REPORT

601 PACIFIC HIGHWAY

ST LEONARDS, NSW

SSDA SOLAR REFLECTIVITY STUDY

RWDI #2400968

23 March, 2026

SUBMITTED TO

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EXECUTIVE SUMMARY

RWDI Australia Pty Ltd (RWDI) has been engaged by Stockland Development to investigate the impact of solar reflections emanating from the proposed 601 Pacific Highway in St Leonards, NSW ("the Project") in support of a State Significant Development Application (SSDA) (SSD-85848713) for 601 Pacific Highway, St Leonards HDA Application. The results and conclusions of the study are summarised as follows:

Visual Glare Impact on Drivers

As with any glazed building, drivers travelling in the vicinity of the Project (i.e. along Atchison Street, Mitchell Street, Albany Lane, Albany Street, and Pacific Highway) were predicted to experience reflections emanating from it. Based on the detailed analysis results of the initial design (received 17 November 2025), the predicted reflections falling on the following receptors were above the veiling luminance threshold of 500 cd/m^2:

- **D1: Westbound drivers on Atchison Street,**
- **D3: Westbound drivers on Atchison Street at the Mitchell Street intersection,**
- **D4: Westbound drivers on Albany Lane,**
- **D5: Westbound drivers on Albany Street turning right onto Pacific Highway, and;**
- **D7: Westbound drivers on Pacific Highway.**

The glare at receptors D1, D3, D5 and D7 were predicted to be marginally above the veiling luminance threshold and were very infrequent, as all of these receptors only experience glare for less than a 3-minute window, and for less than 0.02% of the daytime hours in a year. This is not considered unusual in an urban context. Following RWDI's review and analysis of the initial model and subsequent coordination with the design team, the SSDA design (received 17 March 2026) incorporates façade articulation that is likely to reduce or mitigate the predicted glare at receptor D4. All remaining drivers were predicted to experience reflections below the veiling luminance threshold of 500 cd/m^2.

It should be noted that this assessment conservatively assumes that the driver is looking towards the building during window of time when glare is possible, that there are clear skies for all daytime hours, ignored the effect of sunglasses, and ignored the effect of any obstructions to the reflected light (such as landscaping, the driver's car body, other vehicles, etc.).

Additional details on when reflections were predicted to occur at the receptors, as well as predicted durations and intensities, can be found in Appendix B.

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1 INTRODUCTION

1.1 Background Information

Stockland Development (Stockland) submitted an EOI for an SSDA and concurrent rezoning proposal on 17 January 2025 through the Housing Delivery Authority Pathway (HDA). At its Briefing on 19 February 2025, the HDA recommended to the Minister that the applicant's project be declared SSD, for the reason that it sufficiently satisfied the objectives and criteria of the HDA. The project was declared as SSD in the State Significant Development Declaration Order 2025 (No 2) (26 February 2025).

A request for SEARs was lodged on the 6th of June 2025 with SEARS received on the 4th of July 2025.

1.2 Introduction

This *Solar Reflectivity Study Report* has been prepared by *RWDI Australia Pty Ltd* (RWDI) and is submitted to the Department of Planning, Housing and Infrastructure (DPHI) in support of a State Significant Development Application (SSDA) (SSD-85848713) and concurrent rezoning proposal for a new mixed-use development at 601 Pacific Highway, St Leonards (the site).

This proposal seeks consent for the following:

- An amendment to the North Sydney Local Environmental Plan 2013 (NLEP 2013) to rezone the site from E2 Commercial Centre to MU1 Mixed Use and to amend the minimum non-residential floor space ratio development standard under Clause 4.4A from 20:1 to 1:1.
- Demolition of the existing 14 storey commercial office building that is currently on the site.
- Site excavation, remediation and other preparatory works.
- Construction and operation of a new 52 storey (RL264.50) mixed use shop top housing development, with a FSR of 20:1 (maximum GFA of 56,880m^2), comprising:
    - 538 dwellings including 508 Build-to-Sell apartments and 30 Affordable Housing apartments across a mix of apartment typologies.
    - A contribution of 5% of the residential GFA toward Affordable Housing.
    - Retail and commercial land uses at the ground and podium levels.
    - Internal and external residential amenities provided throughout the building.
    - Six levels of basement carparking, comprising a total of 300 car spaces, bicycle parking, loading bays, waste areas, plant, and back of house.
- Vehicular access to the basement via Atchison Street.
- Landscaping and Public Domain works.
- Reticulation of site services and infrastructure (electricity, telecommunication, water, and sewer connections).

RWDI Australia Pty Ltd. (RWDI) has been engaged by Stockland Development to investigate the impact of solar reflections emanating from the proposed 601 Pacific Highway in St Leonards, NSW ("the Project") in support of a State Significant Development Application (SSDA) for 601 Pacific Highway, St Leonards HDA Application. This report provides the computer modelling results of reflected sunlight from the Project, as shown in Figure 1. It is RWDI's understanding that the development will be surrounded by typical urban spaces such as busy roadways and other buildings.

This analysis was conducted in two parts. First, a 'screening' simulation estimated the frequency of occurrence of reflections which may cause glare for a broad area around the development. This was done in order to understand the potential for visual impacts on people due to the reflections. Note that the screening analysis intentionally assumed a very conservative direction in which the viewer is facing (horizontal, but directly towards the building).

Since reflections were predicted on sensitive spaces, the 'detailed' analysis phase was undertaken. This investigated the potential for glare at select locations in greater temporal detail and also included the effect of the direction viewers are likely to be facing.

1.3 Relevant SEARs

This Solar Reflectivity Study Report has been prepared to address the following relevant Secretary's Environmental Assessment Requirements (SEARs) set out in Table 1.

Table 1: Secretary's Environmental Assessment Requirements relevant to this Report

SEARS		Location in Report
7. Environment Amenity	• Assess amenity impacts on the surrounding locality, including solar access, visual privacy, view loss and view sharing, as well as wind, lighting and ***reflectivity impacts***. A high level of environmental amenity for any surrounding residential or other sensitive land uses must be demonstrated.	Section 3

1.4 Site Description

The site is located on Cammeraygal country at 601 Pacific Highway, St Leonards within North Sydney (LGA). The site is legally described as Lot 71 in DP749690 and has a total area of 2,844m^2. The site is 4.5 km north of the Sydney CBD, 3 km from the North Sydney CBD, and within proximity to the centres of St Leonards, Chatswood, and Macquarie Park. The site is located 350 metres (walking distance) from St Leonards train station and approximately 400m (walking distance) from the Crows Nest Metro station.

A site aerial and location plan is provided in Figure 1.

Figure 1: Aerial Image of Project Location

Source: Urbis

2 BACKGROUND

2.1 Understanding Urban Reflections

While a common occurrence, solar reflections from buildings can lead to numerous visual issues, including:

- Impair the vision of motorists and others who cannot easily look away from the source;
- Cause nuisance to pedestrians or occupants of nearby buildings; and
- Create undesirable patterns of light throughout the urban fabric.

However, the level of impact of these issues on people and property will be influenced by many other factors that are unique to the reflecting surface(s), the individual(s)/object(s) exposed to reflections and the environment around them. In a complex urban space, these factors are often difficult to reasonably predict, if they can be predicted at all.

As such, it must be acknowledged that there is an element of uncertainty and subjectivity to any reflection analysis, particularly when it comes to visual glare which is inherently a subjective experience and lacks a universally agreed upon quantifiable definition. The metric and threshold used by RWDI (detailed in Appendix A) are based on industry standard approaches in Australia, but as noted above, are subject to a degree of uncertainty/subjectivity. This means that the possibility of reflection impacts from a building can never be completely ruled out through simulation.

RWDI's approach is to instead provide a suitably conservative analysis of the potential effects of reflected sunlight and contextualise how the Project's reflections compare to other projects studied by RWDI, and if any predicted impacts would be considered atypical given the Project's context. Regulation and enforcement of performance requirements are the responsibility of others.

