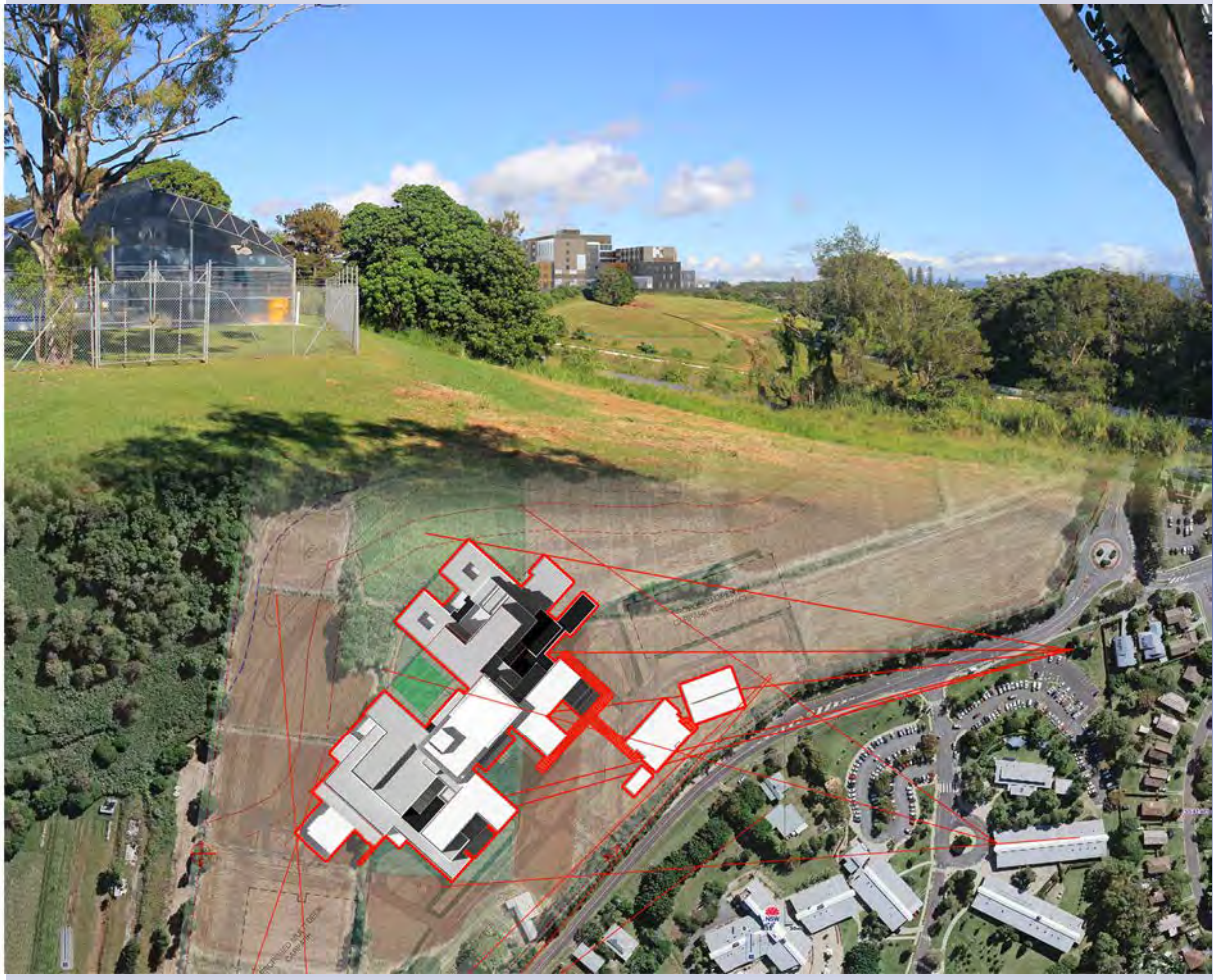
VISUAL IMPACT ASSESSMENT
Tweed Valley Hospital
SSD Stage 2 Application

December 2019



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1.1 Scope and Purpose of Report.

This Visual Impact Report has been prepared by Urbaine Architecture for NSW Health Infrastructure. The report is provided to accompany the SSD (State Significant Development) application under Part 4 Division 4.7 of the EP&A Act for the development of the Tweed Valley Hospital Project on a greenfield site at 771 Cudgen Road, Cudgen NSW - Lot 11 DP1246853 (the Project Site). See Figure 1 for overall site location.

Figure 1 – site location shown in red

The report provides an analysis of the proposed development's visual impact in relation to its visual and statutory contexts and is to be read in conjunction with the drawings and other material submitted with the development application. The Report is being submitted to assist The Department of Planning, Industry and Environment (DPIE) in assessing the proposed development.
The current proposal is being submitted as a State Significant Development.
This report also considers the Concept Proposal / Stage 1 VIA, prepared by Geo LINK. The original view frames contained therein are also included in this current VIA, with an overlay of the developed proposal.

1.2 The Proposed Development

1.2.1 Overview

On the 11 June 2019, the Minister for Planning and Public Spaces granted approval for the Concept Proposal and Stage 1 Early and Enabling Works for the new Tweed Valley Hospital (SSD 9575), located at 771 Cudgen Road, Cudgen (Lot 11 DP1246853). All documents relating to this consent can be found on the major project website of DPIE at https:/www.planningportal.nsw.gov.au/major-projects/project/10756. The Environmental Impact Statement (EIS) has been prepared to assist in the State Significant

Development (SSD) Stage 2 Application for the Tweed Valley Hospital which will be assessed under Part 4 Division 4.7 of the Environmental Planning and Assessment Act 1979 (EP&A Act). This, along with supporting documentation, provides a clear outline of the Stage 2 Application.

The Tweed Valley Hospital Project broadly consists of:

- Construction of a new Level 5 major regional referral hospital to provide the health services required to meet the needs of the growing population of the Tweed-Byron region (in conjunction with the other hospitals and community health facilities across the region)
- Delivery of the supporting infrastructure required for the Tweed Valley Hospital, including green space and other amenities, roads and car parking, external road upgrades and connections, utilities connections, and other supporting infrastructure.

1.2.2 Stage 2 Hospital Main Works and Operation

The Stage 2 SSD component seeks consent for the Main Works and operation of the Tweed Valley Hospital, including:

- Construction of Main Hospital Building:
  - Main entry and retail area
  - Administration
  - Community health
  - In-Patient units
  - Outpatient clinics and day only units
  - Child and Adolescent Services
  - Intensive Care Unit
  - Mental Health Unit
  - Maternity Unit and Birthing Suites
  - Renal Dialysis
  - Pathology
  - Pharmacy
  - Medical Imaging
  - Mortuary
  - Education,
  - Training, Research Report (BDAR) prepared for the Concept Proposal and Stage 1 works

- Construction of Support Buildings, referred to as the Health Hub', containing:
  - Oral Health
  - Community Health
  - Aboriginal Health
  - Administration
  - Education, Training and Research
- Internal Roads and car parking, including multi-deck parking for staff, patients and visitors.
- Construction of a temporary building for the 'Tweed Valley Skills Centre'
- External road infrastructure upgrades and main site access
- Environmental and wetland rehabilitation, including rehabilitation of existing farm dam as outlined in the Biodiversity Development Assessment
- Site landscaping
- Signage
- Utility and service works

The works outlined above comprise five key components, which are subject to various funding allocations and may be delivered independently to each other. Stage 2 has therefore been defined in the following sub-stages1:

- **Stage 2A** Main Hospital Building complete with supporting roads, services infrastructure and landscaping
- **Stage 2B** Main Hospital Building incremental expansion areas
- **Stage 2C** Health Hub
- **Stage 2D** Tweed Valley Skills Centre
- **Stage 2E** Multi-deck car park.

Development consent is sought for the all 5 components of Stage 2 under this SSDA.
Plans for Stage 2 Main Works and operation are attached in Appendix B of the EIS. Approval of Stage 2 will enable the new Tweed Valley Hospital to be built ,which will provide a much-needed contemporary health service facilities for the surrounding region.

1.2.3 Potential Future Expansions

Any subsequent stages or modifcations to the proposal would be subject to separate applications as required including the potential future expansion of the facility.

1.2.4 The Site

The site is located at 711, Cudgen Road,, Tweed Heads South (see Figure 1). The site is bounded on the east by Turnock Street and has a main frontage to Cudgen Road on the south side.
The Project Site is rural land, located on the edge of the outer Kingscliff urban area with an elevation range of approximately one metre RL to 27 m RL. A stand of trees traverses the southern and eastern boundaries of the site along Cudgen Road and Turnock Street, providing some visual screening to the site.

Beyond Turnock Street sits the Kingscliff Library, Kingscliff Community Health Centre and Kingscliff Swimming Centre,
Main access to the subject site will be from a Cudgen Road. To the south of Cudgen Road is a mixture of property types. To the West, are active farms and market gardens, with a sales kiosk accessible directly off Cudgen Road. At the east end of Cudgen Road is the main access road to the Kingscliff TAFE College. To the South East of the TAFE is Kingscliff High School, accessed via Oxford Street.

