (Environmental), UNSW (Honours Class 2) 2000 Master of Engineering Science (Geotechnical Engineering) UNSW 2008
MEMBERSHIPS	Member, Engineers Australia (EA) ID1480317 Member, Australian Geomechanics Society NSW Fair Trading Registered Professional Engineer (RPE) PRE0000739 Chartered Professional Engineer (CPEng), NER
PROFESSIONAL HISTORY	
2000 – Present	<p>Principal Associate, formerly Senior Associate (2014 – October 2023), Associate (2010 – 2014), Senior Geotechnical Engineer (2005 – 2010) and Geotechnical Engineer (2000 – 2005) JK Geotechnics, Sydney, NSW</p> <p>Responsibilities and achievements:</p> <ul style="list-style-type: none"> • Coordination of insitu investigation techniques including spiral auger drilling, hollow flight auger drilling, mud drilling, diamond coring (NMLC and TT56) and test pit excavations. Experienced in a variety of sampling techniques such as disturbed auger sampling, disturbed bulk sampling, U50 tube sampling, environmental soil sampling and Acid Sulphate Soil Sampling. Responsible for directing the geotechnical field investigation for proposed development at East Darling harbour (now Barangaroo) which included the direction of drilling of 120 geotechnical boreholes. • Field testing experience includes Dynamic Cone Penetrometer, Standard Penetration Testing, insitu permeability tests, soil index tests, hand penetrometer tests, vane shear testing, Water Pressure 'Packer' testing, Point Load Strength Index testing, fill compaction, stockpile sampling, PID testing and Schmidt Hammer testing. • Assisted and coordinated a number of large geotechnical inspection projects including site supervision of the shoring piles and internal footings for the 'Arena' apartments in Rockdale, Sydney, NSW and the Special Operations Working Accommodation project at Holsworthy Barracks, NSW. Inspection experience for different types of footing solutions include pad/strip footings, bored piles and grout injected auger piles. Inspection experience also includes proof rolling inspections for the detection of 'soft' or 'unstable' subgrade. • Piezometer installation (including VW Piezometer and Casagrande Piezometer), groundwater monitoring and sampling. • Stability assessments including detailed walkover surveys, geotechnical mapping, and comprehensive drilling, test pit, inclinometer and piezometer monitoring. • Computer based stability analyses have been undertaken to assess the stability of existing seawalls for projects located at Mosman Bay, Cronulla Beach and Kogarah Bay, both in their existing condition as well as effects of erosion, saturation, rapid drawdown on stability and proposed designs. • Investigations for several seawalls, marinas and waterway rehabilitation works along the Sydney coastline and Sydney Harbour, Georges River, Woronora River and Pittwater, comprising detailed investigations including boreholes, off-shore drilling from barges, test pits and computer based stability analyses. • Preparation of Expert Witness reports. • Project Management, analysis and reporting for all types of geotechnical investigations, including large residential developments with deep basements, bridges, bridge upgrades and pavement investigations. • Forensic investigations, including the geotechnical investigation into the Pacific Highway collapse above Piles Creek in Somersby, NSW and the failure of the IDAL embankments at West Camden STD, NSW • Investigations for proposed track reconditioning works for Rail Corporation NSW (now Sydney Trains). Fieldwork included excavation of test pits both within the four foot and at the base of platform retaining walls and other structures to assess ballast depth, thickness of capping and subgrade formation.





	<ul style="list-style-type: none"> • Completion of the AGS Engineering Geology Course in Wollongong in 2010 • Completion of IAMA Expert Witness Course in Sydney in 2012. • JK Geotechnics Training Committee Member.
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Adrian Hulskamp is a Chartered Professional Engineer, has over 24 years experience as a geotechnical engineer and has a wide range of experience throughout the Sydney metropolitan area, regional NSW and selected interstate and overseas locations. Adrian's experience ranges from directing the fieldwork for a geotechnical investigation, preparing tenders and scopes of work including costing for geotechnical investigations and assessments, analysis of the results, assessing the stability of excavations, preparing geotechnical reports and delivering to the Client.