2.2 Methodology

The analysis was conducted using RWDI's in-house proprietary *Eclipse* simulation engine. The first phase was a 'Screening Analysis' which predicted the maximum intensity and frequency of occurrence of reflections from the Project for every hour of a full calendar year. These values were computed on 'presentation surfaces' located approximately 1.5 m above grade-level within an approximately 350 m radius of the Project (Figure 2). Note that this analysis included the existing surrounding context and excluded proposed developments that are currently under assessment or approved (i.e. not yet under construction). Note that the screening analysis intentionally assumed a very conservative direction in which the viewer is facing (horizontal, but directly towards the building).

Should the potential for glare exist on roadways or other sensitive spaces, multiple 'receptor points' are selected to undergo the second 'Detailed Analysis' phase. This analysis works similarly to the screening simulation, except glare is tested at one-minute increments and a direction of view is explicitly prescribed. This yielded detailed predictions at specific locations of when reflections can occur, how long they can occur for and the locations of problematic glare sources. The detailed study also provides the level of reflectivity reduction required to comply with local criteria.

As reflections were predicted on sensitive spaces, the detailed assessment was undertaken for this Project. Note that the detailed analysis was not intended to be an exhaustive investigation of all locations where reflections are possible. It was instead intended to provide an understanding of the range of possible reflection characteristics from the Project.

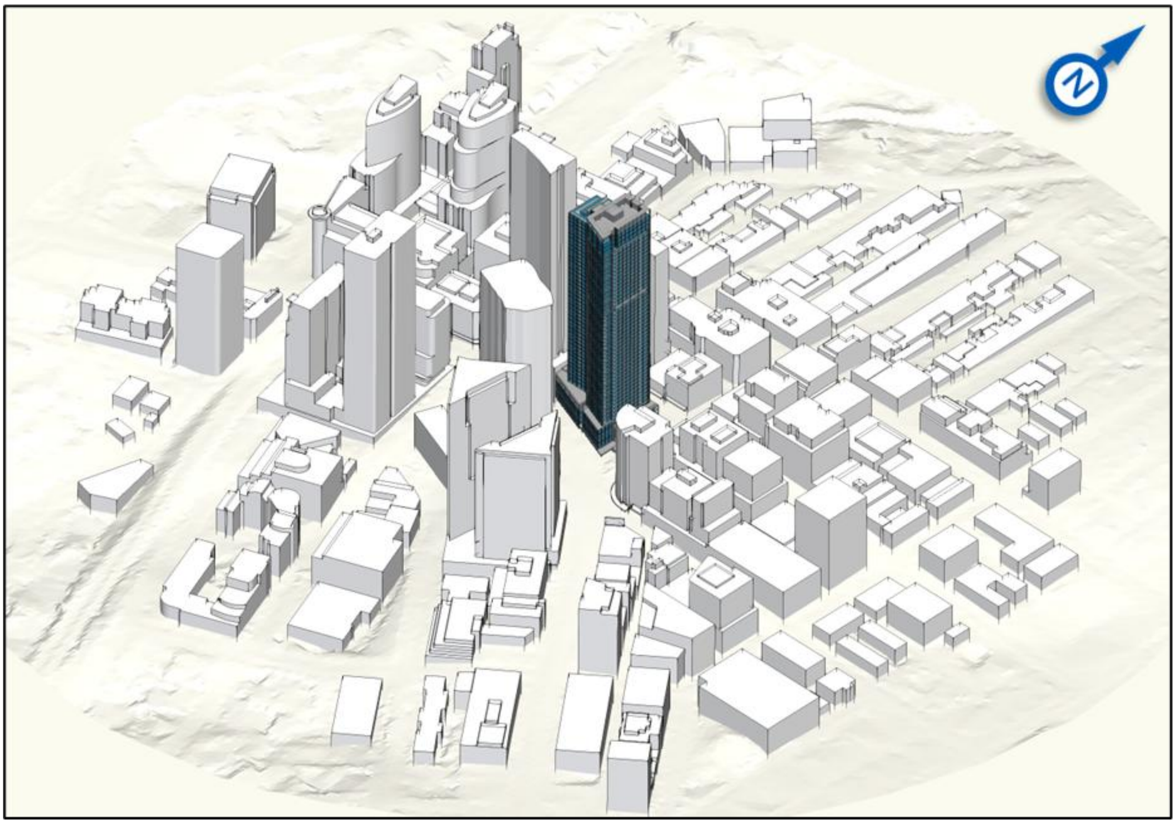

Figure 2: 3D Computer Model of the Project and Surrounding Context

2.3 Assumptions and Limitations

2.3.1 Meteorological Data

This analysis used 'clear sky' solar data computed at the location of Sydney Observatory Hill using the method promulgated by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE). This approach used mathematical algorithms to derive solar intensity at a given location, ignoring the localised effects of cloud cover. This provides a 'worst case' scenario showing the full extent of when and where glare could ever occur.

2.3.2 Radiation Model

RWDI's analysis is only applicable to the visual impacts of solar radiation (i.e. visible wavelengths only) on people, including drivers in the vicinity of the development. It did not consider the impact of the building related to any other forms of radiation, such as thermal energy, cellular telephone signals, RADAR arrays, etc.

2.3.3 Study and Surrounds Models

The analysis was conducted based on a 3D model of the Project provided by Stockland Development to RWDI on 17 November 2025.

The surrounding model was generated based on publicly available data and previous RWDI projects in the area. This analysis included the existing surroundings and excluded buildings currently under construction or approved (i.e. not yet under construction), as this would be conservative on the reflections falling on the public realm. All data sources were cross-checked against LiDAR data published by the NSW Department of Finance, Services, and Innovation. This dataset was also used to generate the ground surface and has a stated vertical and horizontal accuracy of 0.3m and 0.8m, respectively (both at a 95% confidence interval).

Potential reductions of solar reflections due to the presence of vegetation or other non-architectural obstructions (such as railings) were not included, nor were reflections from other buildings, per standard industry practice. Light that has reflected off several surfaces was assumed to have a negligible impact. As such, only a single reflection from the Project was included in the analysis.

This analysis assumed that all reflective elements are in their as-designed condition, (i.e. clean, free from damage, degradation, distortion, etc.) and that the building envelopes of all buildings are complete and uncompromised (i.e. any elements of the walls/roofs that are not designed to be exposed to the sun are shielded).

The results presented in this report are highly dependent on both the form and materiality of the Project. Should there be any changes to the design, it is recommended that RWDI be contacted and requested to review any potential effects on the findings of this report.

2.3.4 Facade Material Reflectance

All glazing has been assumed to have a nominal 20% reflectivity for visible light approaching perpendicular to the surface, which increases with the angle of incidence. While the nominal reflectivity values of the IGUs are noted above, the reflectivity of glass will increase exponentially as light strikes it at increasingly glancing angles. This effect was included in the simulations. Glass balustrades have been assumed to have a nominal visible reflectance and transmittance of 20% and 80% respectively. It should be noted that the final glazing selected for this project could have very different levels of visible light and solar energy reflectance. We have also omitted the railing in the model for conservatism.

It is RWDI's understanding that all other materials on the facades have negligible specular reflectivity and, therefore, were not included as reflection sources.

The locations of the reflective materials on the facades are illustrated in Figure 3.

