

19589/AH2
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Dear Sirs

STATION YARD, TWICKENHAM, TW1
Solare Glare Letter Report

Solem Regeneration (Twickenham) LLP have instructed Paragon Building Consultancy to carry out a Solar Glare assessment to understand the potential impact to the Railway signal to the west of the development at Station Yard, Twickenham.

Solar Glare

Solar glare is particularly important at pedestrian crossings, railway signals and road junctions where glare can cause temporary blinding of drivers or pedestrians. Typically, those elements considered reflective are either glazed apertures or metal cladding.

The 2011 BRE Guidelines includes the following statement in regard to the potential for reflected solar glare from a new development: ...“Glare or solar dazzle can occur when sunlight is reflected from a glazed façade. This can affect road users outside and the occupants of adjoining buildings. The problem can occur either when there are large areas of reflective glass or cladding on the façade, or when there are areas of glass or cladding which slope back so that high altitude sunlight can be reflected along the ground. Thus, solar dazzle is only a long term problem only for some heavily glazed (or mirror clad) buildings...”

The assessment considers potentially sensitive viewpoints for train drivers adjacent to the Site. The focal point is a relevant traffic element i.e the signal.

The assessment also considers a driver’s field of vision which takes the angular extent seen at any given time, which for humans facing forwards is approximately 180 degrees.

The potential for reflected solar glare or dazzle from the glazed or reflective façades from a development have been assessed using specialist lighting software. The assessment shows the path of the sun for the entire year around the Proposed Development. From this, a computer generated angular image has been produced for each selected viewpoint, indicating the area which sees the reflection of the reflected sunpath at any point during the year. A modified diagram portraying a standardised extent of human vision is then overlaid onto the image.

The assessment has been undertaken on the basis that the fovea centralis (also generally known as the fovea) is a part of the eye, located in the centre of the macula region of the retina. The fovea is responsible for sharp central vision (also called foveal vision), which is necessary in humans for reading, watching television, driving, and any activity where visual detail is of primary importance. The macula corresponds to the central 13 degrees of the visual field; the fovea to the central 3 degrees.

The Figure below highlights the degrees of vision corresponding to the foveal view, with a red circle of 3 degrees of angle in order to identify the area most sensitive to reflected solar glare. Another red circle represents the incidence of the 30 degrees radius of our typical field of view in order to identify a secondary area of sensitivity to potential reflected glare instances.

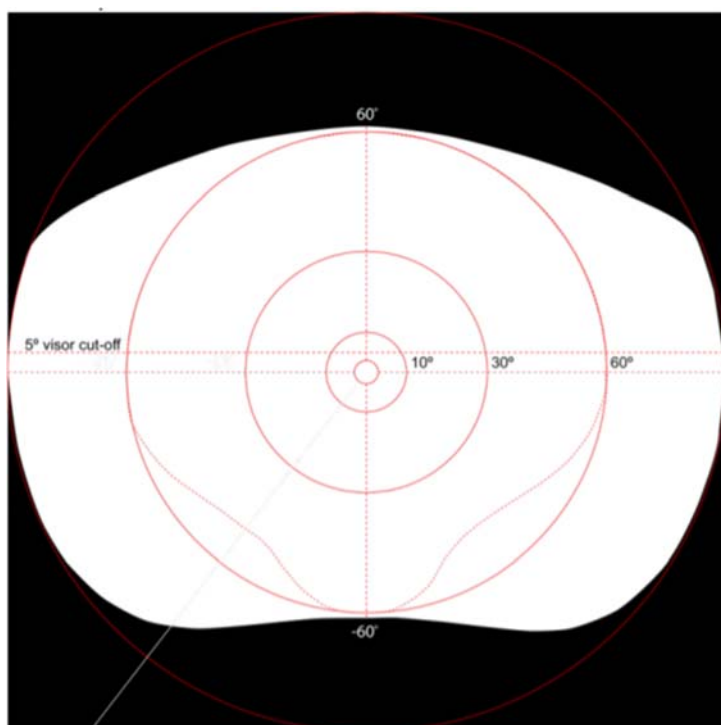


Fig. 1 – Degrees of Vision

The degrees of vision provide a reference from which potential concerns can be judged. At 3°, the potential for the reflected glare to cause a hazard is high and mitigation would be required. Between 3° and 30°, there is the potential that there could be an issue and mitigation may be necessary.