To the west, the site is bounded by active farmland that varies in elevation of around 10 m RL to 30 m RL . Land directly north of the site is coastal wetlands and rural land. The wetland area sits at around one metre RL and provides some natural screening from residential land further north. The residential development to the north is sited at around eight metres RL. Views orientated to the south in the direction of the Project include the immediate residential areas, rural lands and vegetated coastal wetlands. Beyond this are located a number of housing developments, including Noble Lakeside Park and Kingscliff Beach Retirement Village. See Figure 2 for site extents.

1.2.5 The Project

Health Infrastructure is undertaking the development of the Project via a Staged SSD application for the following components:

- A concept development application and Stage 1 early and enabling works - this has already been approved
- The current submission - a second development application for Stage 2, including detailed design, main construction and operation of the Tweed Valley Hospital.

Figure 2: Site plan and location of new hospital.

1.2.6 Proposed Land Use and Built Form

The proposed development comprises a main hospital building, supported by an adjoining 'Health Hub', together with separate car parking areas for public and staff parking.
The overall massing of the building has been designed to sit within the maximum planning envelope.

1.3 Methodology

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 A. A combination of the methods described, were utilised in the preparation of the photomontaged views, used in this visual impact assessment report. This same methodology is currently under review by the Land and Environment Court as a basis for future VIA guidelines to supercede the current guidelines, which have been fully adhered to in this case.

1.3.1 Process

Initially, a fully contoured 3d model was created, with detailed block modelling matching the building envelope of the latest STH/Bates Smart design of the main hospital buildings and associated parking. Virtual cameras were placed into the model to match various selected viewpoints, in both height and position. From these cameras, rendered views have been generated and photomontaged into the existing photos, using the ground plane for alignment. Several site location poles were placed into the 3d model to allow accurate alignment with the original photo. These poles align with known elements, such as trees, lamp posts, vent stacks etc. Figure 3 shows the selected viewpoint locations.
The rendered views create an accurate interpretation of the visual impact and provide a basis for minimising any view loss by the incorporation of amended building heights and landscape, where appropriate.
The nal selection of images show these stages, concluding with an outline, indicating the potential visual impact, with and without landscaping.

1.3.2 Assessment Methodology

There are no set guidelines within Australia regarding the methodology for visual impact assessment. 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)
- Tweed Shire Scenic Landscape Evaluation Volumes 1 and 2, 1995
- Visual Management System Tweed Pilot 2004 - Coastal Comprehensive Assessment.
- Draft Kingscliff Locality Plan, particularly in consideration of view lines and significant landmarks identified in the draft Kingscliff Locality Plan.
- Draft Tweed Scenic Landscape Strategy.

In order to assess the visual impact of the Design Proposal, it is necessary to identify a suitable scope of publicly 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 Project 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 hospital 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 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.

Assessment guidelines are also de ned within the Draft Tweed Scenic Landscape Strategy. These specifically relate to the need for, and methods used to prepare a visual impact assessment within the Tweed context. It refers to a 6 stage strategy programme to determine the level of visual impact and also to identify design and construction mitigation measures.
The importance of this document particularly relates to the importance of scenic landscape being:

a.) Source of general health and well-being.
b.) Conservation of environmental stewardship.
c.) Cultural heritage and identity.
d.) Slowing our perception of time.
e.) Contribution to art and economy.

The report seeks to determine the importance of visual impact within the relationship to strategic and statutory planning frameworks, which is particularly relevant in this project, because of its scale. Urbaine has followed the Strategy's guidelines in determining the most appropriate static public viewing locations and also in analysing the actual impact.

Figure 3 Viewpoint locations for visual impact assessments.

Preliminary Review

A desktop review of the site was undertaken based upon information provided by the project's consultant team, the Tweed LEP and Google Earth aerial photography. This information was used to identify potential planning issues, visual catchments and key elements for investigation as part of the site inspections.

Site Inspections

A site inspection was undertaken to observe and photograph the site and surrounding area to investigate:

- The topography and existing urban structure of the local area
- The streetscapes and sites most likely to be affected by the Proposal
- Important vistas and view sheds
- Other major in uences on local character and amenity

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

Statutory Planning Assessment

The visual impacts were assessed in relation to the applicable provisions of the Tweed Local Environmental Plan (TLEP) 2014

1.3.3 Priority Scenic Views TLEP 2014.

Within the Draft Tweed Scenic Landscape Strategy, a number of priority scenic view locations are specified. Those that are contained within a 3km radius of the site are listed below:

- Tweed Coast Road - Linear Viewshed.
- Tweed River Panorama - Linear Viewshed
- Pacific Highway - Linear Viewshed
- Chinderah Pub Foreshore - Static Viewshed
- Chinderah Jetty - Static Viewshed.
- Chinderah Bay Drive = Linear Viewshed.

Priority Scenic View Analysis

An analysis was undertaken of the visibility of the new hospital site from locations contained within the environs of the specified scenic view locations. In the images below, named S1 to S11, it is clear that, as a combination of distance from site, with undulating topography and existing landscaping, the visual impact is negligible in each instance. The locations of the photographs are shown in Figure 4, below

Figure 4, Aerial map indicating locations of photos S1 to S11 in priority scenic view locations.

Image S1: Chinderah Jetty - Static Viewshed

Image S2: Chinderah Jetty - Static Viewshed

Image S3: Chinderah Pub Foreshore - Static Viewshed

Image S4: Chinderah Bay Drive - Linear Viewshed

Image S5: Pacific Highway - Linear Viewshed

Image S6: Pacific Highway - Linear Viewshed

Image S7: Pacific Highway - Linear Viewshed

Image S8: Pacific Highway - Linear Viewshed.

Image S9: Tweed Coast Road - Linear Viewshed

Image S10: Tweed Coast Road - Linear Viewshed

Image S11: Tweed River Panorama - Linear Viewshed - raised view.

1.4 References

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

Design Documentation

- The design drawings and information relied upon for the preparations of this report were prepared by The Joint Project Architects: STH and Bates Smart. Specifically, the SSDA Stage 2 Plan Set.

Statutory Planning + Guideline and Reference material:

- Tweed Local Environmental Plan (TLEP) 2014
- Creating Places for People- An Urban Design Protocol for Australian Cities: www.urbandesign.gov.au/downloads/undex.aspx//
- Australia and New ealand 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
- GeoLINKNConcept VIA
- Tweed Scenic Landscape Strategy Draft.

2. THE SITE AND THE VISUAL CONTEXT

1.1 Scope and Purpose of Report.

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. De ning the local area relevant to the visual assessment of a proposed development is subject to possible cognitive mapping considerations and statutory planning requirements. These issues are discussed below in relation to the Tweed LEP's objectives and provisions. 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 in the topographical area map, Figure 4. Actual inspections of the site and the surrounding area indicated that beyond this area direct visual connectivity to the site was very limited and therefore the outlook and local character beyond this area was unlikely to be affected by the proposed development.
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. Within the scope of this report the public realm is considered to include the public roads, reserves, open spaces and public buildings. Additional views are sometimes also available from other semi-public spaces, such as private shopping centres, education buildings, or recreational and hospitality facilities.
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.

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, nearby buildings and public spaces within the same street. Elements of the development within this frame of reference are experienced in relative 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 a number of streets in the local area. 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 Context provides a frame of reference that relates the significance of key developments or neighbourhoods to the town as a whole. Large or distinctive developments on prominent sites can contribute to the overall 'image' of the town. Alternatively, 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.

2.1 The Visual Context:

Within the street context, development is low density residential nestled within large parcels of open space. A mixture of retirement parks and residential development occupy the immediate surroundings. Within the neighbourhood context, development is a mixture of low density, parks of residential scale and, to the north, single storey housing estates and retirement parks, separated from the site by protected wetlands and dense, mature landscape.

Within the urban context, there is a diverse fabric consisting of clusters of residential development to recreational and educational buildings and extensive farming land with residential houses scattered throughout.

Within each of these three context scales there is the consistent element of residential built form and single storey housing estates and retirement parks that characterise the area, particularly in the area to the north as a residential area with a coastal recreational lifestyle.

2.2 Visual Features and Local Landmarks

Particular elements in the settlement pattern through either their location and/or built form provide visual nodes and landmarks that assist to differentiate locations within the broader visual context. The following visual nodes are considered to be of the greatest signi cance in terms of their contribution to the character and legibility of the local and surrounding area:

- **Cudgen Road.** This presents the frontage to the new development. The visual features include working farms and market gardens to the west of the subject site and the Kingscliff TAFE to the south. This is a campus style establishment with modern buildings, constructed within the last decade. All buildings sit several metres below the road line, so have minimal visual impact on the area.
- **Tweed Coast Road.** This is a major arterial road and is located to the west, beyond the neighbouring farm land. The road has many visual openings, through landscape, to the subject site
- **Community buildings along Turnock Street.** These have strong visual links through to the subject site, although since their function is recreational and societal, the visual impact is negligible.
- **The Residential areas running off McPhail Avenue, Kingscliff.** These residential properties are a mixture of single and double storey buildings, mostly facing due west and with district and distant mountain views. There are 2 large water tanks situated at Dinsey Street that project above the ridgeline of this area, providing the most distinctive existing visual impact in the area.
- There are no other particularly prominent buildings within the local area as it is largely made up of small to medium scale built form.
  Landmark views from the western side of Kingscliff exist across the proposed site, to Mount Warning and the distant hinterland and mountain ranges. With reference to the Tweed Draft Scenic Landscape Strategy, these would represent the most valuable views.

