

Skyview Factor Assessment

MP Metro

Savills Australia

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Savills

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Document control

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02	27/10/2017	Update for 8m Setback	SB		BL			

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1. Introduction

Surface Design has undertaken a sky view factor assessment to understand the impact on pedestrian's perspective of views to the sky at street level.

This assessment considers the sky view factor of fourteen (14) points surrounding the proposed North and South Site in Martin Place.

The assessment compares four (4) scenarios, with the existing buildings included to give an idea about the current sky view factor around the North and South Site. The DCP compliant envelope was used as the base model for this assessment. The scenarios include:

- Existing buildings
- DCP compliant envelope (Base model)
- State Significant Development envelope (25m set back on South Tower)
- Planning Proposal Envelope (8m set back on South Tower)

1.1. Sky View Factor

The Sky View Factor for Metro MP assesses all the surrounding buildings or obstructions blocking a view of the sky, at a single point. A Sky View Factor of 0% represent a fully obstructed sky, whereas 100% represent no obstruction (e.g. in a grass field).

The City of Sydney's Sky View Factor assessment grouped the existing sky view factors in 5% ranges (5-10%, 10-15%, 15-20% etc). It classifies the Skyview factor:

- 5-15% low sky view factor
- 15-25% typical sky view factor
- 25-35% higher sky view factor
- 35-45% highest sky view factor

1.2. Ecotect Analysis

The Software used to analyse the sky view factor for MP Metro project was Autodesk Ecotect Analysis. Ecotect is an environmental analysis tool for conceptual designs that allows designers to simulate building performance based off input geometry and surrounding buildings.

1.3. Disclaimer

This Sky View Factor assessment provides an estimate of the views obstructed by the different buildings. This estimate is based on a necessarily simplified and idealised version of the surrounding buildings located in the Sydney Central Business District. The assessment is a simulation and cannot fully represent all of the intricacies of the Sydney Central District and the perspective of pedestrians.

As a result, simulation results only represent an interpretation of the potential Sky View Factor effected by the building.

1.4. Methodology

Model Geometry

Surface Design was provided with 3D model geometry by Grimshaw. These included a city of Sydney model of the buildings surrounding North and South Site and three building envelopes discussed in Section 1.

The city model was imported into Autodesk Ecotect Analysis and used to assess the Sky View factor at 14 points, as shown below. The points were taken at ground level, in the middle of the road.



Modelling Envelope

The sky view factor assessment first analysed the existing City of Sydney model. This was used as the reference model for Skyview Factor.

Each separate envelope (DCP, SSDA and PP) was imported into the city to compare the Skyview Factor change at the each of the 14 points. The images were overlayed and compared to the SSDA and PP model to the DCP base model. This is to highlight where views were lost due to the incorporation of the North and South Site, located in Martin Place.



Existing Envelope



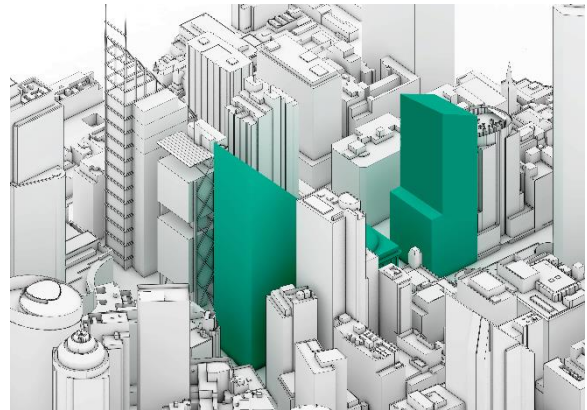
DCP Compliant Envelope

SSDA and PP Model

The difference between the SSDA model and the PP model provided is the setback distance of the South tower. The SSDA has set back of 25m whereas the PP model has a setback of 8m.