As stated in the CIE 146:2002, occurrences at angles beyond 30degrees would be of little significance in most situations but may be relevant in exceptional circumstances.

The methodology for solar glare is not aimed at addressing the intensity of an instance of reflected solar glare, but rather its occurrence, duration throughout the year, and the location of this occurrence in respect of an individual's line of sight. It is also be noted that the hours presented reflect solar time and therefore do not take Daylight Saving Hours into account.

Although great care is taken in identifying typical viewpoints, this does not guarantee that there are no additional sensitive locations where reflected solar glare could present a particular risk. For practical reasons the area of the assessment is limited to the signal to the west of the site. The occurrence of reflected solar glare at greater distances is not the subject of this assessment.

Assessment Results

We have carried out our assessment of the set of railway signals located approximately 170m to the west of the site with testing points taken 60m and 120m back from the signal.

The image below shows the proximity of the signals to the site.

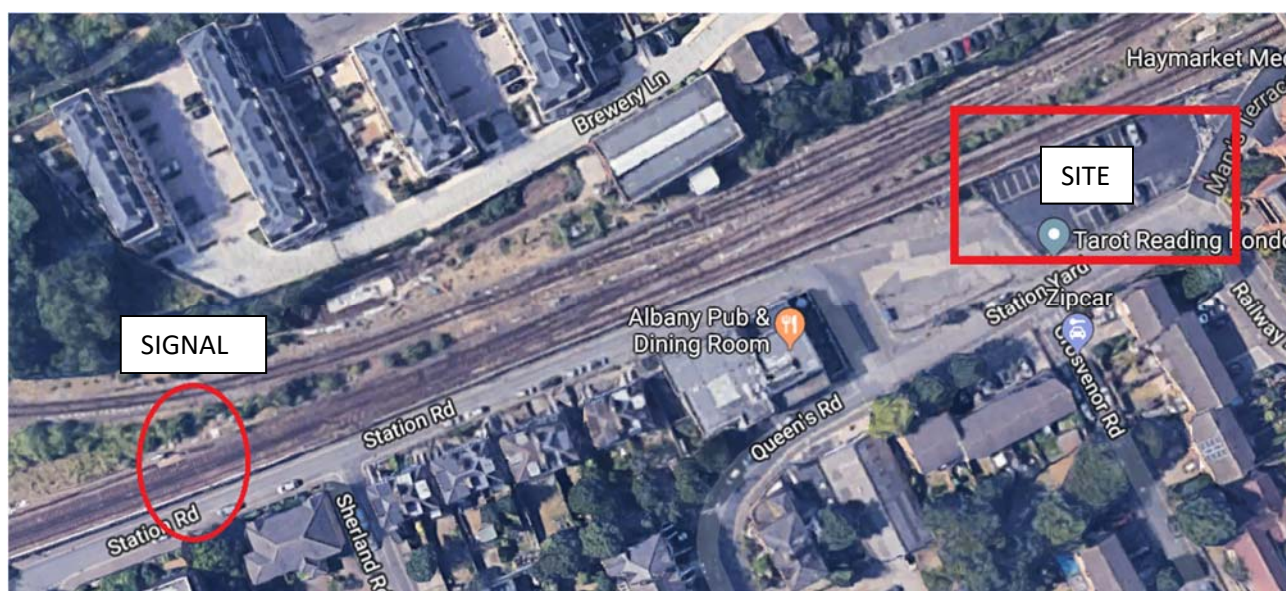


Image 1. – Location

The results from the assessment can be seen on the images below.

Firstly, it is noted that the proposed building does not have fully glazed facades, rather individual windows serving residential accommodation. Secondly, it should be noted that the view of the signal from the driver of a train would be over 250m from the façade. The combination of these two factors does not minimise the potential for glare, rather they minimise the potential severity that glare could cause to a driver.

Image 2 shows the view from 60m to the west of the signal.