2.3 Streetscapes

Within the local and surrounding areas the streetscapes, with the exception of the Tweed Coast Road and open/vegetated land along Cudgen Road, are relatively ubiquitous and are typical of suburban residential areas found throughout the city, state and country.
Where visible, open spaces (both highly vegetated and open) provide some visual interest that assists to differentiate areas. At a distance, Terranora Creek also provides visual interest and legibility which assists to differentiate Tweed Heads South from Tweed Heads as two distinct areas.
There are several streetscapes with views to the site, which will have an interface with the proposed development and could therefore be affected by the proposal's visual impacts. These are discussed below:

2.4 The selected view locations:

As a result of the site's topography, the visual impact is primarily relevant from the 2 residential areas to the east and west of the site, namely in the areas off McPhail Avenue in Kingscliff and around John Robb Way to the west. As can be seen from the topographical map, see Figure 5, these areas rise to between 20 and 50m above the site.

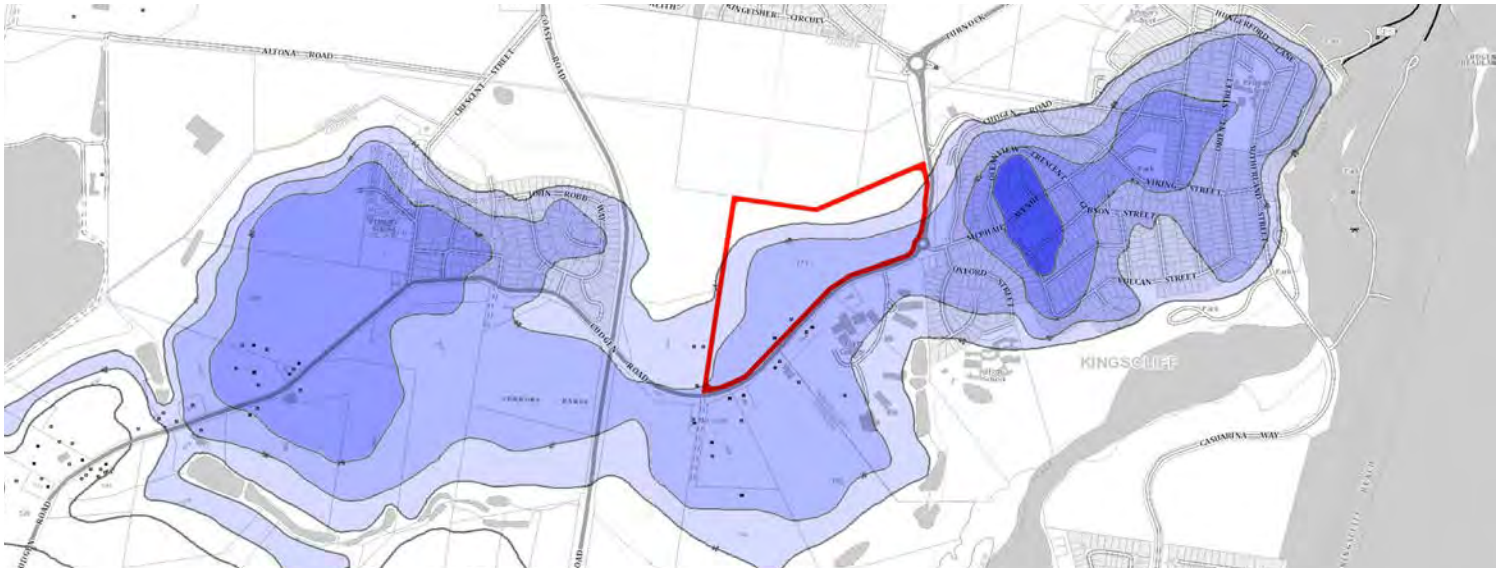


Figure 5 – topographical area map

To the north, residential areas have minimal impact as a result of the protected environmental wetlands area which adjoins the subject site. Further north, across the Tweed River, the site is again, fairly exposed, but at a suf ciently large distance to not have great relevance as a source of visual impact.
A large number of site photos were taken and 20 views selected from these, relevant for public viewing locations, as described above.
The selected photos are intended to allow consideration of the visual and urban impact of the hospital precinct at both a local and regional level. They incorporate high traffic locations and many accessible public viewing locations with more distant, elevated, or panoramic views, where the subject site falls within, and impacts on the midground and background views.

3. VISUAL IMPACT OF THE PROPOSED DEVELOPMENT

3.1 Visual Impact Assessments from 20 viewpoint locations:

3.1.1 Method of Assessment:

In order to allow a quantitative assessment of the visual impact, photos were selected that represented relevant public viewing locations from the surrounding area. Typically, these were from surrounding roads and residential areas within a 3km radius of the site.
The photos include location descriptions, to be read in conjunction with the site map, contained in Appendix B. Additionally, information is supplied as to the distance from the site boundary for each location and the distance to the main building.
To assess the visual impact, there are 2 relevant aspects - view loss of actual substance (landscape, middle and distance view elements etc.) and also sky view loss. These have been separated in the analysis as a ratio and are visually explained in gure 6,below. The transparent overlays of the built form are also contained, for each view, within Appendix A.

Figure 6 – assessment of visual impact ratios.

In this example the ratio of sky to content view loss is determined to be 85%: 15%. This can then be used to interpret a qualitative assessment of the visual impact, rather than assuming the value of view loss is purely based on a figurative amount.
The quality of physical view loss can also be included, when assessing the overall impact. Distant views to hills, or mountains, or as in this development's case, the specific landmark of Mount Warning, will have a greater value than views of middle distance residential property, for instance.
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 the scale previously applied by GeoLINK for the Stage 1 VIA and has a range of values from 0 to 15 to allow a numeric value to be given to a particular view, for the purposes of comparison

Within the Draft Tweed Scenic Landscape Strategy, there are listed several methods of assessment of visual impact and we believe that the separation of view loss and sky view loss is an important factor in this determination.

Scale	Value	Visual quality	Visual impact
0	**Negligible**	N/A	No negative impact on the pre-existing visual quality of the view.
1 2 3 4 5	**Low**	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: - Minor impacts on natural landscapes. - No impact on iconic views - Impacts on a small number of receivers. - Significant distance between the development and receiver.
6 7 8 9 10	**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: - Moderate impacts on iconic views or natural landscapes. - Impacts on a moderate number of receivers. - Located nearby the receiver.
11 12 13 14 15	**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: - Loss of iconic views. - Impacts on a significant number of receivers. - Overshadowing effect. - Directly adjacent the receiver.

Figure 7 – GeoLINK Visual Assessment Scale.

3.1.2 Assessment at selected viewpoints

Viewpoint No.1
Location: TAFE site car park boundary landscaped area, Cudgen Road. 14m South of roundabout at intersection of Cudgen Road and Turnock Street.
RL: +23.22m Distance to site boundary: 14.5m.. Distance to proposed building: 256m
Visual impact ratio of view loss to sky view loss. 0%: 100%
Existing Visual Assessment Scale no.8 Visual Impact Assessment Scale no.4

Visual Impact Analysis: This location sits approximately 1.2m below the level of the adjoining Cudgen Road. Whilst the trees to the East of the subject site allow visual links through to the site, the tree density increases to the West, the trees obscuring the lower parts of the new development. This will be further enhanced with the inclusion of additional landscaping as part of the new proposal.
There is no actual loss of view from this location, rather a small visual impact through to the sky above the treeline, adjacent to the main hospital entry access road off Cudgen Road. The exisiting density of large, mature trees serves as a screen to the new development. These will be replicated in the new landscape design, allowing the treeline along the highest point of the site to be maintained and enhanced.

Viewpoint No.2
Location: 15m East of roundabout at intersection of Cudgen Road and Turnock Street, adjoining Kingscliff Swimming Centre car park.
RL: +26.18m Distance to site boundary: 57m. Distance to proposed building: 344m
Visual impact ratio of view loss to sky view loss. 20%: 80%
Existing Visual Assessment Scale no.8 Visual Impact Assessment Scale no.5

Visual Impact Analysis: The density of trees at the Eastern boundary of the subject site conceal much of the lower levels of the proposed development. The site rises in elevation towards the West, resulting in visual impact on the skyline and a small loss of middle distance views behind. There is no view loss to the far distant mountain views from this location.
Proposed site landscaping will soften the new building and its relationship to the ground plane. The existing landscape is dense, varied and relatively mature, providing good screening of the new development at a major stopping point for Kingscliff Hill traffic.