State Significant Development Envelope



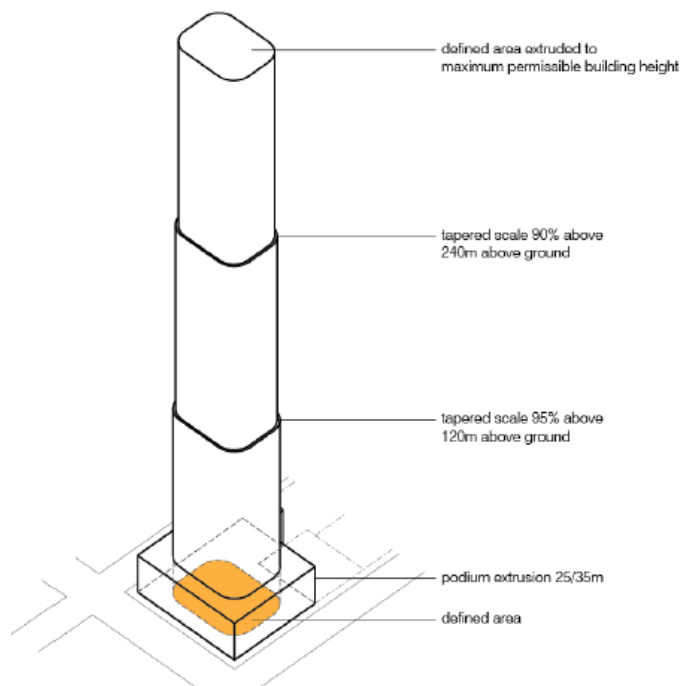
Planning Proposal Envelope

DCP Compliant Model - Schedule 11

The City of Sydney Council's guidelines of Sky View Factor is required to demonstrate "Section 5.1.1.1(3)(a)/(b) in regard to varying minimum street setbacks and Section 5.1.1.3(5) in regard to varying Minimum side and rear setbacks and building Form Separations, and, Section 5.1.1.4(3) in regard to varying Tapering Provisions."

Procedure B was used to show an equivalent or improved sky view factor in adjacent public places. The DCP envelope was provided to meet these requirements and provided by Grimshaw.

The DCP Compliant model required the surrounding buildings at a minimum of 50m to be included within the site boundary and exclude elements such as trees and awnings.



2. Summary Results

Sky view assessment has been undertaken for 14 points surrounding the proposed north and south site. This report demonstrates compliance with Schedule 11 of the City of Sydney Council Guidelines for sky view factor assessment. The sky view factor for 14 points assessed and summarised below for each location:

Table 1: Summary Sky View Factor Results

Location		Existing	DCP Envelop (Base Case)	SSDA Envelope	Planning Proposal Envelope
1	36 Martin Place	18.00%	16.50%	16.00%	16.00%
2	Cnr of Martin Place and Castlereagh St	22.50%	21.50%	21.50%	21.50%
3	37 Martin Place	20.50%	19.50%	17.00%	17.00%
4	Cnr of Martin Place and Elizabeth St	23.50%	23.00%	23.00%	23.50%
5	63 Martin Place	20.00%	18.00%	18.50%	18.00%
6	Richard Johnson Square	14.00%	13.50%	12.50%	12.50%
7	Chifley Square	24.00%	22.50%	22.50%	22.50%
8	20 Elizabeth St	11.00%	11.00%	9.50%	9.50%
9	7 Elizabeth St	13.00%	13.00%	12.00%	12.00%
10	9/17 Castlereagh St	10.00%	9.50%	8.50%	8.00%
11	4 Castlereagh St	14.00%	11.50%	7.50%	7.50%
12	8/55 Hunter St	11.00%	10.00%	10.00%	10.00%
13	30 Castlereagh St	22.50%	20.00%	19.00%	19.00%
14	80-85 Elizabeth St	19.00%	17.00%	17.50%	17.00%

Key

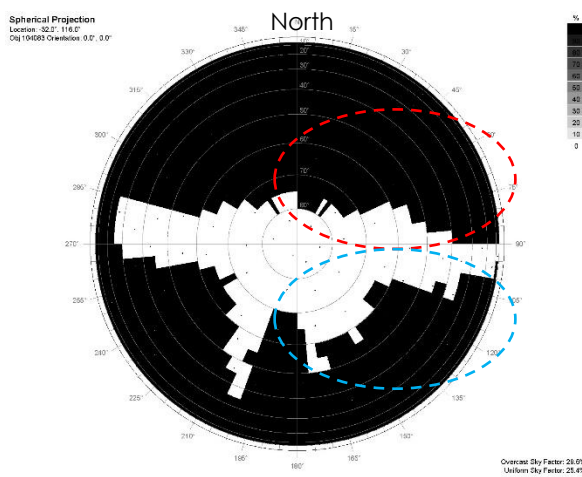
	<15%	Low SVF
	15% - 25%	Typical SVF
	25% - 35%	High SVF
	>35% - 45%	Highest SVF