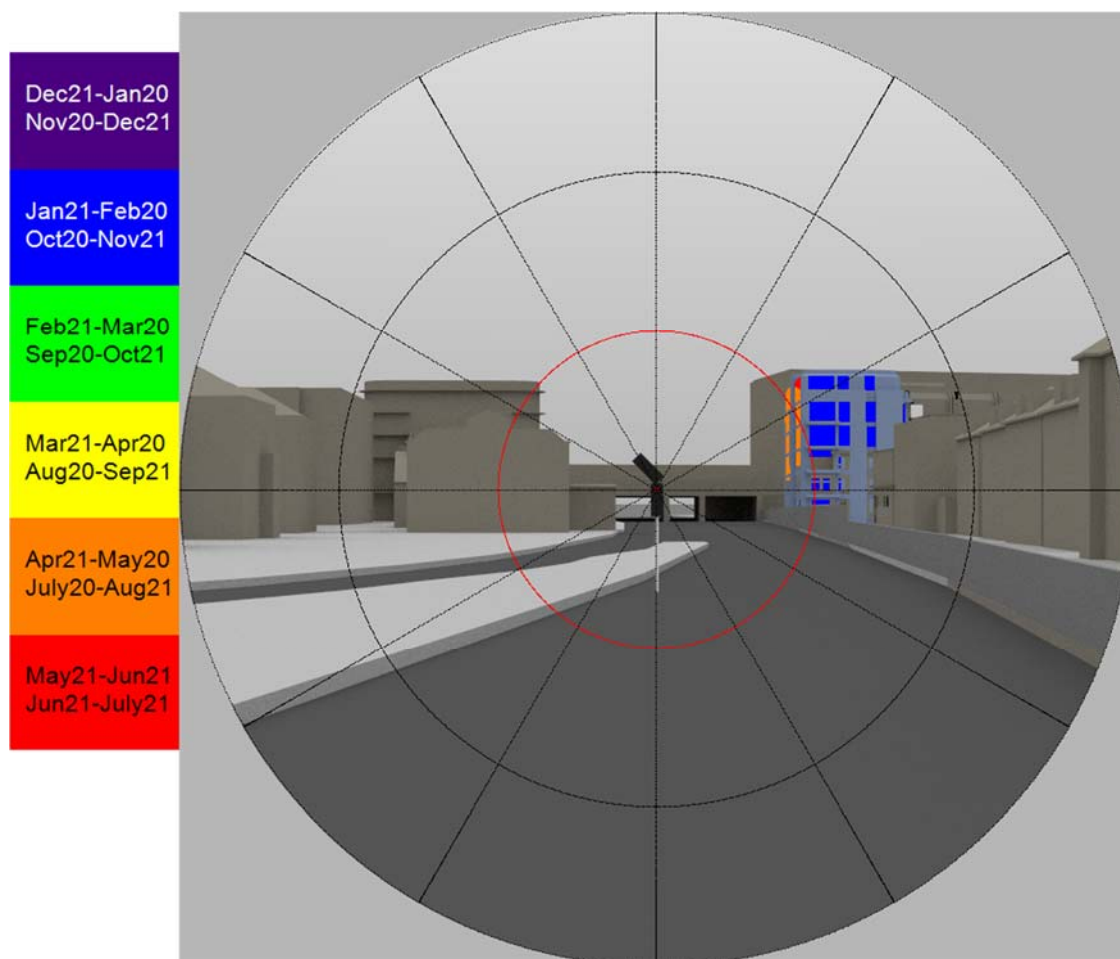


Image 2 – 60m west of Signal

It can be seen that there is the potential for glare between April 21 – May 20, July 20 – August 21 and January 21 – February 21, October 20 – November 21(4pm to 5 pm). The duration of the glare would be between 2 minutes to 20 minutes within these time periods. The more intense glare is usually in the winter months (coloured blue) as the sun is lower in the sky. It can be seen from the image that the winter glare is outside the 30 degree site line of the driver and on the vision periphery. The summer glare is from side windows and at an oblique angle.

Image 3 shows the view from 120m to the west of the signal.