Viewpoint No.3
Location: Cudgen Road - approximately 25m North West of the Kingscliff Swimming Centre.
RL: +26.4m Distance to site boundary: 72,5m. Distance to proposed building: 477m
Visual impact ratio of view loss to sky view loss. 35%: 65%
Existing Visual Assessment Scale no.10 Visual Impact Assessment Scale no.117

Visual Impact Analysis: There is minimal tree screening to the Eastern boundary of the proposed site from this location. The main bulk of the proposed development sits to the South and impacts marginally on middle and distant views, including a small portion of Mount Warning. Additional landscaping to the Northern face of the proposed building will assist in softening the impact of the structure on the existing landscape.
There is additional view loss to the sky above the Cudgen Road treeline.
The exisiting landscape already provides partial screening of the new development and this will be enhanced by dense understorey vegetation to at least 3m height and a row of large perimeter trees, enhancing the landscape quality of the site from this viewpoint.

Viewpoint No.4
Location: Junction of Quiggan Street and McPhail Avenue.
RL: +39.4m Distance to site boundary: 656m. Distance to proposed building: 1036m
Visual impact ratio of view loss to sky view loss. N/A
Existing Visual Assessment Scale no.9 Visual Impact Assessment Scale no.N/A0

Visual Impact Analysis: The lower levels of the new development are largely obscured by existing houses and landscape. The new building proposal rises above these to the West and impacts on both middle and distant views. At this distance, the visual impact, relative to the overall visual context can be considered minimal. From this junction in the road, the entire building proposal is concealed. Distant landscape views are of a high quality and these will be enhanced by the extensive perimeter tree planting on the site.

Viewpoint No.5
Location: Crest of the hill on McPhail Avenue approximately 60m East of residence no.52, McPhail Avenue
RL: +41.65m Distance to site boundary: 246m. Distance to proposed building: 609m
Visual impact ratio of view loss to sky view loss. 75%: 25%
Existing Visual Assessment Scale no.11 Visual Impact Assessment Scale no.12

Visual Impact Analysis: This location offers some of the most direct views to Mount Warning. The new building proposal has a visual impact on both middle distance and far distant views, particularly to Cudgen. A small portion of distant skyline is also impacted.
Views to Mount Warning are considered to be of signi cant visual value and parts of these views will be diminished from a number of residential properties on the higher levels of McPhail Avenue, looking east.
The landscape on the existing site is predominantly open farming land, with a perimeter of mature trees. The perimeter trees will be replicated and the density increased with the new design, There is a slight loss of landscape view to the west of the site where the new building is visible.

Viewpoint No.6
Location: At driveway of 32, Oceanview Crescent
RL: +36.2m Distance to site boundary: 178m. Distance to proposed building: 559m
Visual impact ratio of view loss to sky view loss. 65%: 35%
Existing Visual Assessment Scale no.11 Visual Impact Assessment Scale no.12

Visual Impact Analysis: The Southern end of Oceanview Crescent has several locations where views to the distant mountains, including Mount Warning, are uninterrupted. From this location, the impact of the new development impacts on the distant skyline and also blocks a portion of the middle distance views to Cudgen. The lower levels of the building are obscured and softened by the existing landscape and, particularly, the treeline along the boundary of Cudgen Road to the south of the site. The eastern boundary will be enhanced with understorey planting and additional trees, further concealing the new development. There is a small amount of distant landscape view loss in the location of the new main building.

Viewpoint No.7
Location: The Eastern boundary of Turnock Street, 102m North of roundabout intersection with Cudgen Road.
RL:+15.72m Distance to site boundary 12.5m. Distance to proposed building: 408m
Visual impact ratio of view loss to sky view loss. 22%: 78%
Existing Visual Assessment Scale no.10 Visual Impact Assessment Scale no.98

Visual Impact Analysis: This road is the main arterial route between Tweed Heads and the Southern side of Kingscliff. This location shows an area where the site boundary landscape is quite open, resulting in a relatively uninterrupted view of the new development. From this location, the relevance of new landscaping will be particularly significant and as the landscaping matures.
This viewpoint has a number of significant open breaks in the perimeter landscaping. These will be filled with a combination of 3m high understorey planting and large trees, providing a continuous screen to this eastern boundary of the site.

Viewpoint No.8
Location: Driveway of 4, Pitta Court, off Kingfisher Circuit.
RL: +3.52m Distance to site boundary 614m. Distance to proposed building: 714mm
Visual impact ratio of view loss to sky view loss. 20%: 80%
Existing Visual Assessment Scale no.6 Visual Impact Assessment Scale no.5

Visual Impact Analysis: This single-storey residential housing estate is located to the North of the subject site and is separated by an expanse of protected coastal wetlands and rural land. The proposal would break the existing treeline, running along the Southern boundary of the site. This area sits at a low RL and, as such, does not experience views of great signi cance. The impact could therefore be considered minimal.
The landscape in this area, to the north of the site, consists of relatively mature residential gardens and trees of medium maturity. The new main building is visible above the dense treeline of the adjoining wetlands. The use of 'green' walls and natural colours will assist with the new proposal blending into viewpoints such as this.

Viewpoint No.9
Location: The southern end of Bell bird Drive. Between the driveways of houses nos.22 and 17, Bellbird Drive.
RL: +2.82 Distance to site boundary: 506m. Distance to proposed building: 658m.
Visual impact ratio of view loss to sky view loss. 10% : 90%
Existing Visual Assessment Scale no.11 Visual Impact Assessment Scale no.57

Visual Impact Analysis: An area of rural land adjoins this location to the south for approximately 250m, which is then bordered by coastal wetland trees. Because of the low level location, the impact of the new development is observed as it breaks the treeline of the adjoining wooded area. The view is of sky only and a sensitive use of non-re ective, appropriately coloured materials and nishes will assist in diminishing the overall impact.
The area between the viewpoint and the dense trees of the wetlands is open and, effectively, a flood plain, containing a few mature trees, either individually, or in small clusters.
The main building rises above the mature dense tree canopies of the wetland area directly north of the site. This area will not be impacted by the new development.

Viewpoint No.10
Location: North-east corner of the lake adjoining the Noble Lakeside Park. Approximately 20m south of the northern edge lf the lake.
RL:+1.85m Distance to site boundary: 1048m. Distance to proposed building: 1220m
Visual impact ratio of view loss to sky view loss. 0%: 100%
Existing Visual Assessment Scale no.9 Visual Impact Assessment Scale no.4

Visual Impact Analysis: The view across the lake has the single storey individual residences in the foreground and the protected coastal wetland wooded area in the distance. The new proposal can be observed above this treeline, with minimal visual impact at a qualitative assessment level.
The landscape quality is determined by the age of this residential development. There are many semi-mature trees and lower level shrubs and hedges and the main building of the new development is visible in the distance.

Viewpoint No.11
Location: At driveway of no. 62, Terranora Road.
RL:+56.18m Distance to site boundary: 4.792km Distance to proposed building: 4.944km
Visual impact ratio of view loss to sky view loss. 10%: 90%
Existing Visual Assessment Scale no.9 Visual Impact Assessment Scale no.2

Visual Impact Analysis: This is a distant view from 5km North of the subject site. The new development can be observed extending above the existing treeline at the Southern boundary of the site. From this distance, the visual impact is negligible and and view loss is marginal. The landscaping around the site is relatively unbroken from this distance and, as the introduced landscaping matures, so this will be retained.

Viewpoint No.12
Location: New access road to the west of no. 27, Crescent Street, Cudgen
RL:+38.65m Distance to site boundary: 926m. Distance to proposed building: 964m
Visual impact ratio of view loss to sky view loss. 10%: 90%
Existing Visual Assessment Scale no.8 Visual Impact Assessment Scale no.6

Visual Impact Analysis:
This is the location of a new housing estate in newly-zoned residential land in Cudgen. The visual impact of the new hospital is on the treeline and predominantly obscures sky, with Kingscliff east in the distance. As the local landscape matures, so the impact on this view location will diminish and views to the ocean are maintained. There are many mature trees that serve to break the impact of the new main building and the line of conifers, visible from the site, creates a strong visual link to the area. New development in this location will take time to develop its own style and maturity of landscaping.

Viewpoint No.13
Location: At driveway of 7, Clarke St, Cudgen, looking east to subject site.
RL:+28.15m Distance to site boundary: 693m. Distance to proposed building: 724m
Visual impact ratio of view loss to sky view loss. 10%: 90%
Existing Visual Assessment Scale no.6 Visual Impact Assessment Scale no.5

Visual Impact Analysis: This view is from the main residential enclave of Cudgen and is located to the west of the Tweed Coast Road, looking due east to the site. Existing mature trees conceal much of the new development from this location, combined with additional landscape on the site. There is a small amount of view loss, in addition to an observation of the building extending above the existing treeline and obscuring a part of the sky view. There are many mature trees in this well established residential area. These serve to break the viewlines to the new site and main building.