3. Sky View Factor

3.1. 36 Martin Place

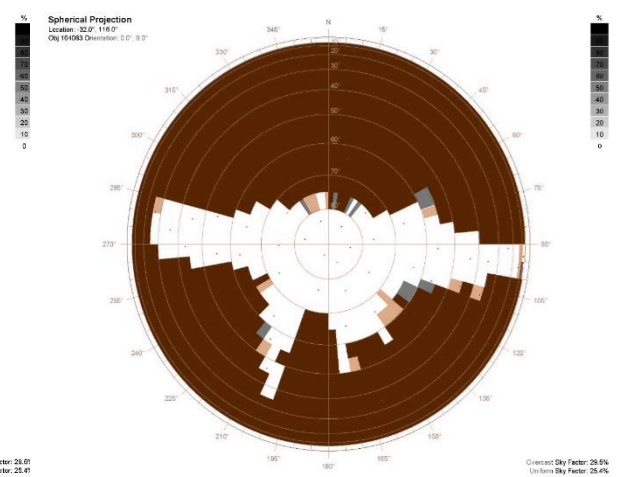
Existing Envelope

Skyview Factor: **0.180**



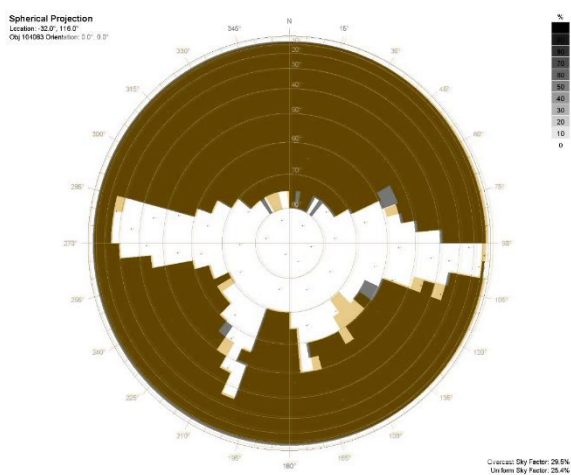
DCP Envelope

Skyview Factor: **0.165**



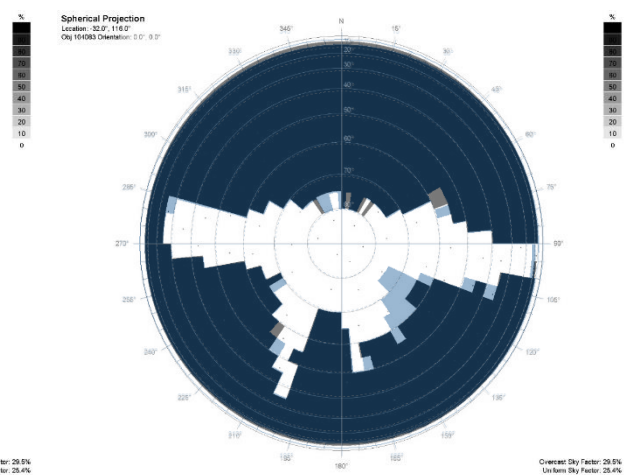
SSDA Envelope

Skyview Factor: **0.160**



PP Envelope

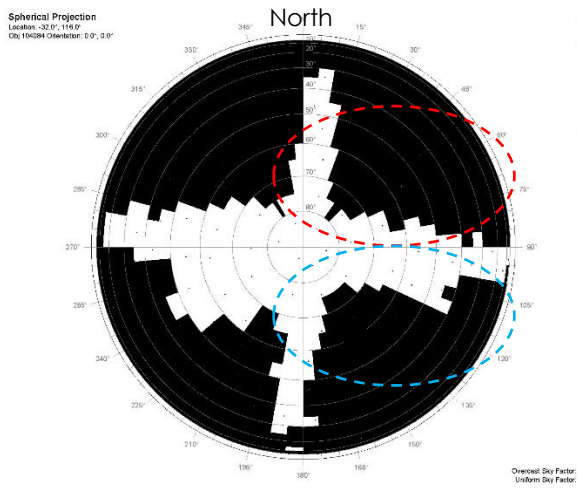
Skyview Factor **0.160**



3.2. Corner of Martin Place and Castlereagh Street

Existing Envelope