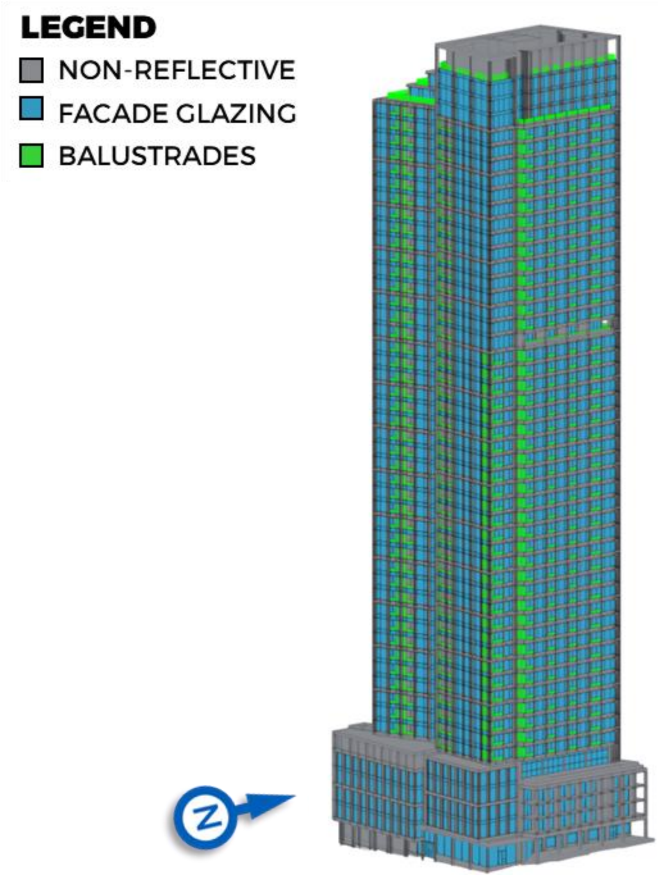

Figure 3: Locations of Reflective Building Elements (Surrounding Context removed for Clarity)

2.3.5 Human Factors

This analysis also assumes reasonable and responsible behaviour on the part of people in the vicinity of the development. A reasonable and responsible person would not purposely look towards a bright reflection, purposely prolong their exposure to reflected light, or otherwise intentionally try to cause discomfort/harm to themselves or others and/or damage to the property.

3 RESULTS AND DISCUSSION

3.1 Screening-Level Analysis

3.1.1 Results

This section presents the screening results pertaining to the solar impacts of the Project on the surrounding urban area.

The **Percentage of Time Above the Veiling Luminance Threshold** plot (Figure 4) identifies the percentage of day-time hours where the veiling luminance was predicted to exceed the 500 cd/m² limit proposed by Hassall[1]. *Note that, as a conservative assumption, at each location, it is assumed that the viewer is always facing horizontally towards the source of any reflection that can reach them.*

The veiling luminance-based results present predictions for a 62-year-old viewer. This represents approximately the 80th percentile age of the residents of New South Wales, which means that veiling luminance will be lower than these predictions for 80% of the population.

It is important to understand that the figures do not show a specific moment in time, but rather present aggregated reflection predictions for an entire year.

In order to attain a complete understanding of the impact that reflections may have on people, other factors must be considered, including the duration of the reflections, when they occur and where the viewer is looking. The following plot serves to illustrate the general characteristics of reflections from the Project and informed the locations of the receptor points selected for the detailed phase of work, which analysed these factors in greater detail.

[1]*Hassall, D., "Reflectivity: Dealing with Rogue Solar Reflections", University of New South Wales, 1991.*

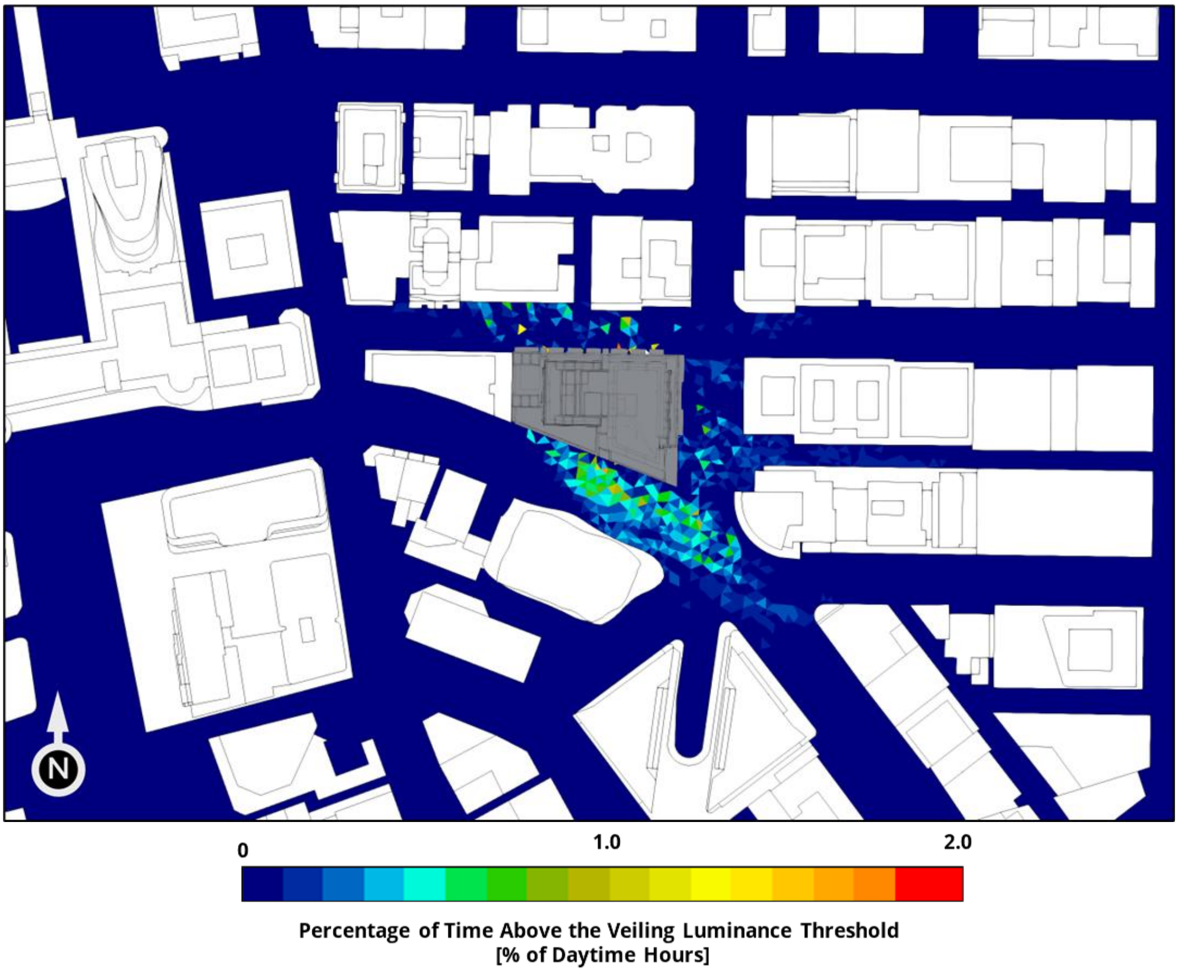

Figure 4: Frequency (% of Daylit Hours) Where Veiling Luminance Above Threshold were Predicted at Pedestrian Height for an 80th Percentile Resident (Age 62)

3.2 Detailed Analysis

3.2.1 Receptor Locations

Based on the findings of the Screening Analysis, 7 representative points were selected for the Detailed Analysis. These points are described in Table 2 and illustrated in Figure 5. Unless otherwise indicated, all points are located at a height of 1.5m above local grade.

