



WIND ENGINEERING
CONSULTANTS

Solar Reflectivity Assessment for Central Coast Quarter

Gosford, NSW

CPP 20428 | R02 | 16th February 2026

Prepared for:

Urban Property Group

Suite 110, Level 1,

180-186 Burwood Road

Burwood NSW 2134

Document Control

REVISION HISTORY				
DATE	REVISION	PREPARED	CHECKED	APPROVED
11-December-2025	Interim Report R00	Christopher Spencer Senior Engineer cspencer@cppwind.com	MG	MG Vice President mglanville@cppwind.com
18-December-2025	Interim Report R01	Christopher Spencer Senior Engineer cspencer@cppwind.com	MG	MG Vice President mglanville@cppwind.com
16-February-2026	Final Report R02	Christopher Spencer Senior Engineer cspencer@cppwind.com	MG	MG Vice President mglanville@cppwind.com

BASIS OF REPORT – CLIENT PROVIDED DOCUMENTATION			
DOCUMENT DATE	PROVIDED DATE	DRAWING NAME	FILENAME
13-February-2026	16-February-2026	00 Combined Architectural Plan Set	00 Combined Architectural Plan Set.pdf

The Site & Receivers



Figure, Site Aerial Map, Source: Google

Project Site: Central Coast Quarter, Gosford, NSW 2250

The development on the site is to comprise two residential towers, denoted as South Tower and East Tower, rising to RL127.65 m, and RL150.1 m respectively.

Surrounding the site is Central Coast Stadium to the west, new tower developments at 36 Baker St and 99 Georgiana Terr to the north, a mix of high-rise to low-rise Gosford developments from the north to the south-east, and Gosford Waterfront and Brisbane Waters to the south-west. Terrain rises steeply to the east and north-east of the site.

An aerial of the Site and its immediate surroundings is provided (left) with driver observer locations (O#) annotated.

Project and Façade Description

The proposed development will comprise two towers.

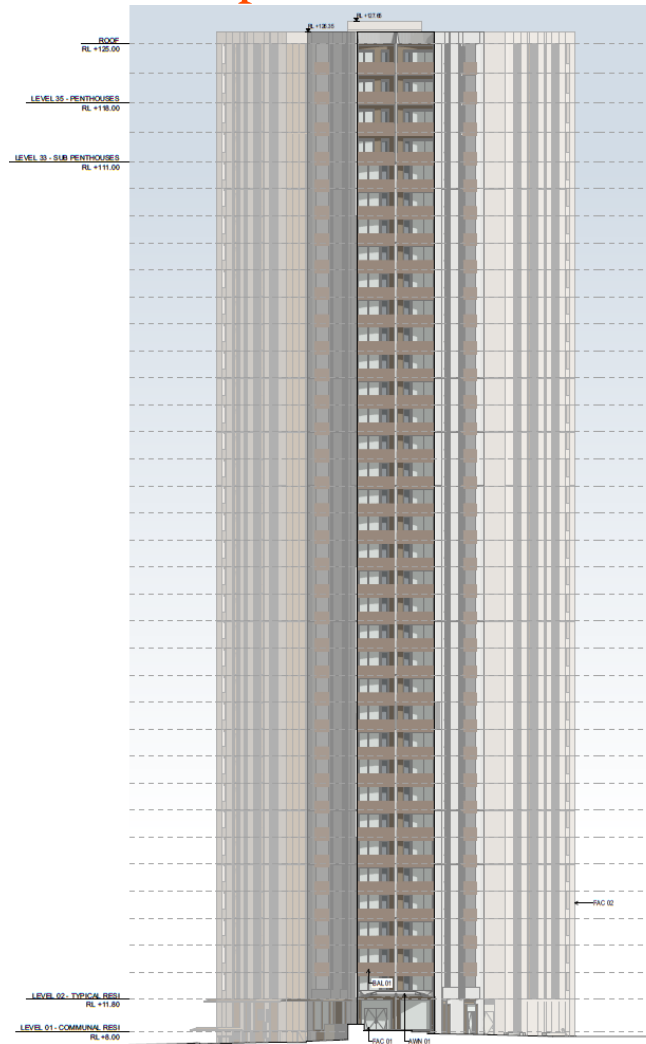
The East Tower is to be 42 storeys, reaching a maximum height of RL150.1 m, with a rectangular planform.