Viewpoint No.14
Location: Road junction of Plantation Road and Tweed Coast Road, looking north east to site.
RL:+22.32m Distance to site boundary: 1.020km. Distance to proposed building: 1.102km
Visual impact ratio of view loss to sky view loss. 10%: 90%
Existing Visual Assessment Scale no.8 Visual Impact Assessment Scale no.4

Visual Impact Analysis: This road junction is south west of the site, looking north east. The new proposal is partially observed above the existing treeline on the southern site boundary. No views are obscured, only a portion of the sky behind. A sensitive use of materials will permit the building to integrate into the existing surroundings from this distance. A combination of mature individual trees and the strong treeline to the south of the site will be maintained and provide a continuous screen to the new main building at the lower levels.

Viewpoint No.15
Location: Junction of Cudgen Road and Tweed Coast Road.
RL:+15.55m Distance to site boundary: 288m. Distance to proposed building: 386m
Visual impact ratio of view loss to sky view loss. 15%: 85%
Existing Visual Assessment Scale no.7 Visual Impact Assessment Scale no.6

Visual Impact Analysis: This is the busiest road in the area and the subject site can be observed from this point, which is the approaching the highest point on the Tweed Coast Road. A screen of palm trees and trees surrounding the western site boundary assist in breaking up the lower levels of the new development, visually. The upper levels are observable above the treelines and impact on the view to the western hill of Kingscliff.
Additionally, there is a loss of sky view at the upper levels of the new development.
The line of mature palms provides a noteworthy landscape feature at this major road junction, serving to break the visual links tot he site and new development. The lands adjoining the site, to the south west has a dense line of mature trees, partially concealing the location of the new car park.

Viewpoint No.16
Location: At South east corner of Oxford St, Kingscliff. Opposite no.24, Oxford St.
RL:+12.28m Distance to site boundary: 346m. Distance to proposed building: 555m
Visual impact ratio of view loss to sky view loss. 10%: 90%
Existing Visual Assessment Scale no.6 Visual Impact Assessment Scale no.2

Visual Impact Analysis: This location is below the entry road level of the hospital and in an area of mature trees and landscaping. It is heavily traf cked, as a pick up point for the school. The visual impact of the building from here is considerably minimised by the high trees on the southern side of the site, enhanced by the low RL of this location. No views are impacted, although there is a small impact on the sky, observed through trees and above residential property rooflines.
The landscape in this area is well established with many mature trees softening the existing buildings, both residential and educational. The perimeter treeline along the souther edge of the site is clearly visible. This will be maintained and enhanced with the new landscape design for the site.

Viewpoint No.17
Location: At driveway of 3, Yale Street, opposite 4, Yale Street, looking north west to the site.
RL:+17.85m Distance to site boundary: 122m. Distance to proposed building: 367m
Visual impact ratio of view loss to sky view loss. 10%: 90%
Existing Visual Assessment Scale no.6 Visual Impact Assessment Scale no.2

Visual Impact Analysis: A combination of mature trees and the distance from the built form on the site, results in minimal visual impact from this location. No views are affected, since the view location sits below the entry level to the site. Small amounts of the new building will be visible in the gaps between the houses and trees.
The exisitng landscaping is a combination of mature trees and established residential scale vegetation. The perimeter treeline along Cudgen Road is visible in the openings between the mature trees

Viewpoint No.18
Location: At driveway of 740, Cudgen Road, Cudgen, looking north east to site
RL:+23.2m Distance to site boundary: 48m. Distance to proposed building: 321m
Visual impact ratio of view loss to sky view loss. 5%: 95%
Existing Visual Assessment Scale no.7 Visual Impact Assessment Scale no.3

Visual Impact Analysis: The southern boundary of the site has a continuous screen of evergreen and deciduous trees, obscuring much of the lower levels of the proposed new building. Glimpses of the upper levels of the building through the trees, obscure a small amount of sky. Since the site levels fall away to the north, there is no actual view loss.
At this viewpoint, the south west corner of the site has a very identifiable line of mature pine trees, with decidious trees at the lower level. A service road entry point is located on this corner and the treeline will be maintained and enhanced around this. A lower level of trees and bushes, at a minimum height of 3m will provide a visual barrier to the main building and car park at the lower levels.
The farming land, to the south of the site, will be undisturbed. This has several rows of mature trees, between fields, adding a defining series of landscape links across the open fields.

Viewpoint No.19
Location: At boundary fence of 748, Cudgen Road, looking north to site
RL:+24.85m Distance to site boundary: 26.5m. Distance to proposed building: 238m
Visual impact ratio of view loss to sky view loss. 10%: 90%
Existing Visual Assessment Scale no.8 Visual Impact Assessment Scale no.6

Visual Impact Analysis: Visual Impact Analysis: The southern boundary of the site has a continuous screen of evergreen and deciduous trees, obscuring much of the lower levels of the proposed new building. This would be further enhanced by the proposed incorporation of a 30m vegetation buffer zone. Glimpses of the upper levels of the building through the trees, obscure a small amount of sky. Since the site levels fall away to the north, there is no actual view loss, as in viewpoint 18.
The existing mature trees will be maintained and the gaps between them, at the lower levels, will be filled with dense understorey planting.

Viewpoint No.20
Location: The main internal roundabout of the Kingscliff TAFE internal road system, looking north west to site.
RL: +14.65m Distance to site boundary: 131m. Distance to proposed building: 217m
Visual impact ratio of view loss to sky view loss. 10% : 90%
Existing Visual Assessment Scale no.5 Visual Impact Assessment Scale no.6

Visual Impact Analysis: This view is from a main entry point to one of the TAFE buildings and is the main vehicular stopping point for non-parking cars. The location is well below the entry level RL for the new hospital and the mature tree screening to the southern site boundary ensures the lower levels of the proposed building are not visible. The upper levels obscure glimpses of sky between, and above, the treeline.
The existing landscape within the TAFE sire is a combination of mature trees, lawns and defined planter areas, softening the impact of the relatively new buildings.

Viewpoint No.21
Location: Guilfoyle Place. Approximately 30m west of junction with John Robb Way.
RL:+16.85m Distance to site boundary: 388m. Distance to proposed building: 431m
Visual impact ratio of view loss to sky view loss. 5%: 95%
Existing Visual Assessment Scale no.7 Visual Impact Assessment Scale no.6

Visual Impact Analysis: Visual Impact Analysis: This view is from the main residential enclave of Cudgen and is located to the west of the Tweed Coast Road, looking due east to the site. Existing mature trees conceal much of the new development from this location at the lower levels, combined with additional landscape on the site. There is a relatively small amount of view loss, in addition to an observation of the building extending above the existing treeline and obscuring a part of the sky view. The existing landscape is residential in scale, with a number of mature trees interespersed around the roads. As the landscape continues to mature, so the visual impact of the main building will diminish.

Summary assessment:

This collection of A4 images summarises the assessment of visual impact on each of the views in turn, This is intended to be used in the assessment of the proposal, which, in most cases, creates minimal visual impact, when seen in the context of the site and its surroundings.

The report is accompanied by a set of 21 x A3 images - see APPENDIX B - one for each viewpoint location, including the various stages of overlay, as outlined above.

3.2 Visual Impacts Assessments from previous Concept Proposal Stage

The Visual Impact assessment, prepared by GeoLINK for the SSD Application, dated 20th October, 2018, contained 10 photomontaged views, indicating the approved building envelope and assessing its visual impact.
The new proposal has been overlaid with semi-transparency, to indicate the proposed built form, contained within this envelope.
Figure 8 indicates the locations of the photographs, prepared by GeoLINK.