Table 2 : Receptor Descriptions

Receptor Number	Receptor Description
D1	Eastbound drivers on Atchison Street
D2	Southbound drivers on Mitchell Street at the Atchison Street Intersection
D3	Westbound drivers on Atchison Street at the Mitchell Street Intersection
D4	Westbound drivers on Albany Lane
D5	Westbound drivers on Albany Street, turning right into Pacific Highway
D6	Eastbound drivers on the Pacific Highway at the Christie Street Intersection
D7	Westbound drivers on the Pacific Highway

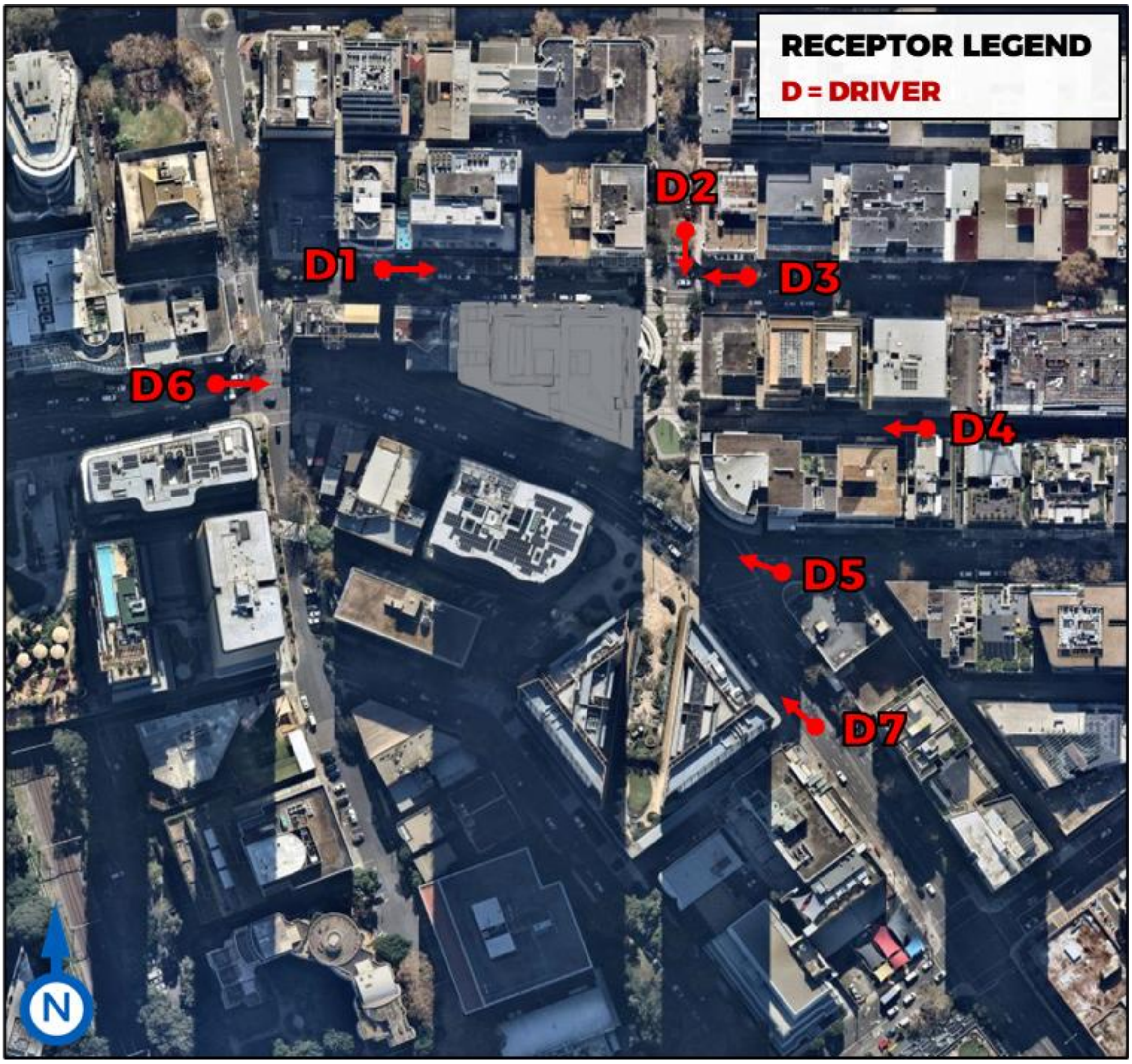

Figure 5: Driver Receptor Locations (Map Underlay Credit: NearMap)

3.2.2 Presentation of Results

Table 3 below summarises the level of visual impact predicted at each of the studied receptors based on the simulation results. The minute-by-minute results for each point are presented as 'Annual Reflection Impact Diagrams' which distil an entire year's worth of data into a single diagram. The diagrams for each receptor, as well as an explanation for how to read the diagrams, are provided in Appendix B.
Additional details of RWDI's criteria are found in Appendix A.

Table 3 : Summary of Overall Predicted Impacts on Receptors

Receptor Number	Receptor Type	Max Veiling Luminance (cd/m^2)	Duration / Total Number of Minutes with High Impact Reflection (Veiling Luminance > 500 cd/m^2)	% of High Impacts Where the Sun Is Also Visible
D1*	Driver	589	Average Duration: 3 minutes Total: 33 minutes/year (0.01% of the daytime)	N/A
D2	Driver	124	N/A	N/A
D3*	Driver	518	Average Duration: 2 minutes Total: 10 minutes/year (<0.01% of the daytime)	N/A
D4	Driver	172,940	Average Duration: 7 minutes Total: 359 minutes/year (0.14% of the daytime)	N/A
D5*	Driver	602	Average Duration: 3 minutes Total: 62 minutes/year (0.02% of the daytime)	N/A
D6	Driver	192	N/A	N/A
D7*	Driver	577	Average Duration: 2 minutes Total: 18 minutes/year (0.01% of the daytime)	N/A

**For these receptors, the predicted reflections above the veiling luminance threshold are very infrequent (<0.02% of the daytime), and not unusual in an urban context. It should be noted that this assessment conservatively assumes that the driver is looking towards the building during window of time when glare is possible, that there are clear skies for all daytime hours, ignored the effect of sunglasses, and ignored the effect of any obstructions to the reflected light (such as landscaping, the driver's car body, other vehicles, etc.).*

3.3 Overall Observations and Conclusions

1. Like any contemporary building, the reflective surfaces of the Project are naturally causing solar reflections in the surrounding area.
2. The screening analysis generally predicted a low potential for visual glare at the surrounding roads, even with its highly conservative assumption that the viewer would always be looking horizontally towards the source of the reflection. The most frequent reflections were predicted to be confined to the area immediately south of the Project, along Pacific Highway, where glare was predicted to occur for at most 1.7% of the daytime hours annually. We would remind that due to the conservative view assumption, this frequency of glare potential would only be possible if drivers were looking unsafely toward the source of the reflection (e.g., at the Project) rather than the road ahead.
3. The screening analysis did not predict any potential for high impact reflections on the existing railway track (North Shore and Western Line).
4. The detailed analysis, which accounted for more realistic view directions and operated at one-minute increments, predicted that,
   - Drivers travelling east on Atchison Street (D1),
   - Drivers travelling west on Atchison Street, at the Mitchell Street intersection (D3),
   - Drivers travelling west on Albany Lane (D4),
   - Drivers travelling west on Albany Street, turning right onto Pacific Highway (D5), and;
   - Drivers travelling west along Pacific Highway (D7).

   have a risk of glare during early mornings or later afternoons as they approach the Project. That said, with the exception of receptor D4 (westbound drivers on Albany Lane), the frequencies at which glare was predicted to be possible was very small (ranging from less than 0.01% to 0.02% of daytime) and of short duration (on average lasted 2 to 3 minutes) which is extremely rare and not unusual in an urban context.
5. Receptor D4 was predicted to have the potential for glare exceeding the veiling luminance during the early mornings in March, September and October. This impact was predicted to be possible up to 0.14% of the daytime annually, and on average lasted 7 minutes (at most 18 minutes). The sources of these glare events are shown in Figures 6-8.
6. The remaining studied driver receptors (D2 and D6) were predicted to have the potential to be exposed to reflections emanating from the Project. However, none of these reflections were predicted to exceed the veiling luminance threshold of 500 cd/m^2.
7. For further details, refer to the visual impact diagrams for all receptors (D1-D7) as shown in Appendix B.
8. Given the safety risks associated with glare impacts on drivers, RWDI's analysis is intentionally conservative. It assumed that the driver is looking towards the building, clear skies for all daytime hours, and ignored the effects of any landscaping, the use of sunglasses, as well as obstructions to reflected light due to the car body. Considering that the very small occurrences of predicted glare rely on the alignment of multiple conservative modelling assumptions, it would be reasonable to presume that such conditions are unlikely to align with real world scenarios.
9. The results presented in this report are highly dependent on both the form and materiality of the Project. Should there be any changes to the design, including the design of future roads, it is recommended that RWDI be contacted and requested to review their potential effects on the findings of this report.