The South Tower is to be 36 storeys, reaching a maximum height of RL127.65 m. This tower is to have a trapezoidal planform

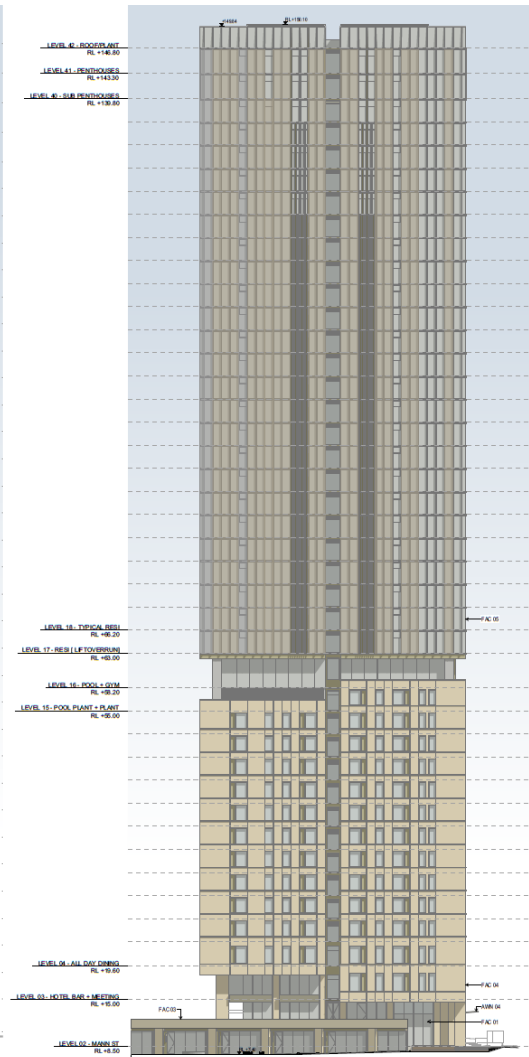
A variety of reflective and non-reflective façade material are indicated for façades across both towers. Reflective materials would include glazed windows and sliding balcony doors. Non-glazed sections of the façade will be masonry assumed to be painted with a low lustre finish.

Both towers are to have balconies on the east and west elevations, while the South Tower is also indicated to have recessed balconies on the north and south elevations as well. Balcony balustrades across both towers are indicated to have aluminium picket balustrades with a dark and low lustre finish, which are generally expected to produce fewer reflections than glazed balustrades.

The towers are significantly taller than most immediate neighbouring buildings and will be visible to drivers from considerable distance. Upper levels have greater potential to cast distant solar reflections



South Tower – East Elevation



East Tower – South Elevation

Assessment Methodology



Sun Path Diagram for the site (SunCalc tool Hoffmann). Inset CPP L_v calculation algorithm

$$L_v = \frac{kE_G}{\theta^2}$$

Holladay Formula
 θ = angle between the source and the foveal stimulus subtended at the eye.
 E_G = illumination on the observer's eye.
 $k=10$ conventionally but CIE has adopted a global formula that includes aspects such as age and color of the subject's eye.