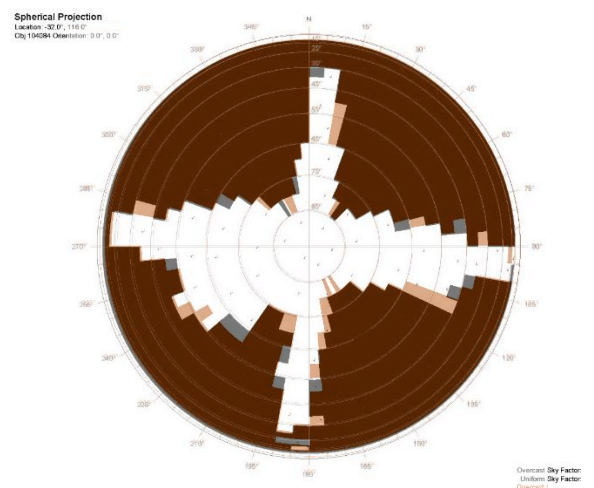
Skyview Factor: **0.225**



0.225

DCP Envelope

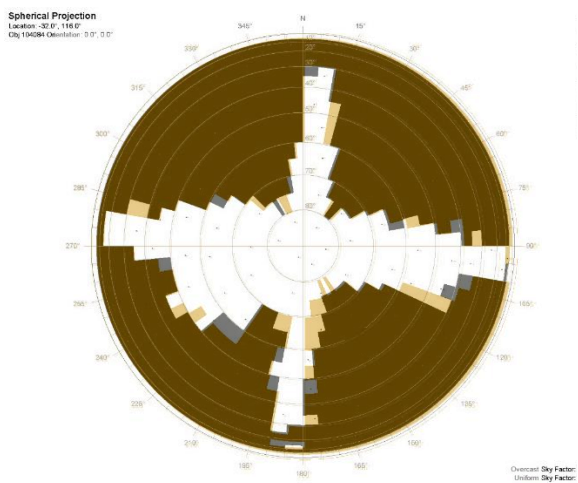
Skyview Factor: **0.215**



0.215

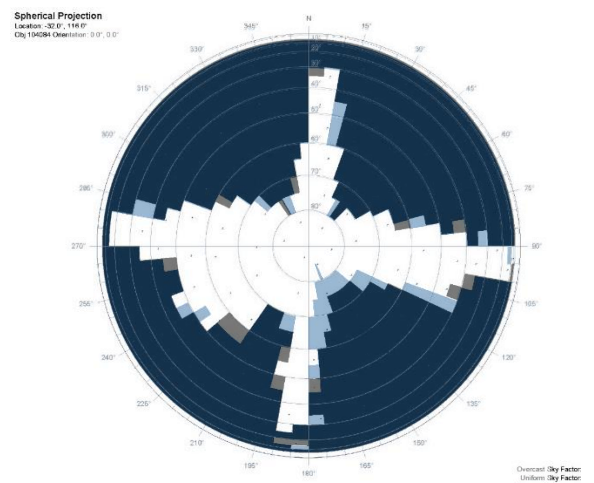
SSDA Envelope

Skyview Factor: **0.215**



PP Envelope

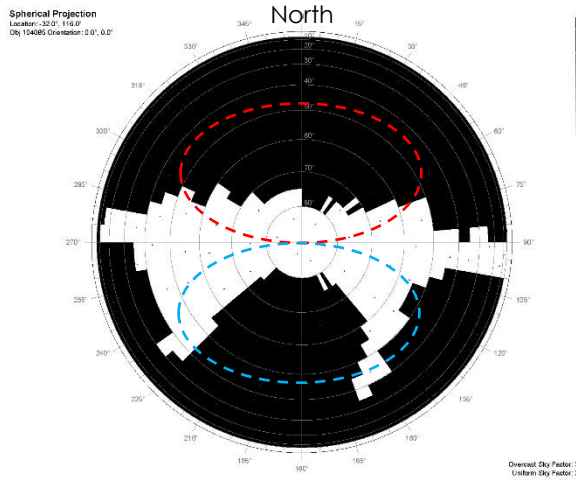
Skyview Factor: **0.215**



3.3. 37 Martin Place

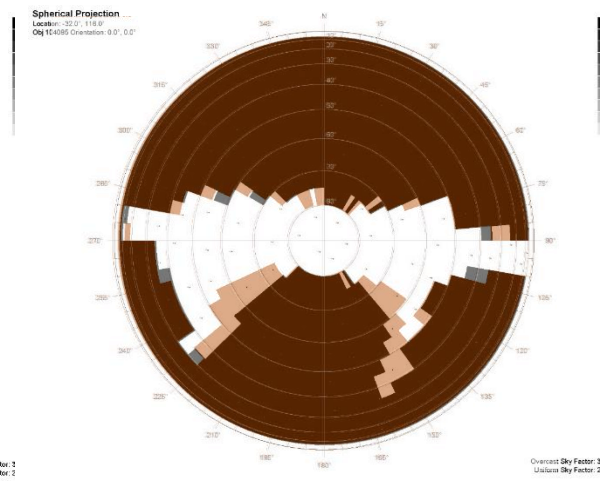
Existing Envelope

Skyview Factor: **0.205**