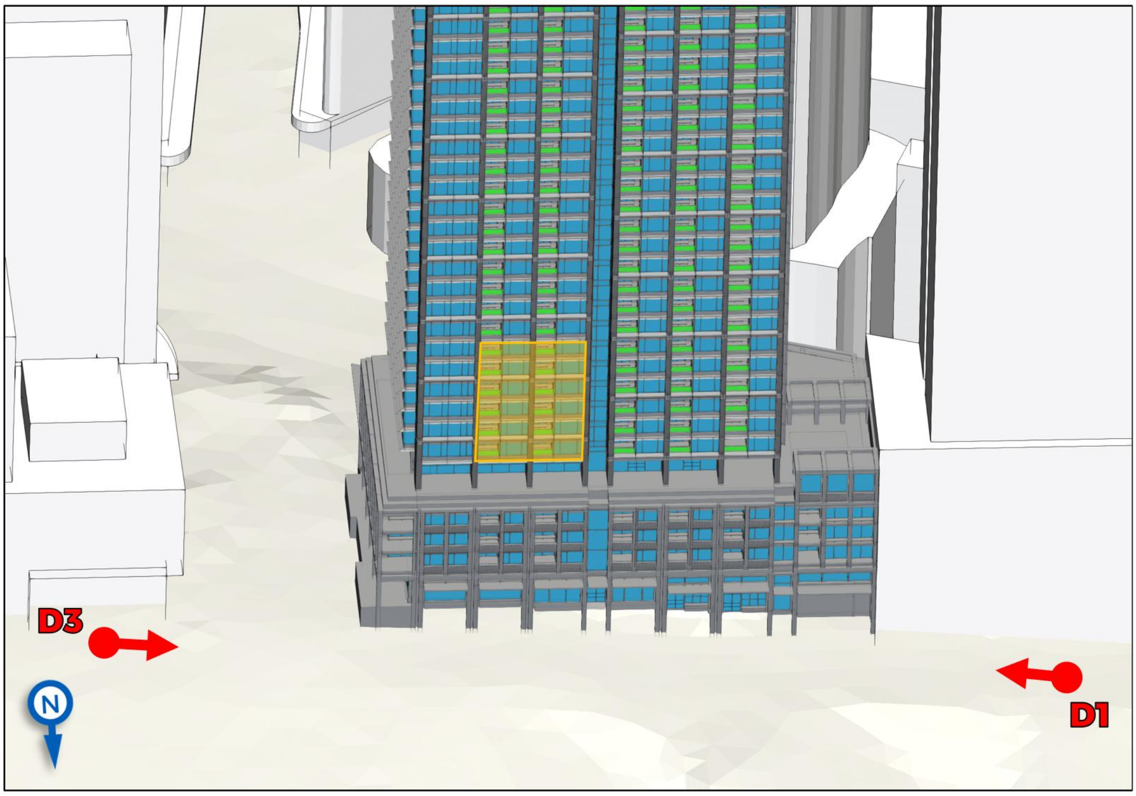

Figure 6: Markup of Facade Locations for Glare Source at Receptors D1 and D3

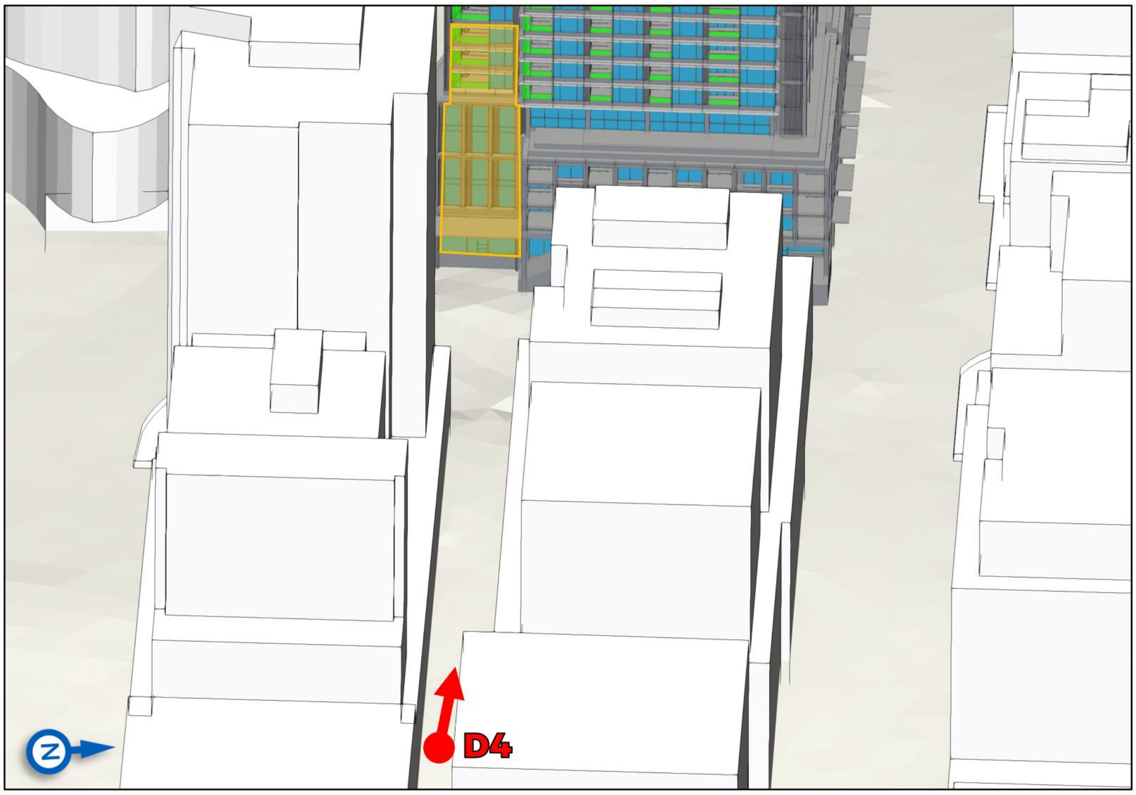

Figure 7: Markup of Facade Locations for Glare Source at Receptor D4

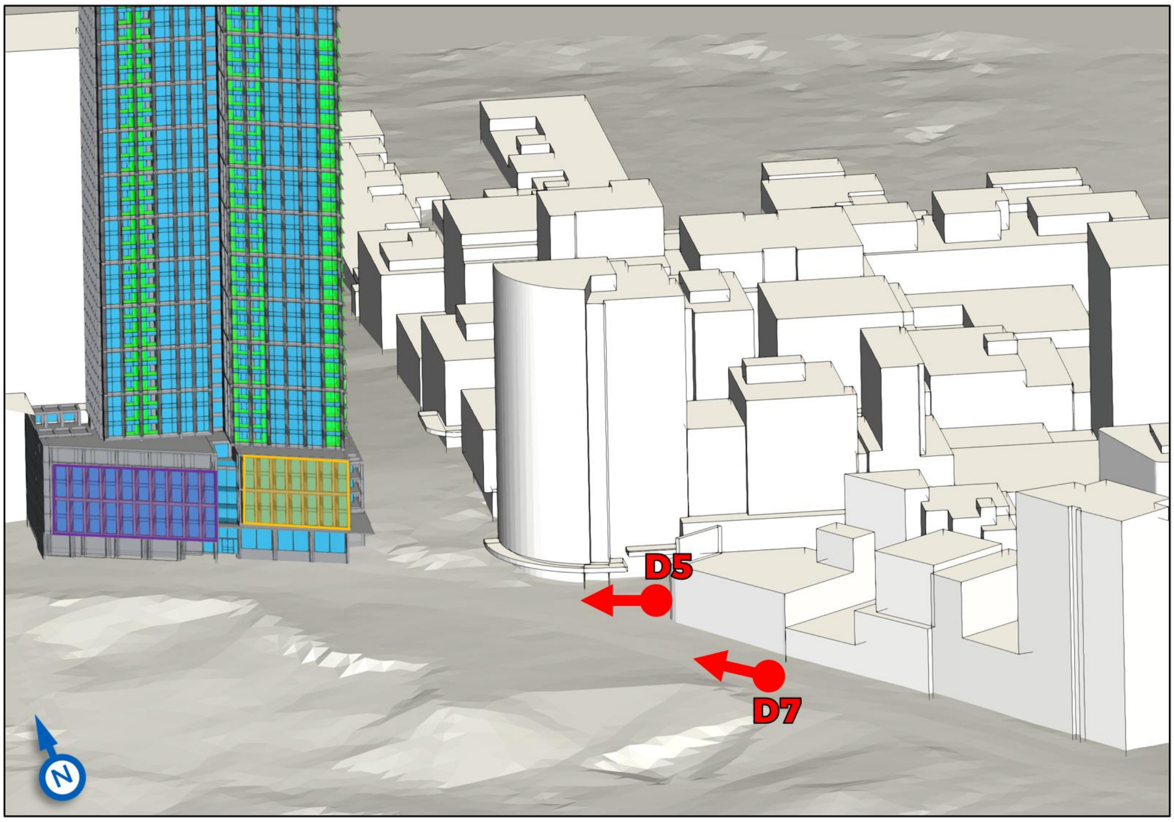

Figure 8: Markup of Facade Locations for Glare Source at Receptors D5 and D7

4 REVIEW OF LATEST DRAWINGS

Following the initial analysis and results of the initial model, and subsequent coordination with the design team, RWDI provided qualitative recommendations on the glazing angle needed to reduce or mitigate the glare impact at receptor D4. The Final SSDA drawing set on 17 March 2026 incorporated the facade articulation strategy on the eastern aspect of the podium shown in the drawings AR-1002[A] to AR-1005[A] (Refer to Figure 9 below).

The angled or staggered articulation of the facade is likely to reduce or mitigate the predicted glare at receptor D4. This is due to the orientation of the glazing relative to the sun path at the times when glare was predicted.

Note that this review was done qualitatively without detailed modelling. Simulations would be required to quantify any reduction and/or mitigation in glare potential mentioned above.

Figure 9: Modified Facade Articulation on the Eastern Aspect of Podium (in Red)

5 CUMULATIVE IMPACT ASSESSMENT

Note that the solar reflection analysis provided in this report was based on the surrounding context expected to be present at the time of the Project's completion, which includes the approved development at 617 Pacific Highway. However, it is understood that the region is rapidly developing. Future developments within the vicinity of the Project (see Figure 10), listed below, are likely to provide shielding to the Project in general.

1. 55-69 & 71-89 Chandos Street, St Leonards
2. 18-24 Atchison Street, St Leonards