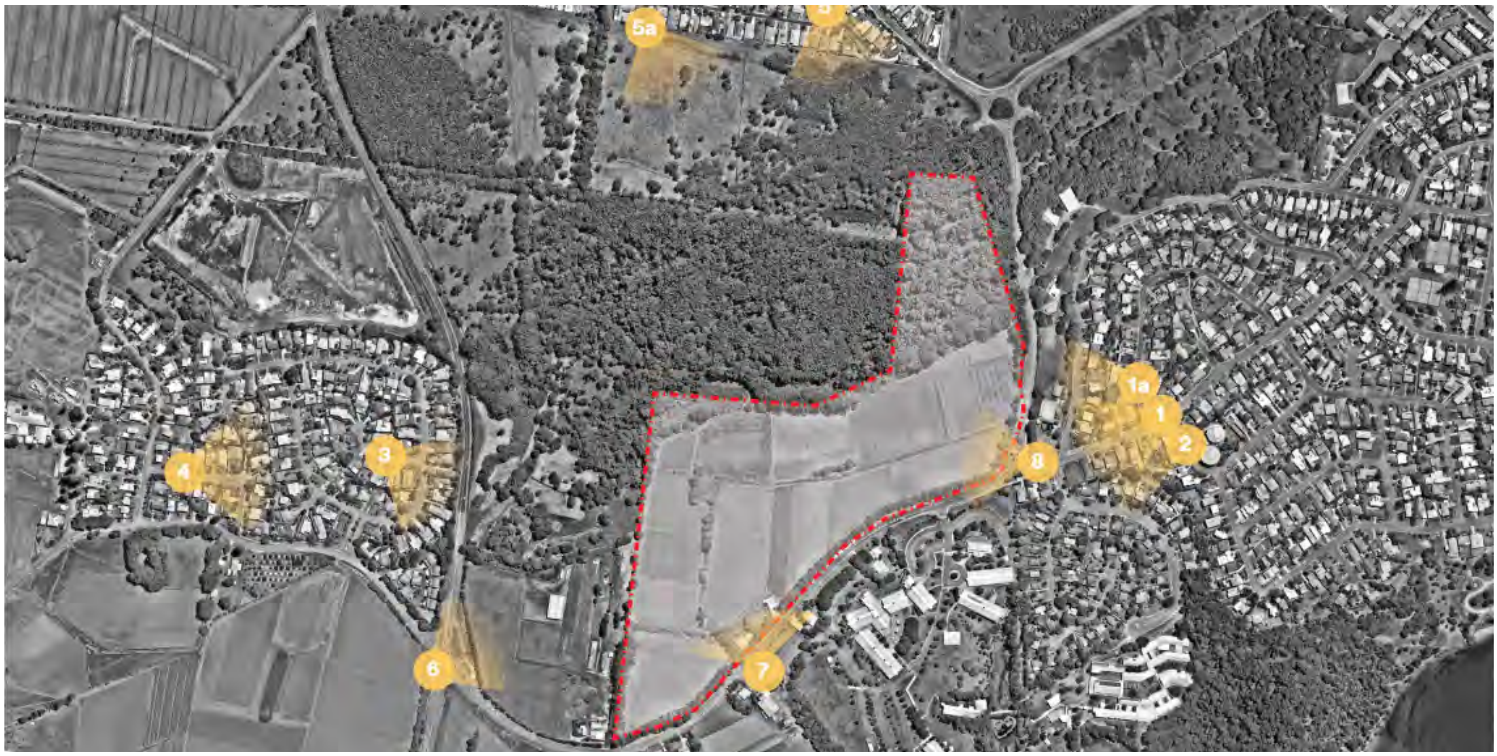


Figure 8 Viewpoint locations for visual impact assessments at concept design stage (extracted from the GeoLINK Visual Assessment Report (October, 2018). NB: The site boundary has since changed.

VIEW 1: McPhail Avenue
Ground RL: +39.114 AHD
Camera Height RL: +40.514 AHD
Distance to Project Title Boundary: 220m

01/08/2018
Canon EOS 6D
24mm Focal Length

VIEW 1a: Oceanview Crescent
Ground RL: +35.844 AHD
Camera Height RL: +37.194 AHD
Distance to Project Title Boundary: 164m

01/08/2018
Canon EOS 6D
17mm Focal Length

VIEW 2: Dinsey Street
Ground RL: +44.310 AHD
Camera Height RL: +45.720 AHD
Distance to Project Title Boundary: 260m

01/08/2018
Canon EOS 6D
24mm Focal Length

VIEW 3: Guilfoyle Place
Ground RL: +15.323 AHD
Camera Height RL: +16.753 AHD
Distance to Project Title Boundary: 388m

01/08/2018
Canon EOS 6D
24mm Focal Length

VIEW 4: Clarke Street
Ground RL: +26.493 AHD
Camera Height RL: +27.893 AHD
Distance to Project Title Boundary: 647m

01/08/2018
Canon EOS 6D
17mm Focal Length

VIEW 5: Kingfisher Circuit
Ground RL: +3.2997 AHD
Camera Height RL: +4.6747 AHD
Distance to Project Title Boundary: 231m

01/08/2018
Canon EOS 6D
24mm Focal Length

VIEW 5a: Bellbird Drive
Ground RL: +3.485 AHD
Camera Height RL: +4.855 AHD
Distance to Project Title Boundary: 448m

01/08/2018
Canon EOS 6D
17mm Focal Length

VIEW 6: Intersection Tweed Coast road and Cudgen Road
Ground RL: +15.554 AHD
Camera Height RL: +16.954 AHD
Distance to Project Title Boundary: 280m

01/08/2018
Canon EOS 6D
17mm Focal Length

VIEW 7: Cudgen Road
Ground RL: +26.2933 AHD
Camera Height RL: +27.6633 AHD
Distance to Project Title Boundary: 19 m

01/08/2018
Canon EOS 6D
17mm Focal Length

VIEW 8: Intersection of Cudgen Road and Turnock Street
Ground RL: +23.7595 AHD
Camera Height RL: +25.1295 AHD
Distance to Project Title Boundary: 38m

01/08/2018
Canon EOS 6D
17mm Focal Length

3.3 Visual Impacts Assessments - Night views

The impact of night lighting is also to be considered as part of the design review. The lighting concept design utilises screened, downward lighting in the parking and access spaces around the hospital with pole lighting for access roads. There is no lighting of the building itself, only ambient light from the surroundings and external light fixtures. Night viewpoint locations are shown in Figure 9 and the CAD model with night lighting in Figure 10.

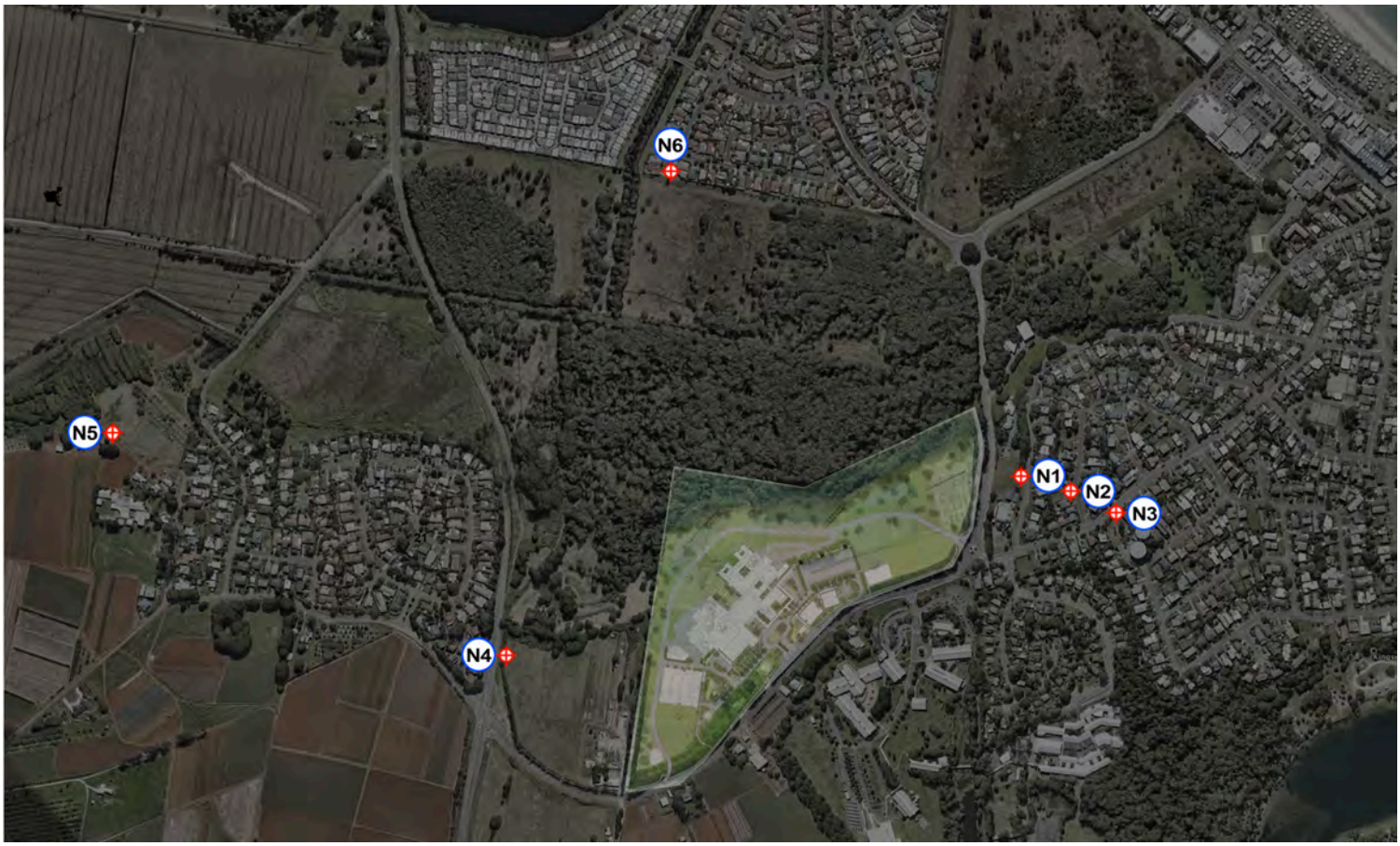


Figure 9: Viewpoint locations for site photography at night time.

Figure 10: 3D CAD model with night lighting applied

Viewpoint No.N1
Location: Cudgen Road - approximately 25m North West of the Kingscliff Swimming Centre. RL:+26.4m. Distance to site boundary: 72.5m. Distance to proposed building: 477m
The new perimeter landscaping, with dense understorey planting and mature trees, will serve to conceal much of the night lighting in terms of visual impact. An amount of ambient light from the overall building light sources and the ground lighting will create a minimal illuminating glow from this viewpoint.