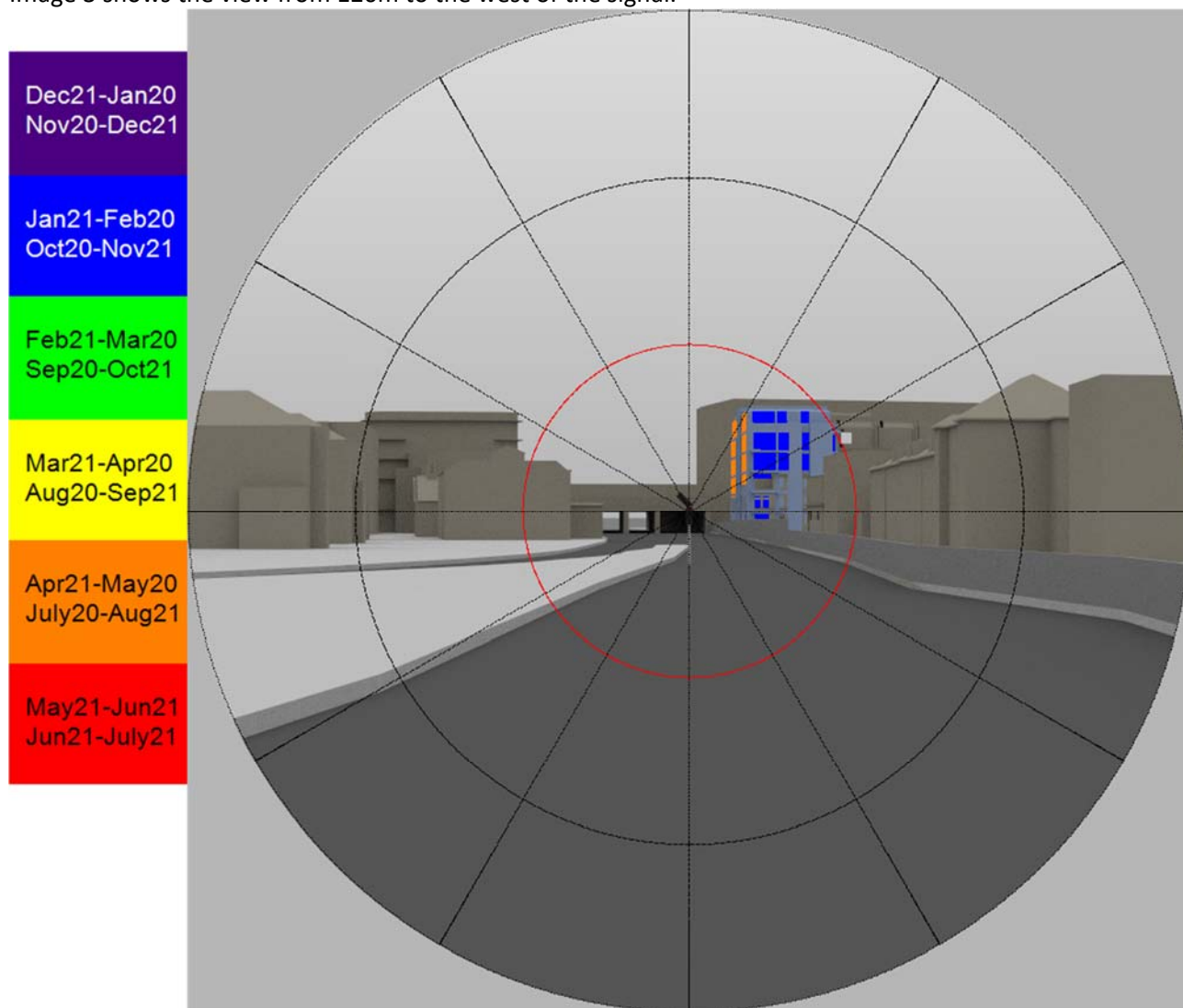


Image 3 – 120m west of Signal

The assessment demonstrates that the times for potential glare are the same as the assessment from 60m away however, more of the glare is within the 30degrees of vision of the driver. It should be noted that the signal is not obstructed by the glare and the extent of glare visible will be reduced as the building is further away.