3. 524-542 Pacific Highway, St Leonards (Telstra Exchange)
4. 46-52 Nicholson Street and 59-67 Christie Street, St Leonards (Nicholson Place)
5. 448-460 Pacific Highway, St Leonards (Carwash Site)

With regards to solar reflectivity, the future developments are not expected to significantly alter the reflections emanating from the Project majority of the time, due to the relative position to the sun path. Some potential reduction of solar reflectivity, especially in the afternoons during the summer months, is anticipated, thus further reducing the potential implications to drivers along the Pacific Highway.

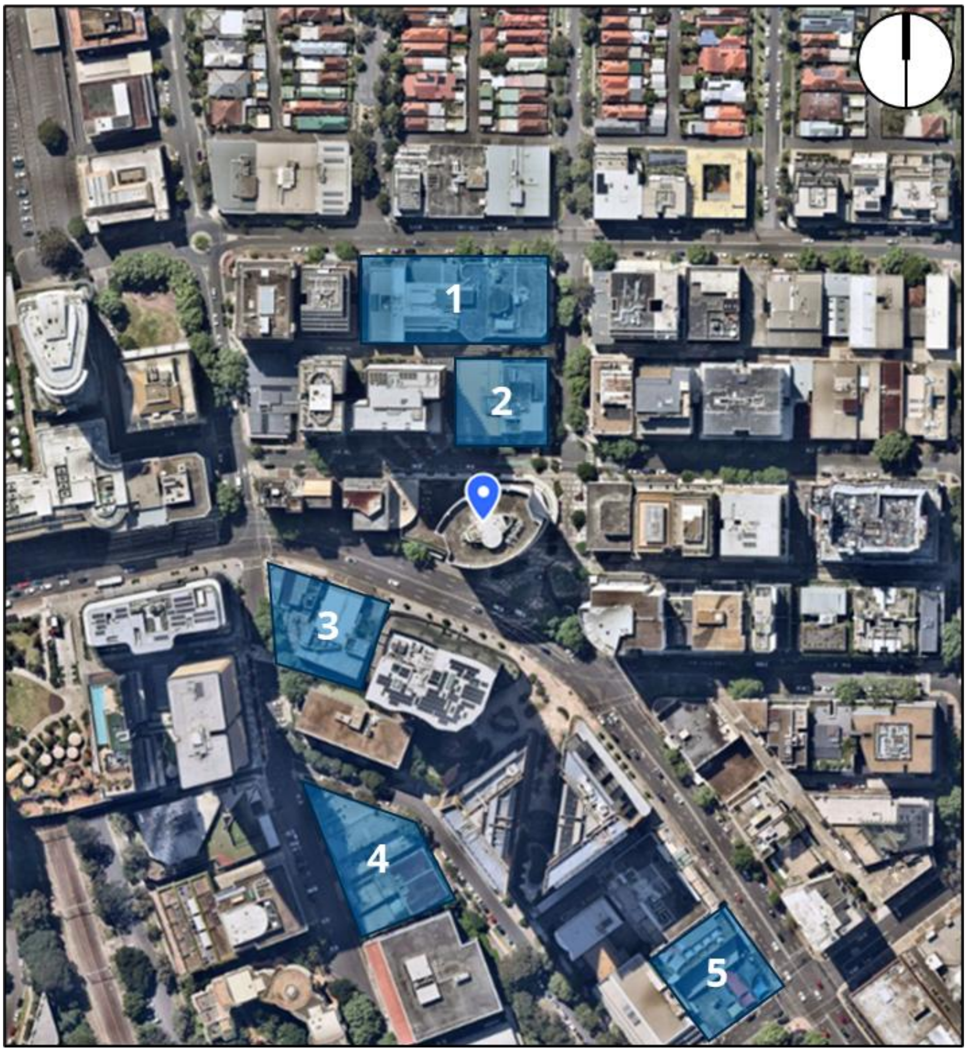

Figure 10: Potential Future Developments
Satellite Image Source: Nearmap

6 GENERAL STATEMENT OF LIMITATIONS

This report, entitled “*601 Pacific Highway - Solar Reflectivity Study*”, was prepared by RWDI Australia Pty Ltd (“RWDI”) for Stockland Development (“Client”). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein (“Project”). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared.

Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilise the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.

APPENDIX A

RWDI REFLECTION CRITERIA

APPENDIX A: RWDI REFLECTION CRITERIA

Visual Glare

RWDI has extensive experience in the analysis and assessment of the impacts of sunlight and solar energy reflected from buildings[2].

This assessment was conducted in response to the requirements outlined in the Secretary's Environmental Assessment Requirements (SEARs) under Environmental Amenity as reproduced below:

"Assess amenity impacts on the surrounding locality, including solar access, visual privacy, view loss and view sharing, as well as wind, lighting and reflectivity impacts. A high level of environmental amenity for any surrounding residential or other sensitive land uses must be demonstrated."