The primary focus of this report is to screen for potential disability glare from solar reflections off the proposed development facades onto surrounding roadways. The screening study takes into consideration:

- Architectural and Façade Drawings provided. Façade dimensions/orientations were simplified in preliminary modelling to flag glare events with high-risk potential.
- Seasonal and diurnal solar paths (sun altitude and azimuth) at project latitude at site, and the relative angle of the incident and reflected solar rays.
- An assumed specular reflectivity coefficient of 20%, for the external glazing as required by Section 4.47 of Environmental Planning and Assessment Act 1979. Allowance is made for reflectivity coefficients of glazing to increase with increasing incident angle.
- Receiver locations of interest. The receptors represent potential risk areas where driver visual acuity may be jeopardised by reflected solar glare. The alignment of adjoining public roadways and driver required lines of sight are of particular interest.
- CPP use a methodology developed by Hassall [2] to identify the potential for hazard rogue specular solar reflections. Hassall suggests a veiling luminance limit of 500 cd/m² for motor vehicle drivers as calculated from the Holladay formula.

Further information relating to CPP solar disability glare analysis methodologies can be found in Reference [1].

Results

Solar Reflections from the North Façades

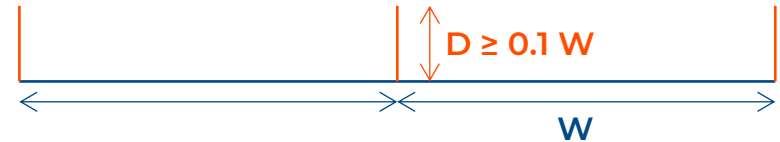


East Tower:

The Max $L_v = 1884 \text{ cd/m}^2$ exceeds the recommended threshold for eastbound drivers on Central Coast Highway (Location O1).

Critical reflections occur from 7 m above ground up to 110 m above ground, for early morning sun between 8:00 AM and 8:20 AM from 24-Feb to 23-Mar, and again between 7:10 AM and 7:25 AM from 20-Sep to 18-Oct.

There is potential high population glare dosage from these reflections. Recessing the windows into the façade, or otherwise bounding them by vertical fins with a ratio of depth to width, $D/W \geq 0.1$, along the north façade of the East Tower would be recommended to block glancing reflections from view along the stretch of road.

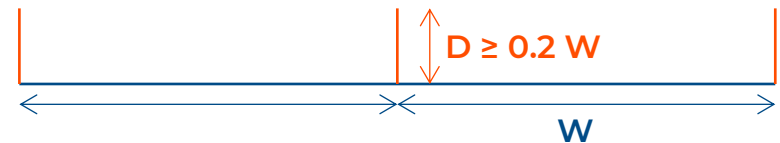


South Tower:

The Max $L_v = 529 \text{ cd/m}^2$ marginally exceeds the recommended threshold for eastbound drivers on Central Coast Highway (Location O1).

Critical reflections occur from 46 m above ground up to the 77 m above ground, for early morning sun between 7:50 AM and 8:15 AM from 20-Mar to 28-Mar, and again between 7:40 AM and 8:00 AM from 15-Sep to 23-Sep.

Disability glare events are expected to exceed the recommended threshold for approximately 23 minutes per year, with low to medium population glare dosage. Recessing the windows into the façade, or otherwise bounding them by vertical fins with a ratio of depth to width, $D/W \geq 0.2$, along the north façade of the South Tower would be recommended to block glancing reflections from view along the stretch of road.



Results

Solar Reflections from the East Façades



East Tower:

The Max $L_v = 1205 \text{ cd/m}^2$ exceeds the recommended threshold for north-westbound drivers on Henry Parry Drive (Location O3).

Critical reflections occur from 37 m above ground up to 94 m above ground, for early morning sun between 7:30 AM and 8:00 AM from 21-Mar to 12-Apr, and again between 7:25 AM and 7:30 AM from 30-Aug to 22-Sep.

There is potential veiling luminance glare from these reflections. As these reflections are driven by relatively perpendicular incident sunlight, use of glazing with a reflectivity coefficient less than 0.1 on the East façade of the East Tower between 37 m and 94 m above ground level would be recommended to reduce the veiling luminance values for drivers at Location O3.

South Tower:

The Max $L_v = 312 \text{ cd/m}^2$ is below the recommended threshold for westbound drivers at Location O3. There is low potential for disability glare, and no required mitigation is foreseen for reflective surfaces on this façade.