Viewpoint No.N2
Location: At driveway of 32, Oceanview Crescent
RL:+36.2m. Distance to site boundary: 178m. Distance to proposed building: 559m
Lighting to the upper levels of the main building will be visible from this location, while the lower levels and site lighting will be mostly obscured by existing and proposed landscaping to the perimeter.

Viewpoint No.N3
Location: Crest of the hill on McPhail Avenue approximately 60m East of residence no.52, McPhail Avenue
RL: +41.65m Distance to site boundary: 246m. Distance to proposed building: 609m
The upper levels of the main building will be visible at night with the window light sources. The lower levels and site lighting will be largely obscured with the existing and proposed landscaping. There will also be a slight ambient glow generated by the building lighting - reflected light from the ground.

Viewpoint No.N4
Location: Junction of Cudgen Road and Tweed Coast Road.
RL:+15.55m Distance to site boundary: 288m. Distance to proposed building: 386m
Point light sources, from the main building windows, will be visible from this viewpoint, with ambient light visible from the ground lighting. The low level lighting in the car park will create a glow, diffused and obscured by a combination of screening and the perimeter structural beams

Viewpoint No.N5
Location: New access road to the west of no. 27, Crescent Street, Cudgen
RL:+38.65m Distance to site boundary: 926m. Distance to proposed building: 964m
From this viewpoint the major lightsource is the ambient glow created by the individual point light sources and the site lighting. There is already a large amount of street lighting in this area, so the impact is not significant in terms of additional light impact.

Viewpoint No.N6
Location: The southern end of Bell bird Drive. Between the driveways of houses nos.22 and 17, Bellbird Drive. RL: +2.82
Distance to site boundary: 506m. Distance to proposed building: 658m.
The point light sources from the main building are visible at the upper levels, although the site lighting and lower levels are fully obscured byt he mature trees in the wetlands to the north of the site. Against the unlit foreground of the flood plan, the glow of the building will be observed, but is not a strong source of light impact.

4. CONCLUSIONS + PLANNING SCHEME PROVISIONS RELATING TO VISUAL IMPACTS

The provisions of the Tweed LEP are clear and repetitive in their intents with respect to a number of speci c outcomes:

- developed character is an important aspect which contributes to the city the must therefore be conserved and enhanced
- development has to be compatible with the primary functions of the zone and will not have an unacceptable impact on the community, locality or catchment
- the natural environment and ecological values are to be preserved and maintained and
- the scenic values of the local area and views from the local area will not be detrimentally affected.

These intended outcomes indicate local character, legibility and preservation of views to the natural environment are considered to be key factors for future development.
Although development within Cudgen and Kingscliff is varied and mixed, the density of residential development particularly along roads and streetscapes provides the area with a distinctive residential character.

The scale, built form and planning of the proposed development provides a respectful response to the site and surroundings, whilst remaining within the designated volumetric and height limit controls de ned in the Stage 1 Concept Proposal. The neighbouring residential height limits, in comparison, vary between 8m and 14m.

Views from the local area are mixed, some limited to the immediate area adjacent roads and streetscapes and others with middle and far distant views to the west and north west, beyond the subject site. There is limited connectivity within the local area in terms of views available. From the roads and streetscapes it is clear that the proposed development, because of its lower elevation and proposed landscaping will not have impact on signi cant views from within the local area. The scenic values of the locality are comprised of open/vegetated land to the west and north west of the site. Views to this land will be minimally affected by the proposed development and its built form. From high points in the broader locality including Kingscliff and Cudgen. middle and distant views to the west and to the mountains in the distance will be impacted from a small number of locations, as will be observed from the individual visual impact assessment images.

With regards to The Draft Tweed Scenic Landscape Strategy, of November 2018, the only priority location relevant to the proposed site is a section of Tweed Coast Road, running south from the junction with Cudgen Road. This is deemed a Priority 1 Dynamic Viewing Situation. In our report, we have included one view from the start of this dynamic viewpoint, at the junction of Cudgen Road and Tweed Cost Road, and one view from approximately 1.8km south of the junction. In both of these instances, the lower levels of the development are well concealed with existing landscape and proposed future landscape, with the upper levels visible above the treeline. These are shown in Appendix B as viewpoints 15 and 14 respectively. There are not direct views of the new development along the travel line of the road - it is observed at almost a 90 degree viewing angle at the point of greatest impact at the road junction previously referred to.

The proposed development, in terms of visual impact, is consistent with the aims and objectives of the TLEP, in that it is a suitable development for the area. It enhances the economic vitality of the area through its engagement with the Cudgen and Kingscliff, while retaining the ecological integrity through its preservation and enhancement of wetland areas to the north, setbacks and incorporation of native vegetation. It also assists in enhancing the cultural fabric of the area by providing care facilities and employment opportunities within the region.
It is our opinion that the development will strengthen the community of Cudgen and Kingscliff, as a residential area with its residential coastal recreational character. The quality of the proposed development is in our opinion compatible with the primary function of the zone.

Mitigation of the visual and physical impact has been achieved through the use of appropriate materials, being of natural hues and non-re ective. Also, through the use of native vegetation and landscaped retaining walls to the north and north west of the site, where the natural landform drops away. As the landscape matures, so the building will blend increasingly into the natural surroundings. See Figure 11 for a representation of the mature landscape proposal, seen from Viewpoint 3.

Figure 11 Viewpoint 3 with indication of mature landscaping to surrounds.

Although there will be some tree and vegetation removal, significant new landscaping is proposed as part of the Landscape Strategy to soften the visual impact of the hospital. This has been designed to surround the perimeter of the built form at ground level and also to break up the visual massing of the building, by placing larger trees in the immediate surrounds, as can be observed in Figure 7.

The architects have considered the following key architecture design principles as they relate to visual impact/amenity:
Scale - Create a building scale which is respectful to the locality and the residential context.
Topography - Arrange elements of the built form to minimise disruption to natural land forms, whilst utilising the sloping land to embed programme.
Nature - Maximise the dialogue between built form and natural context.

The campus layout and future masterplan is informed by organising principles which are developed in response to the site's topography and qualitative features (as described in the Architectural and Urban Design Report).The development spine section topography accommodates development of taller buildings along the ridge line that step down the slope, supported by lower scaled buildings (Health Hub) along Cudgen Road responding to the street and urban condition.

The hospital building, its location and orientation is a key anchor element for the site. The hospital is set back from Cudgen Road at the deepest width of the site. The setback establishes a 65m deep civic forecourt space. The building is substantially setback from sensitive interfaces. The proposed built form design response and massing is the result of extensive design analysis undertaken by HI and STH+BS, including detailed consideration of feedback from four State Design Review Panels

(SDRPs) and GA NSW (refer the Architectural and Urban Design Report):

The proposed design has been aimed at achieving the optimum urban design outcome for the site, with regard to a range of complex variables, environmental considerations, and stakeholder requirements. The height, density, bulk and scale of the building, including the setback and position of the hospital and health hub buildings were key parameters defined as part of the Concept Proposal and have been thoughtfully considered in the Stage 2 design.

The new hospital building will be nine storeys, plus rooftop helipad and lift lobby. It will read as six storeys, plus plant and helipad, from Cudgen Road, with two lower ground levels, taking advantage of the site topography. Given the potential visibility, the hospital has been designed to be experienced in the round', having no side or rear condition when seen from distant views.The hospital form is articulated as a cluster of scaled building forms. The density of the proposed building envelope is reflective of the importance of the new, modern hospital facility within a large site, with the massing and quadrant arrangement providing for articulation of the form and visual breakup.
The hospital's quadrant anchor forms frame the key organising movement and view corridors through the building and work in unison with the landscape to express the agrarian textural patchwork concept inspiring the landscape design of the public ream spaces. The design seeks to mitigate the scale of the anchor forms with the inclusion of horizontal break-lines that group floors into stacks of two and three levels. These datum lines redefine the reading of floor levels, by grouping. This is further reinforced by adopting double floor vertical fenestration expressions.
The multi-deck carpark is integrated into the topography and situated to the west of the hospital, being the least sensitive side of the development site in terms of residential amenity. The design and material treatment ensure adequate visual interest and minimisation of bulk.
The buildings, complemented by the comprehensive landscape design, provide a contemporary architectural response to the site's history and context, including references to agricultural land uses and the Australian landscape.

The design approach seeks to integrate landscape with the built form materially through references to the vernacular, nature and agrarian landform textures. The colour palette, materials and finishes reflect the locality and are responsive to the landscape setting. These provide for variation and are sympathetic to the landscape through the inclusion of natural and warmer hues, providing connection to the site's earth tones and agrarian references. Of particular importance, are the coastal ocean views, particularly from Cudgen, looking across the site to the east. None of these viewlines are compromised, since the development is located at the southern part of the site, with Kingscliff behind. The ocean views are to the north-east of this and not obscured by the new hospital design.