Adrian has extensive experience assessing the geotechnical stability of sites for projects in the Snowy Mountains region of NSW, in accordance with the requirements of the Kosciuszko Alpine Resorts Geotechnical Policy.

Key Projects	<ul style="list-style-type: none"> • IKEA Tempe: Geotechnical investigations and over 50 site inspections during construction over an 18 month period. IKEA Tempe comprises the largest warehouse store in the southern hemisphere with a total area of 39,000m². • Information Technology and Engineering (ITE) Building at Broadway for UTS: The 12 storey building was constructed over 4 basement levels, requiring excavation to a maximum depth of 23m, immediately adjacent to existing roads and buildings. Adrian was responsible for directing the site investigation which included the drilling of deep cored boreholes (both vertical and inclined boreholes) below the lowest basement level and preparing the geotechnical and hydrogeological investigation report with advice on excavation conditions, excavation support, retaining wall design parameters and footings. Key constraints for the project included the possible presence of future twin railway tunnels adjacent to the basement and an existing Transgrid tunnel. • Barangaroo, Sydney: Adrian was directly responsible for leading the geotechnical investigation which included a grid of over 100 cored boreholes across the site. • Digital Train Radio System (DTRS) for UGL Infrastructure: Geotechnical investigation and provision of design services for proposed communication towers at over 100 individual sites, as well as providing advice on construction issues. • Proposed Mixed Use Development at Campbelltown: Development approval was given for a multi-level apartment building underlain by two basement car parking levels that was located immediately adjacent to the rail corridor. The initial geotechnical investigation included both augered and cored boreholes. Adrian carried out 2D finite element analysis to assess the potential impact of the proposed development on the adjoining rail corridor. A track monitoring program was also prepared and submitted to Sydney Trains. • Manly Oval Carpark: Geotechnical investigations and groundwater monitoring for a complex geological site in Manly, Sydney. The investigation included deep cored boreholes ranging in depth up to 38m for a proposed two level basement carpark. • Expert Witness for a Damaged Property, Rushcutters Bay: Provision of geotechnical expert advice in relation to a damaged property in Rushcutters Bay, due to adverse retaining wall movements and vibrations on an adjoining property. • Friday Flat Car Park CP2, Thredbo Ski Resort: Adrian was responsible for carrying out a geotechnical investigation and stability assessment for a proposed new car park on the northern side of Friday Drive in Thredbo Ski resort. The project continued to design and construction and included review of the civil drawings and carrying out several geotechnical inspections during construction. These inspections provided specific advice to the builder and
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	<p>earthworks contractor on subgrade preparation, including design and construction of a 'bridging layer' where heaving of the subgrade occurred during proof rolling. Our advice was in consultation with the project civil engineer.</p> <ul style="list-style-type: none"> • Existing Warehouses, Wetherill Park: Geotechnical investigations and load rating assessments of two very large warehouses in Wetherill Park. The load rating assessment was based on the rigorous design methods outlined in the Cement and Concrete and Aggregates Australia (CCAA) T48 'Guide to Industrial Floors and Pavements'. • Rock Face Stabilisation Works, Cronulla: Following a rock slide from a portion of a heritage cliff face along The Esplanade in Cronulla, NSW, Adrian was responsible for assessing the stability of the cliff face within, and adjacent to, the property where the slide occurred, and providing subsequent geotechnical advice on stability, risk levels and stabilisation measures to the property owner, Council and contractor. • Expert Witness for a Damaged Property, Sans Souci: Provision of geotechnical expert advice in relation to a damaged property in Sans Souci, due to adverse retaining wall movements from an excavation on an adjoining property. • Expert Witness for Two Damaged Properties, Maroubra: Provision of geotechnical expert advice in relation to damaged properties in Maroubra, due to ground disturbance from an excavation on an adjoining property.
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