However, the SEARs does not provide a description around what constitutes a reflectivity impact or what would be considered a dangerous level of glare from the Project.

In light of the context described above, we have adopted the typical Australian criteria put forth by Hassall[1], which defines glare as occurring when the veiling luminance of a reflection exceeds 500 cd/m².

Veiling luminance was computed using the CIE General Disability Glare Equation[3]. This equation is a more robust formulation of the classical Stiles-Holladay glare equation that accounts for the effects of age and eye colour when predicting veiling luminance. This formulation remains valid for light sources between 0.1° and 100° away from the direction of view.

RWDI conservatively assumed a light-blue eye colour (pigmentation factor of 1.2) and an observer age of 62 years old for this work. Based on the most recent Australian Census, this age represents approximately the 80^{th} percentile age for the residents of New South Wales. This means that in reality, veiling luminance would be lower than these predictions for 80% of the population.

It should be noted that the 500 cd/m² limit assumes an adaptation luminance corresponding to a dawn or dusk time frame and may be overly conservative during brighter parts of the day.

References

1. Hassall, D., “Reflectivity: Dealing with Rogue Solar Reflections” *University of New South Wales, 1991*.

2. Danks, R., Good, J., & Sinclair, R., “Assessing reflected sunlight from building facades: A literature review and proposed criteria.” *Building and Environment*, 103, 193-202, 2016.

3. Vos, J., et al. "CIE equations for disability glare." *CIE TC Report CIE 146* (2002): 2002.

APPENDIX B

ANNUAL REFLECTION IMPACT DIAGRAMS

Presentation of Results

Results are illustrated using “annual impact diagrams”. These plots condense the minute-by-minute annual dataset into a single image. The vertical axis represents the time of the day, and the horizontal axis indicates the day of the year. A sample of such a diagram is shown in Figure B1.

Please note that the referenced times are in local standard time. When Daylight Saving Time is observed, the time should be shifted by an hour when appropriate.

The colours on this plot indicate when all reflections falling on a specific point were predicted and if the predicted veiling luminance exceeds the disability glare threshold (500 cd/m²) for an 80th percentile resident (62 years old) for New South Wales. Hatching (i.e., dark green areas) indicates when the sun would be within 30° of a motorist’s direction of view.

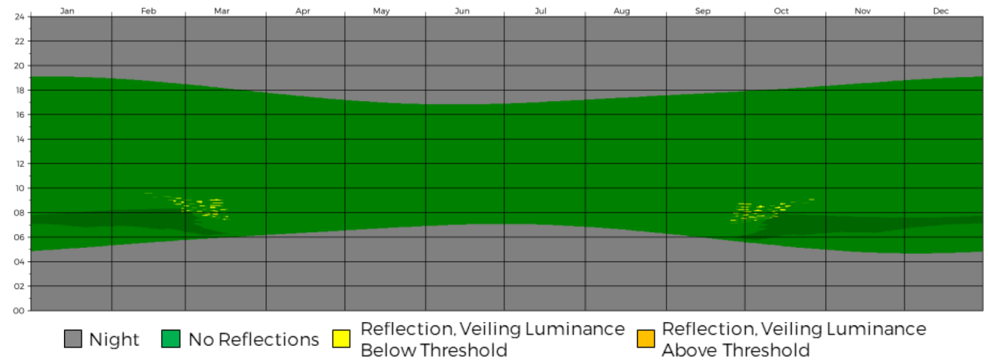

Figure B1: Annual Reflection Impact Diagram for Driver Receptor D1

Receptor D1

Receptor D1 was chosen to assess the visual impact associated with solar reflections affecting eastbound drivers on Atchison Street.

The simulations indicated that intermittent reflections primarily can fall on this point from February through March and again from September through October between 7:00 am and 10:00 am AEST.

Brief instances where veiling luminance exceeded 500 cd/m^2 (maximum predicted value was 589 cd/m^2) were predicted. On average, these reflections lasted 3 minutes, totaling 33 minutes per year of potential glare, or 0.01% of the daytime.

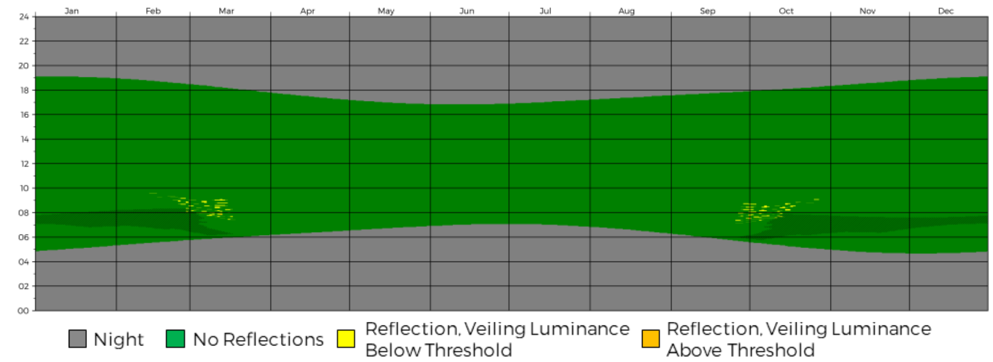

Figure B2: Annual Reflection Impact Diagram for Driver Receptor D1

Receptor D2

Receptor D2 was chosen to assess the visual impact associated with solar reflections affecting southbound drivers on Mitchell Street, at Atchison Street Intersection.

The simulations indicated that intermittent reflections primarily can fall on this point from February through April and again from August through October between 1:00 pm and 4:00 pm AEST.

The maximum veiling luminance predicted was 124 cd/m².

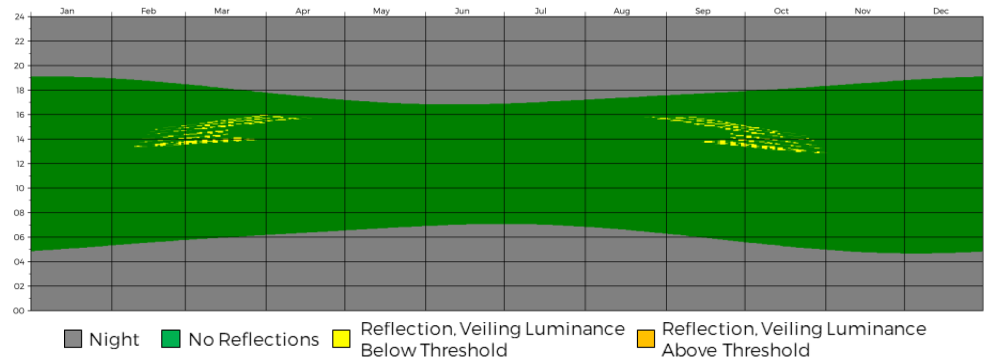

Figure B3: Annual Reflection Impact Diagram for Driver Receptor D2

Receptor D3

Receptor D3 was chosen to assess the visual impact associated with solar reflections affecting westbound drivers on Atchison Street at Mitchell Street Intersection.

The simulations indicated that intermittent reflections primarily can fall on this point from February through March and again from September through October between 3:00 pm and 5:00 pm AEST.

Very brief instances where veiling luminance exceeded 500 cd/m² (maximum predicted value was 518 cd/m²) were predicted. On average, these reflections lasted 2 minutes, totaling 10 minutes per year of potential glare, or less than 0.01% of the daytime.