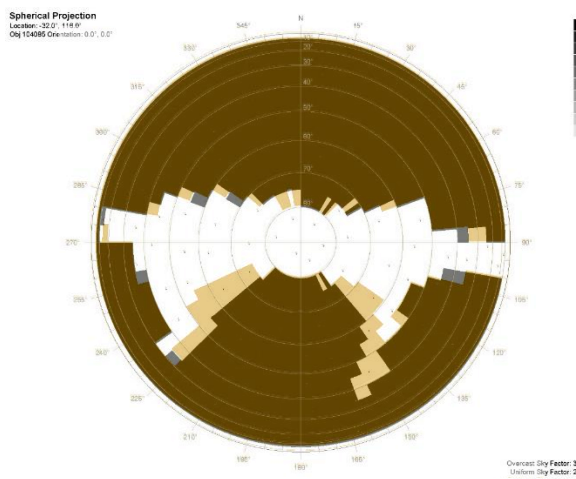
DCP Envelope

Skyview Factor: **0.195**



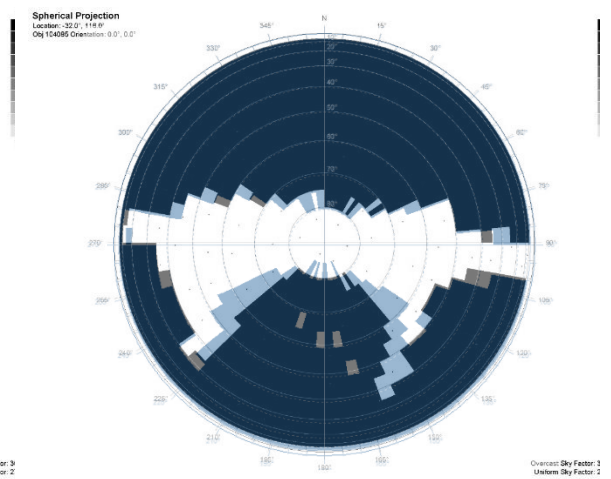
SSDA Envelope

Skyview Factor: **0.170**



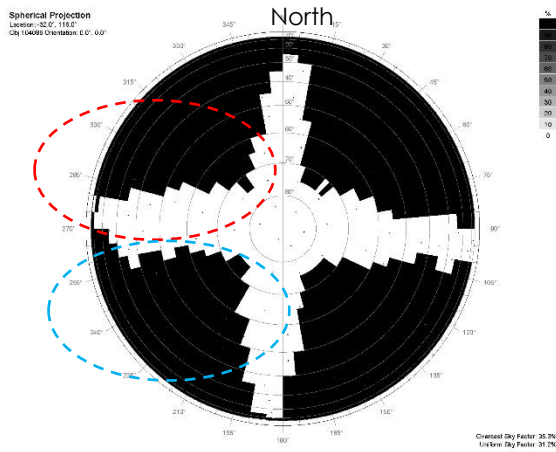
PP Envelope

Skyview Factor: **0.170**

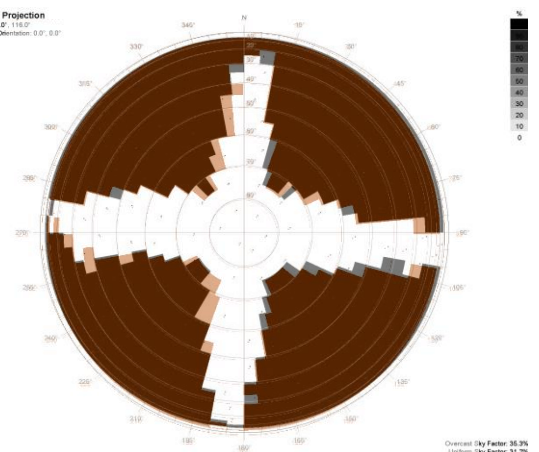


3.4. Corner of Martin Place and Elizabeth Street

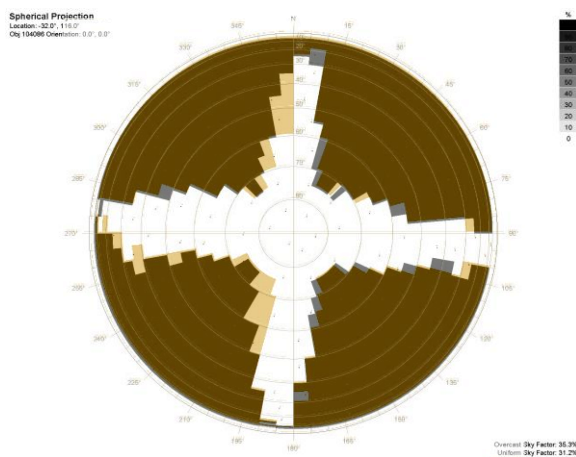
Existing Envelope
Skyview Factor: **0.235**