As a result of the sensitive design approach, undertaken by the architects, the visual impacts of the proposed development are considered to be compatible with the existing visual context and satisfy the intents and objectives of the Tweed Local Environmental Plan.

5. APPENDICES

5.1 APPENDIX A: Visual Impact Assessment Methodology.

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%.

Domain The Sydney Morning Herald

Inaccurate images anger residents

February 21

Kelsey Munro

Picture imperfect ... the original interpretation of how the Lewisham Estates development will look

CAN residents affected by big development proposals rely on developers' photo montages?

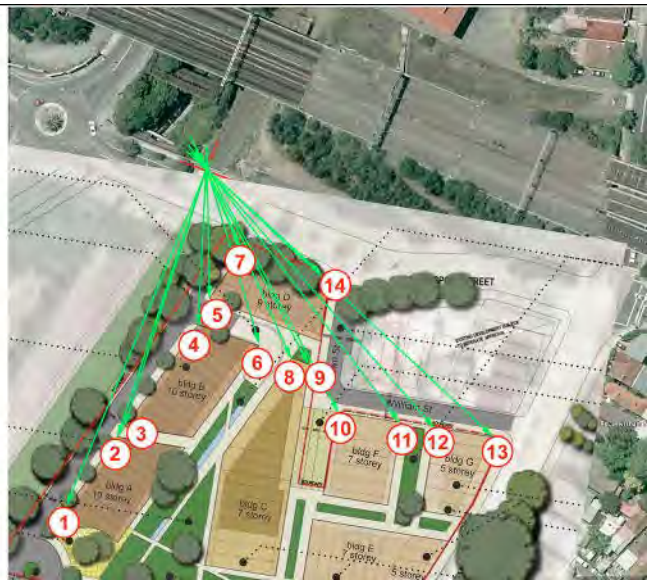
One inner west group thinks not, after inaccuracies were found in a series of digital photo montages which made the proposed Lewisham Estates development appear much smaller than it would if built.

The developer was sent back to the drawing board by the Department of Planning to redo the images that were publicly exhibited for the project after questions were raised over their accuracy.

The corrected interpretation of how the Lewisham Estates development will look

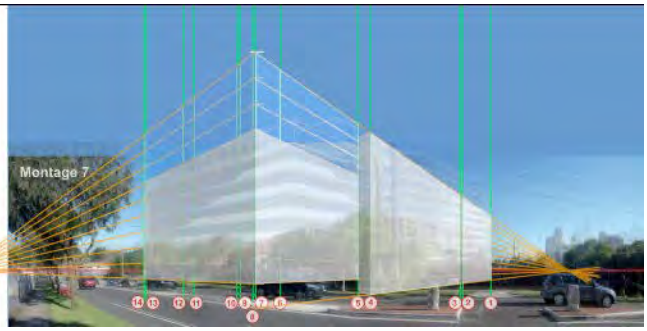
The No Lewisham Towers residents' action group claims the original images were so misleading that the corrected ones should go on public exhibition before the Planning Assessment Commission makes its determination next week.

SMH article re inaccurate visualisations



Key visual location points on site: Urbaine

Photomontage submitted by developer



Assessment of inaccuracy by Urbaine

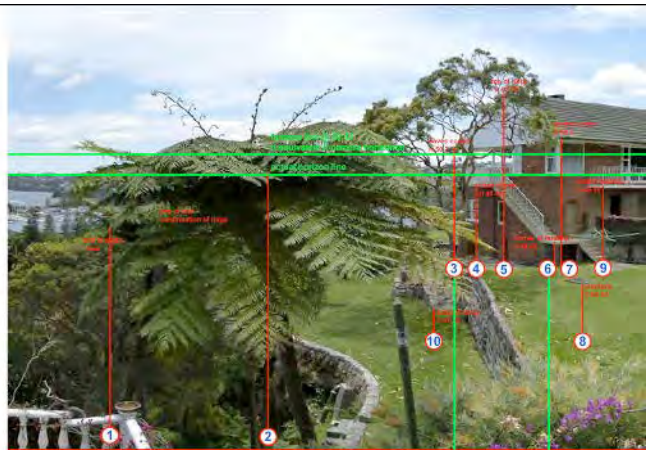
Urbaine has developed a number of methods for adding verification data to the 3d model of new proposals and hence to the final photomontages. These include the use of physical site poles, located at known positions and heights around a site, together with drones for accurate height and location verification 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.

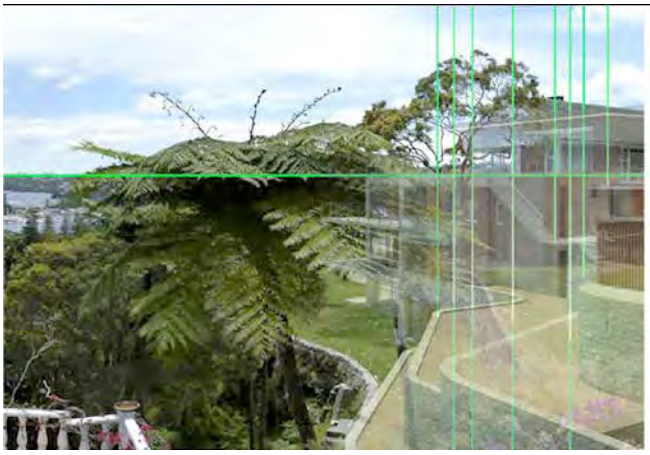
The following example clearly demonstrates this – a house montaged into a view, by others, using very few points of reference for verification. By analysing the existing photo alongside the survey, the existing site was able to be recreated with a series of reference elements built into the model. A 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

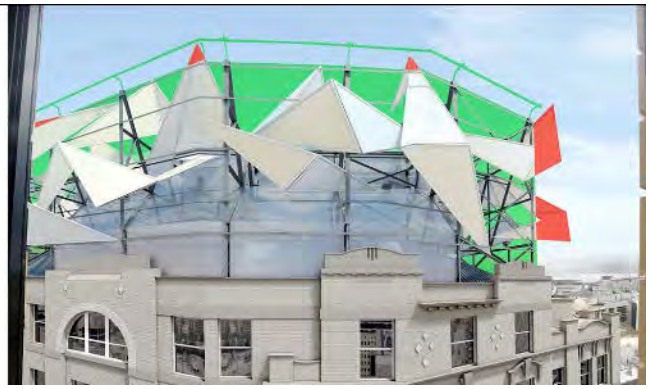
Final verified photomontage by Urbaine

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 new proposal for digital billboard

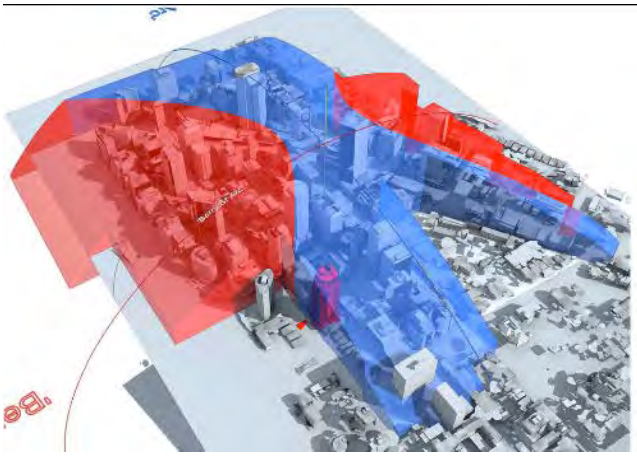
Existing situation – view from adjoining hotel

Photomontage of view from hotel

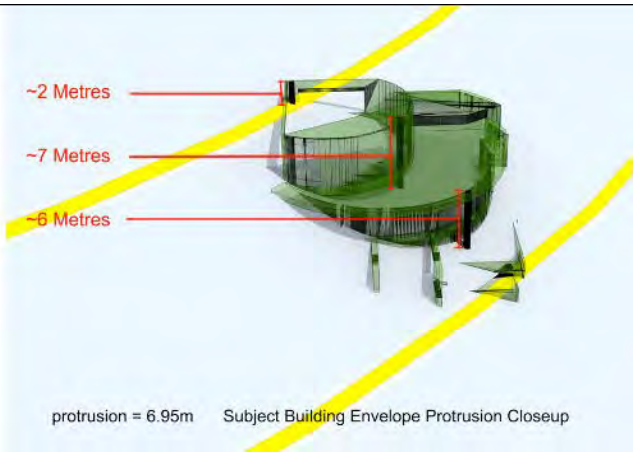


View loss – green = view gain / red = view loss

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



Extent of protrusion of proposed design prior to re-design

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.
3. A minimum of 4 surveyed height points to locate the imposed building in the vertical plane.
4. A series of images to be prepared to explain each photomontaged view, in line with the above stages.

This is an absolute minimum from which a client can determine the verifiability of a photomontaged image. From this point the images can be assessed by other consultants and used to prepare a legal case for planning approval.

Verified photomontage for proposed apartments in Milsons Point by Urbaine.

5.2 APPENDIX B: Photomontages of the Proposed Development +verification diagrams.

Attached as A3 Document