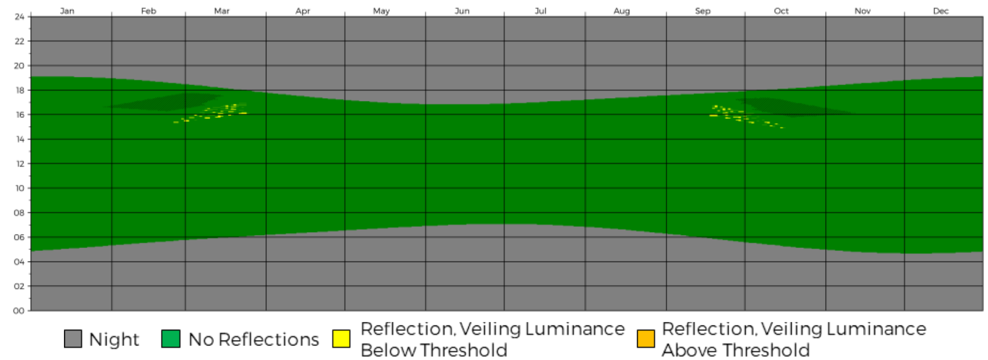

Figure B4: Annual Reflection Impact Diagram for Driver Receptor D3

Receptor D4

Receptor D4 was chosen to assess the visual impact associated with solar reflections affecting westbound drivers on Albany Lane.

The simulations indicated that intermittent reflections primarily can fall on this point from late September through mid March between 5:45 am and 10:00 am AEST.

Brief instances where veiling luminance exceeded 500 cd/m² (maximum predicted value was 172,940 cd/m²) were predicted from early through mid March and again from late September through mid October between 5:45 am and 7:00 am AEST. On average, these reflections lasted 7 minutes, totaling 359 minutes per year of potential glare, or 0.14% of the daytime.

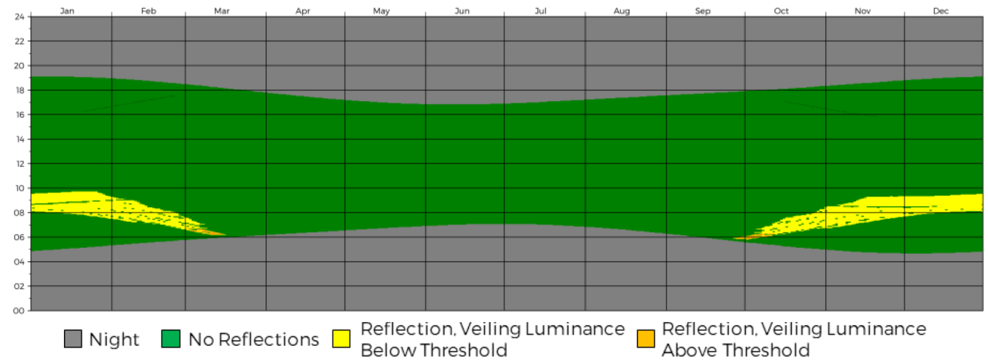

Figure B5: Annual Reflection Impact Diagram for Driver Receptor D4

Receptor D5

Receptor D5 was chosen to assess the visual impact associated with solar reflections affecting westbound drivers on Albany Street, turning right into Pacific Highway.

The simulations indicated that intermittent reflections primarily can fall on this point from September through March between 2:30 pm and 5:30 pm AEST, and again from February through November between 8:00 am and 11:00 am AEST.

Brief instances where veiling luminance exceeded 500 cd/m² (maximum predicted value was 602 cd/m²) were predicted. On average, these reflections lasted 2 minutes, totaling 62 minutes per year of potential glare, or 0.02% of the daytime.

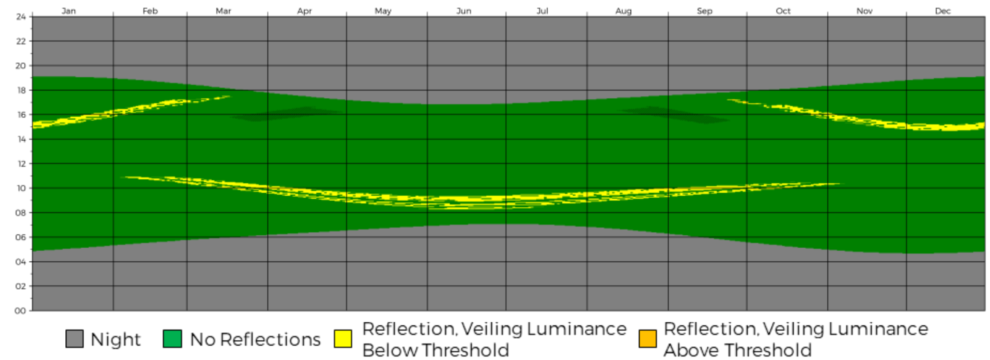

Figure B6: Annual Reflection Impact Diagram for Driver Receptor D5

Receptor D6

Receptor D6 was chosen to assess the visual impact associated with solar reflections affecting eastbound drivers on Pacific Highway, at Christie Street Intersection.

The simulations indicated that intermittent reflections primarily can fall on this point from October through February between 3:00 pm and 5:45 pm AEST.

The maximum veiling luminance predicted was 192 cd/m².

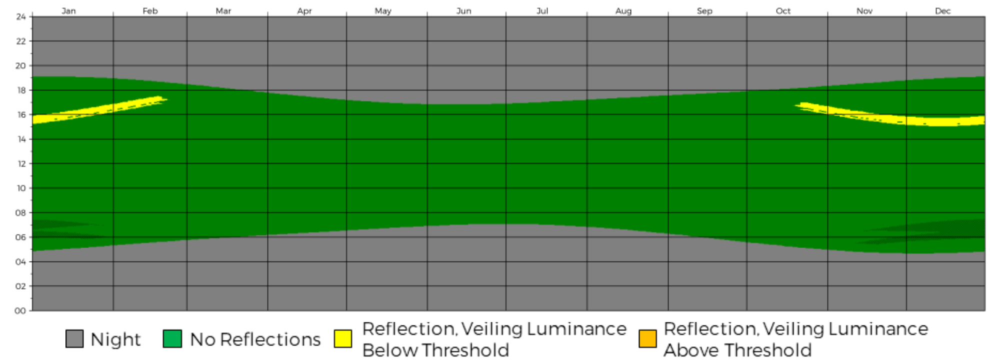

Figure B7: Annual Reflection Impact Diagram for Driver Receptor D6

Receptor D7

Receptor D7 was chosen to assess the visual impact associated with solar reflections affecting westbound drivers on the Pacific.

The simulations indicated that intermittent reflections primarily can fall on this point from October through March between 4:00 pm and 6:30 pm AEST, and again from March through September between 9:00 am and 11:00 am AEST.

Brief instances where veiling luminance exceeded 500 cd/m² (maximum predicted value was 577 cd/m²) were predicted. On average, these reflections lasted 2 minutes, totaling 18 minutes per year of potential glare, or 0.01% of the daytime.

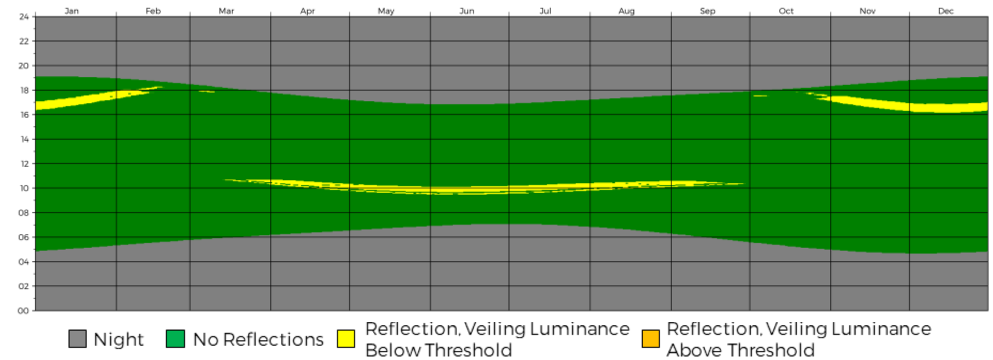

Figure B8: Annual Reflection Impact Diagram for Driver Receptor D7