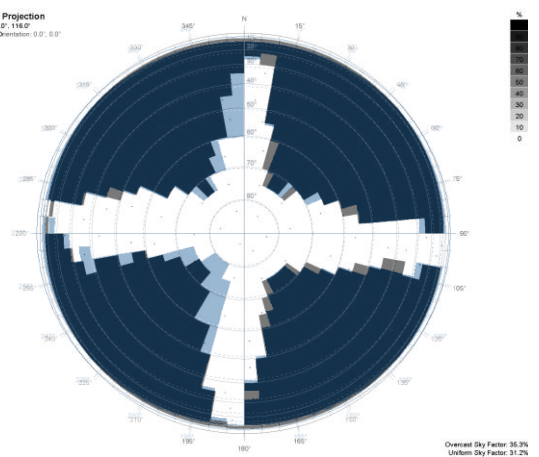
DCP Envelope
Skyview Factor: **0.230**



SSDA Envelope
Skyview Factor: **0.230**

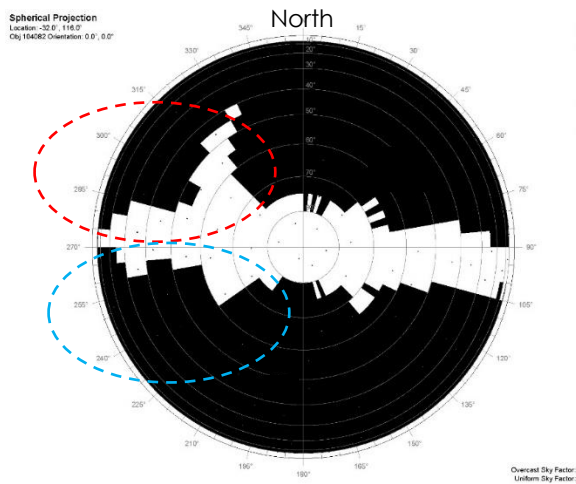


PP Envelope
Skyview Factor: **0.235**

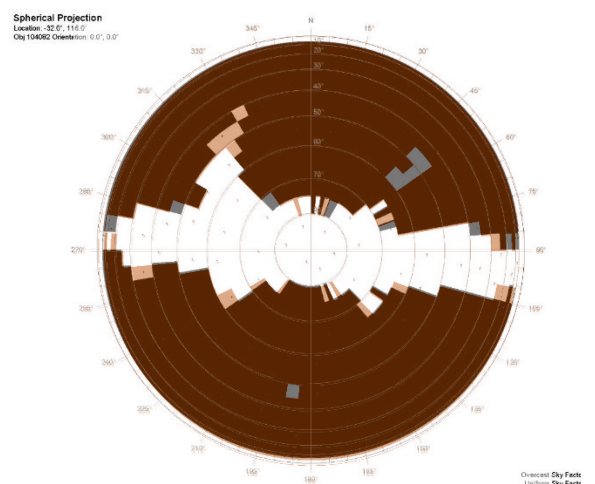


3.5. 63 Martin Place

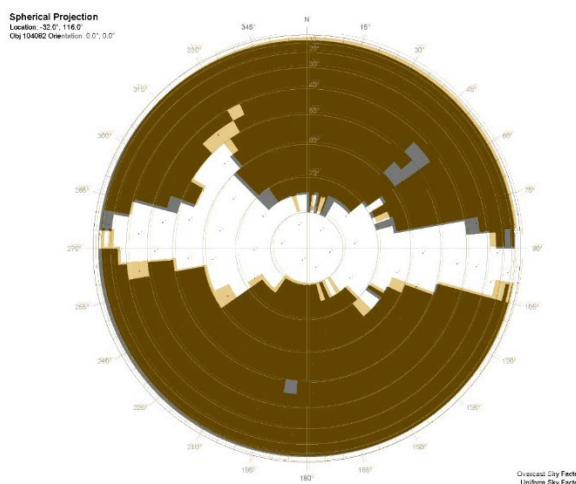
Existing Envelope
Skyview Factor: **0.200**