Conclusion

The Solar Glare assessment demonstrates that the building will be visible by the driver and that at the times identified, has the potential to cause glare. However, given that the elevation is not fully glazed and the fact that the glare from 60m away will be mainly outside peripheral vision, and that from further away the building appears smaller and hence the area of glare smaller, the overall impact would be minor adverse for a driver travelling east into Twickenham Station.

We would not consider mitigation to address the Solar Glare impacts.

Yours faithfully

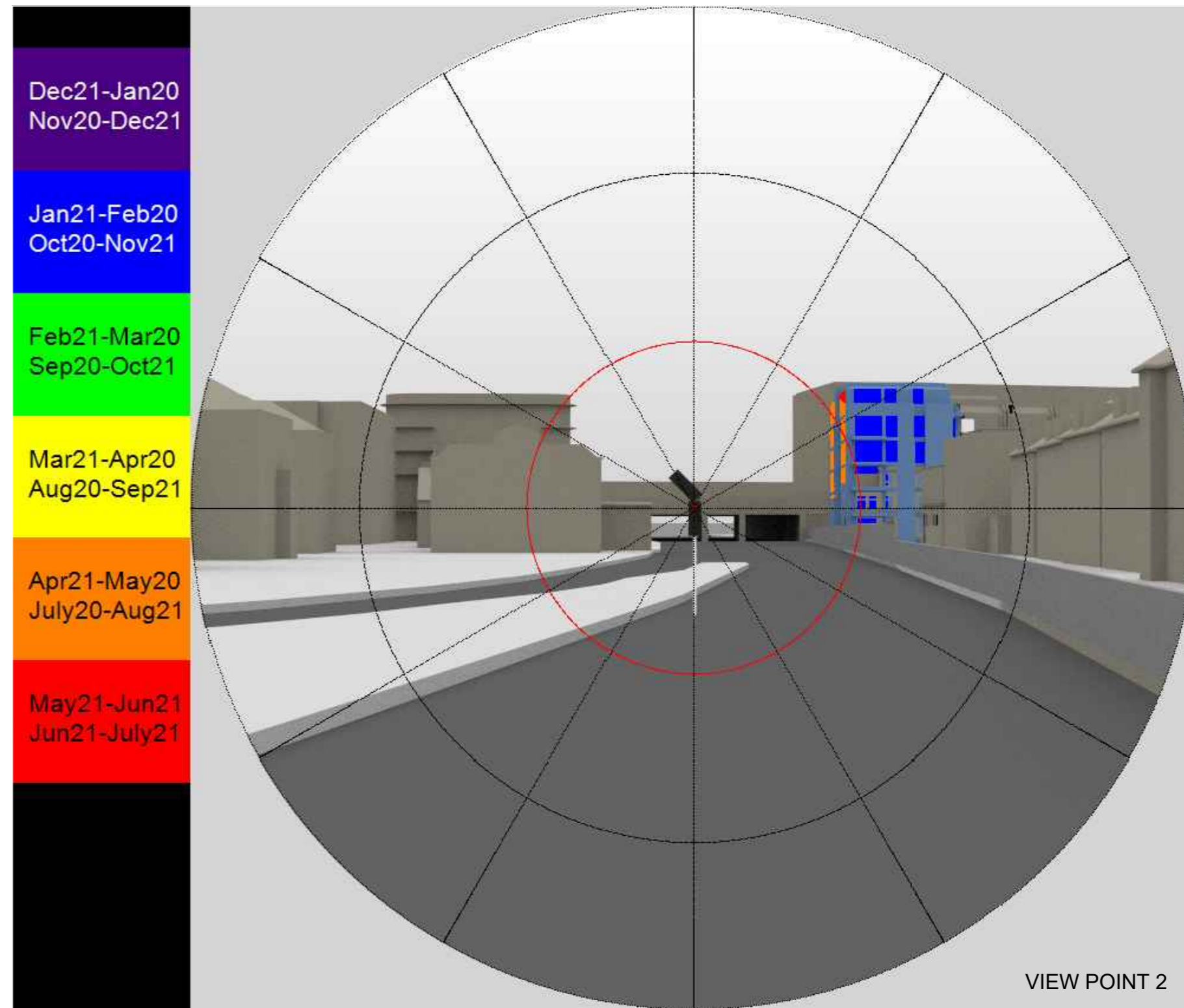
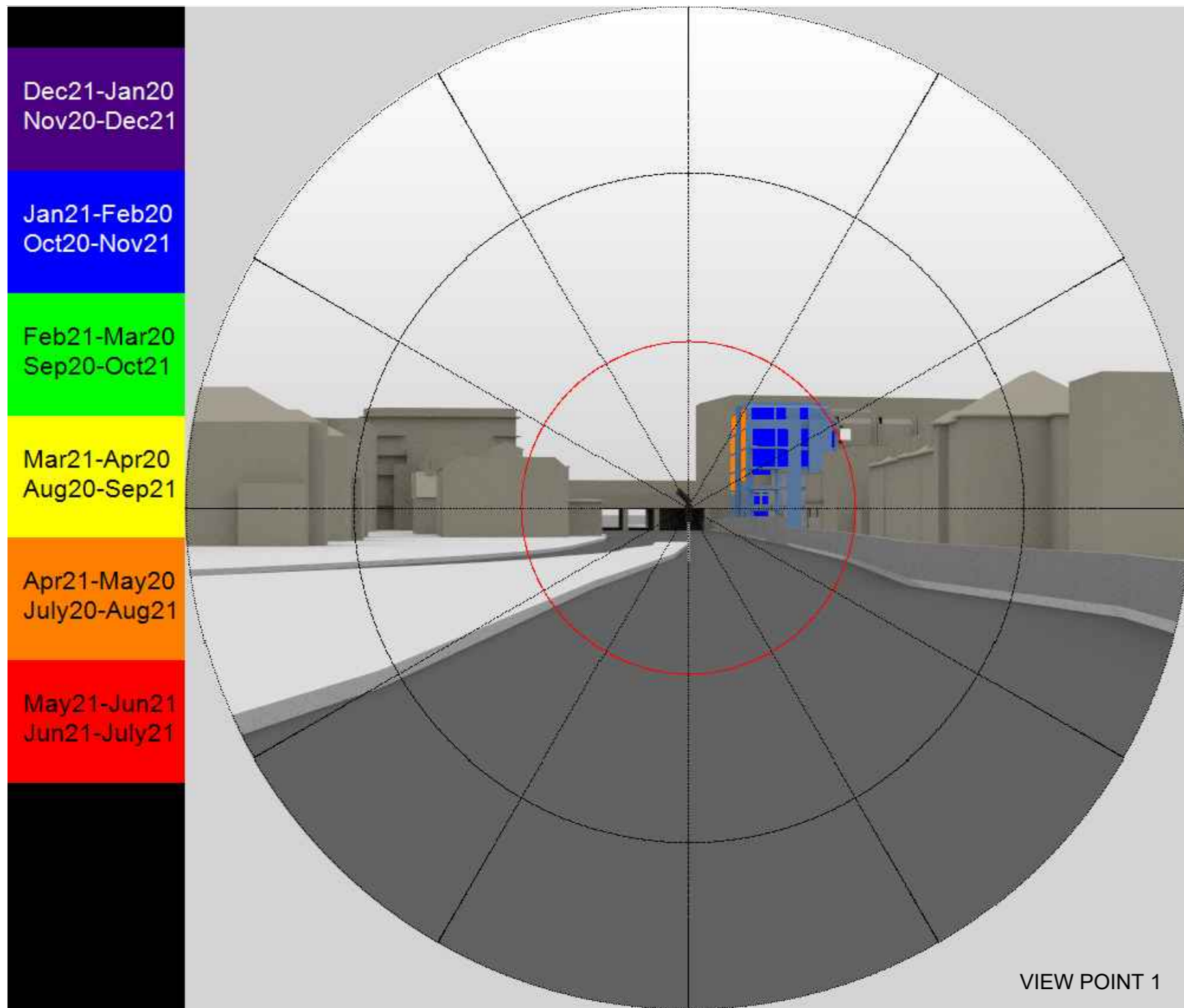
A handwritten signature in black ink, appearing to read "Anthony Harris". The signature is written in a cursive, flowing style.