Results

Solar Reflections from the South Façades

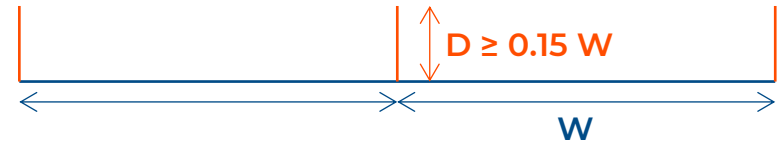


East Tower:

The Max $L_v = 1350 \text{ cd/m}^2$ exceeds the recommended threshold for north-westbound drivers on Henry Parry Drive (Location O3).

Critical reflections occur from 40 m above ground up to 133 m above ground, for late afternoon sun between 6:55 PM and 7:15 PM from 04-Feb to 05-Mar, and again between 5:40 PM and 6:00 PM from 07-Oct to 07-Nov.

There is potential high population glare dosage from these reflections. Recessing the windows into the façade, or otherwise bounding them by vertical fins with a ratio of depth to width, $D/W \geq 0.15$, along the South façade of the East Tower would be recommended to block glancing reflections from view along the stretch of road.

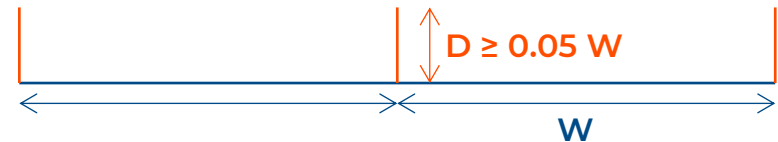


South Tower:

The Max $L_v = 1352 \text{ cd/m}^2$ exceeds the recommended threshold for north-eastbound drivers on Vaughan Ave (Location O7).

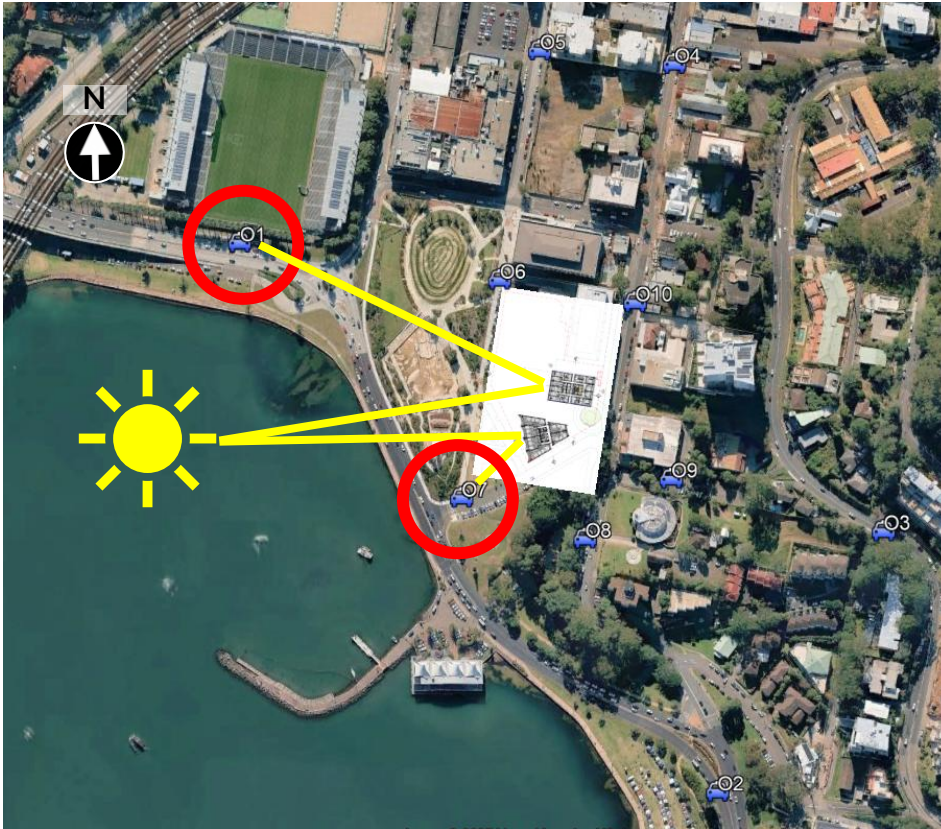
Critical reflections occur from 1 m above ground up to 37 m above ground, for early morning sun between 8:20 AM and 8:35 AM from 12-Apr to 22-Apr, and again between 8:15 AM and 8:30 AM from 20-Jul to 30-Aug.