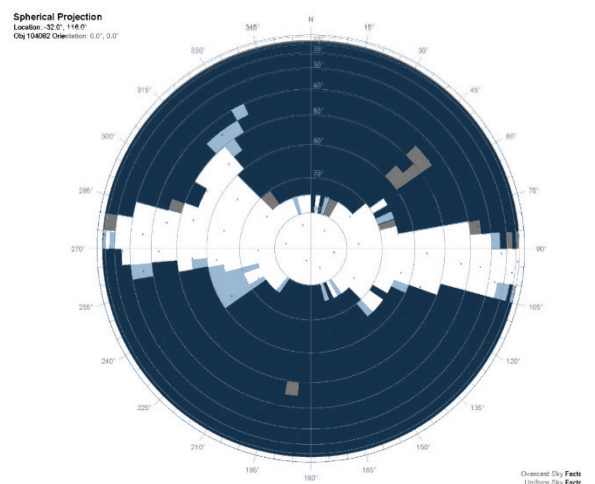
DCP Envelope
Skyview Factor: **0.180**



SSDA Envelope
Skyview Factor: **0.185**

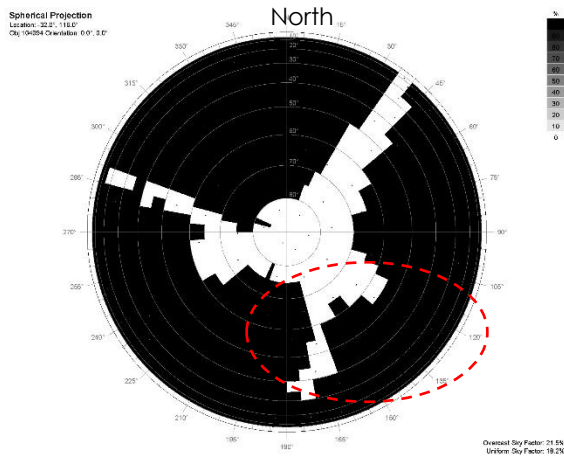


PP Envelope
Skyview Factor: **0.180**

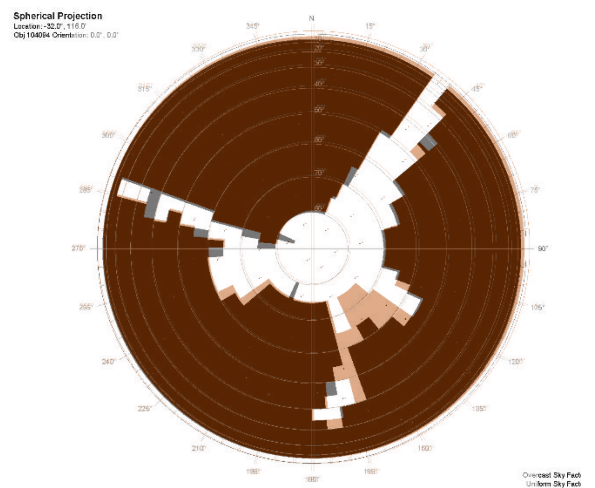


3.6. Richard Johnson Square

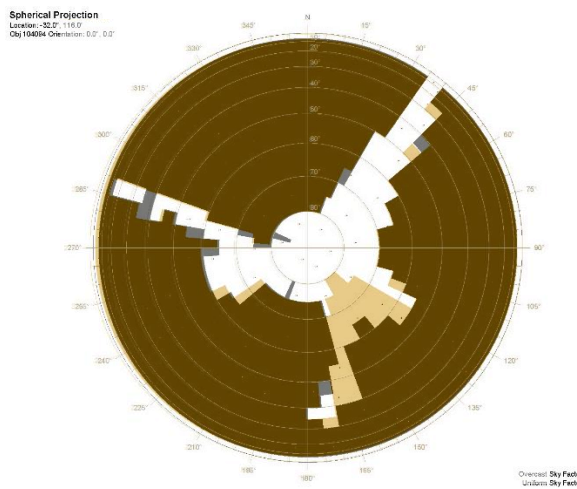
Existing Envelope
Skyview Factor: **0.140**