Anthony Harris
Director – Rights of Light/Daylight and Sunlight



APPENDIX 1

Solar Glare Drawings



Notes:

Existing Model & Surrounding Model

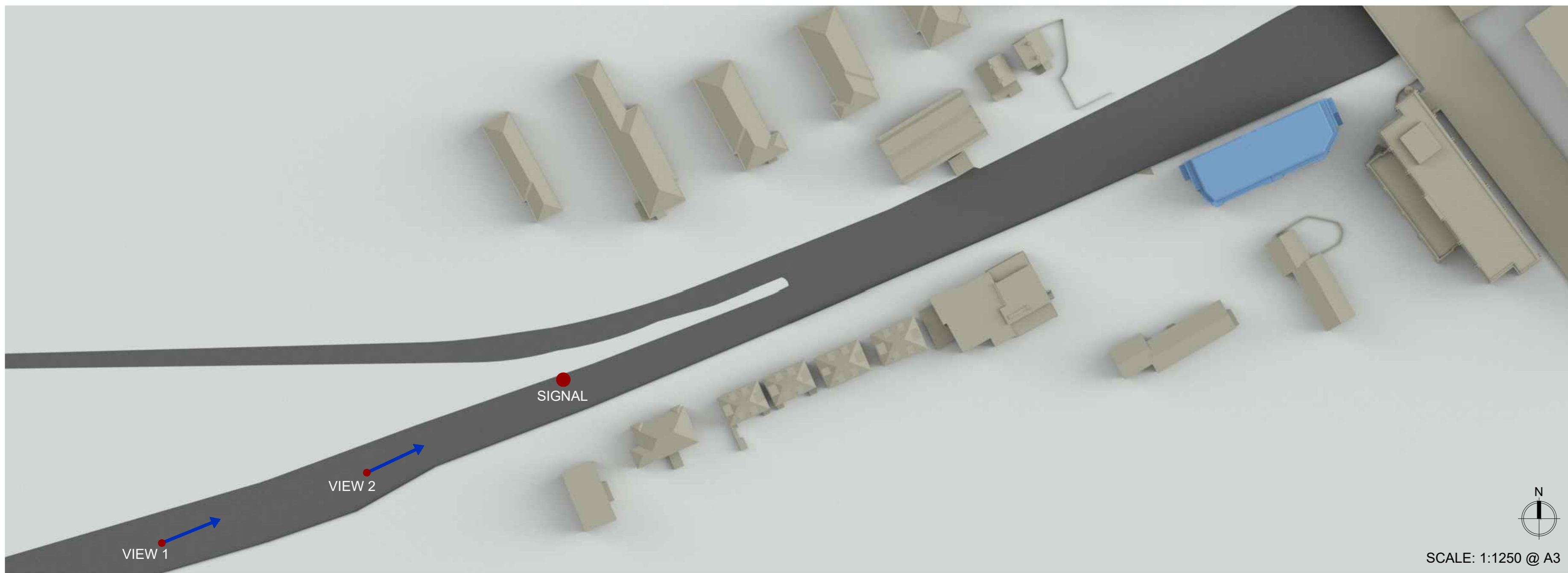
Models derived from 3d terrestrial laser scan survey pointcloud.
Internal room layouts derived from pointcloud wherever possible.
All other room information is assumed or from plans.
Supplemented with site photography, Bing maps and Google Streetmaps.

For room layouts please reference document:
2732377 Existing Elevations and Sections
2732378 Existing Plans
2732380 Proposed Plans

Proposed Model

Information received 24.10.2019.
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WP-0689-A-0100-106
WP-0689-A-0201-204
WP-0689-A-0300-301

Rev.	Description	Date



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Client:
Solum Regeneration (Twickenham) LLP.
Project Address:
Twickenham Station Yard,
London.

Drawing Title:
Potential Glare Study
Proposed Scheme Rec. 24/10/19

Project Number:	Drawing Number:	Revision:
19589	02-22	-
Drawing Status:		
Information		
Scale:	Date:	
1:1250 @ A3	21/11/2019	
Drawn By:	Checked By:	
MG	AH	

All dimensions are in millimetres unless otherwise stated.
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