There is potential high population glare dosage from these reflections. Recessing the windows into the façade, or otherwise bounding them by vertical fins with a ratio of depth to width, $D/W \geq 0.05$, along the South façade of the South Tower would be recommended to block glancing reflections from view along the stretch of road.



Results

Solar Reflections from the West Façades



East Tower:

The Max $L_v = 482 \text{ cd/m}^2$ is below the recommended threshold for eastbound drivers on Central Coast Highway (Location O1). While this veiling luminance is marginally below the recommendation, there is potential for high population glare dosage over this east-facing section of highway. Use of glazing on the west façade of the East tower with a reflectivity coefficient of 0.15 or lower would be recommended.

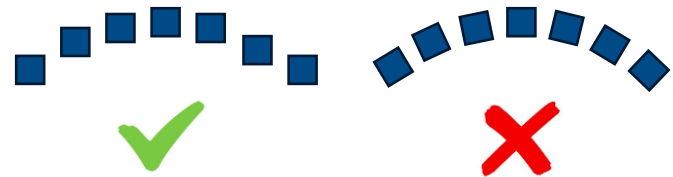
South Tower:

The Max $L_v = 276 \text{ cd/m}^2$ is below the recommended threshold for north-eastbound drivers at Location O7 on Vaughan Ave. There is low potential population glare dosage, and no required mitigation is foreseen for reflective surfaces on this façade.

Curved Balustrades:

The balcony balustrades on the south tower have a concave geometry. These have potential to reflect sunlight onto focal points of high radiation intensity (W/m^2).

The balustrades on these balconies are indicated to be pickets, which is generally expected to be beneficial from a reflection perspective as pickets will generally have a lower reflectivity coefficient than a glazed balustrade. Notwithstanding, it would still be recommended that the finish on the pickets be matte in colour, and that all pickets are aligned square with each other to avoid focused reflections.



Conclusions

CPP have conducted a solar reflectivity screening assessment in accordance with our professional experience.

The study takes into consideration current architectural and façade drawings provided, Gosford seasonal and diurnal solar paths, an assumed maximum facade visible-light reflectivity-coefficient of 20% and receiver locations of interest.

The greatest potential for solar disability glare impact onto surrounding roadways is from glancing reflections of north- and south-facing façades on the towers at various heights. It is generally recommended that windows on effected areas of the façades are recessed into the façade line or otherwise bounded by vertical fins of various depth to block the reflections from the views of drivers at various locations. Potential for more perpendicular reflections off the east façade of the East Tower to cause solar disability glare were also identified, and use of glazing with a lower reflectivity coefficient of 0.1 would be recommended on this façade.

Concave balustrades on the South Tower have some risk of producing focused glare with high intensity. It is recommended that the picket balustrades have a low-lustre finish, and are oriented square to each other to minimise the risk of focussed reflections.

At investigated locations along the adjacent roadways, it is expected the proposed development as currently configured and incorporating recommendations in this report, will not produce solar glare exceeding recommended limits.

References

- [1] M.J Glanville, P.R Kodali, M. Alsailani and R.P.M Neto., "Modelling Solar Reflections off Modern Building Facades", *Building Simulation Applications BSA 2024, 6th IBPSA-Italy Conference Bozen-Bolzano*, DOI: 10.13124/9788860462022.
- [2] D.N.H Hassall, "Reflectivity: Dealing with Rogue Solar Reflections", *Faculty of Architecture, University of New South Wales, 1991.*