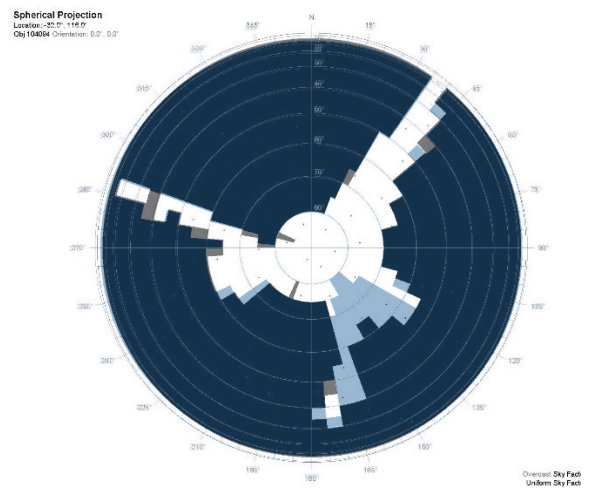
DCP Envelope
Skyview Factor: **0.135**



SSDA Envelope
Skyview Factor: **0.125**

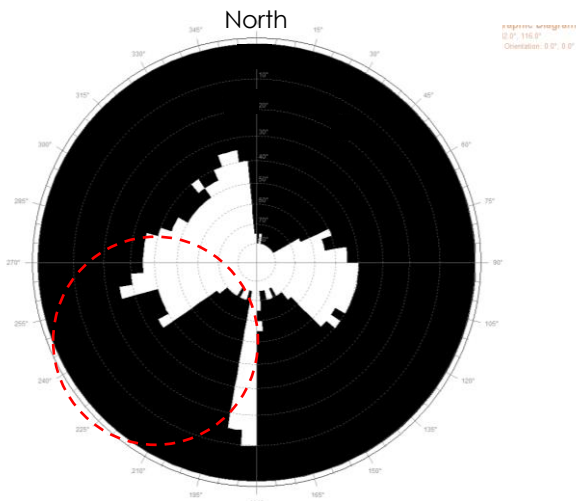


PP Envelope
Skyview Factor: **0.125**

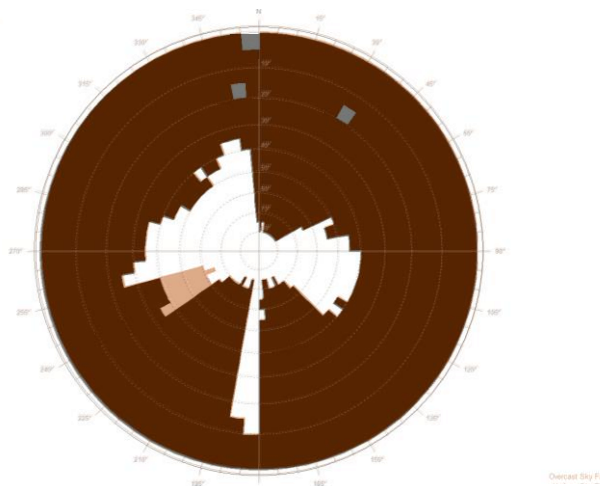


3.7. Chifley Square

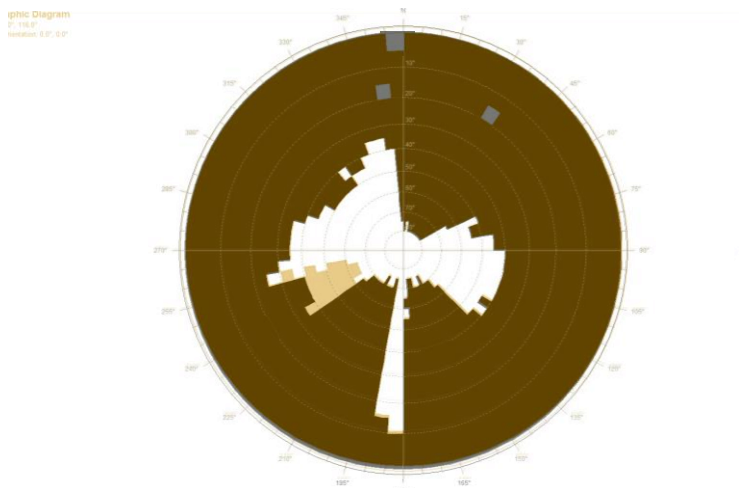
Existing Envelope
Skyview Factor: **0.240**



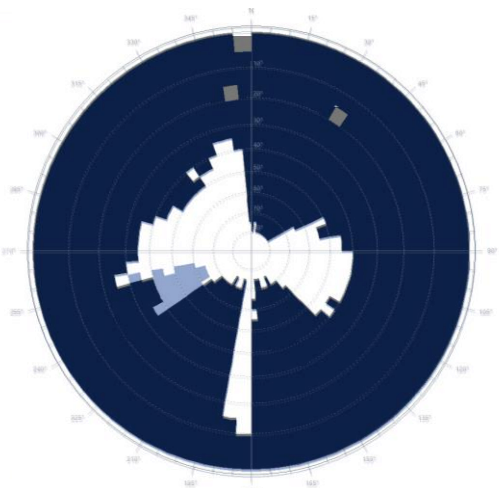
DCP Envelope
Skyview Factor: **0.225**



SSDA Envelope
Skyview Factor: **0.225**

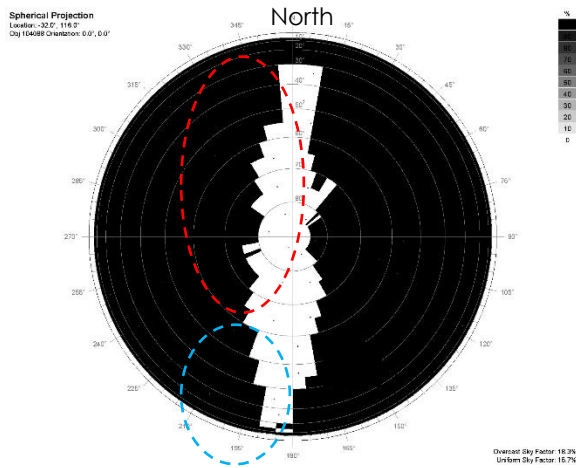


PP Envelope
Skyview Factor: **0.225**

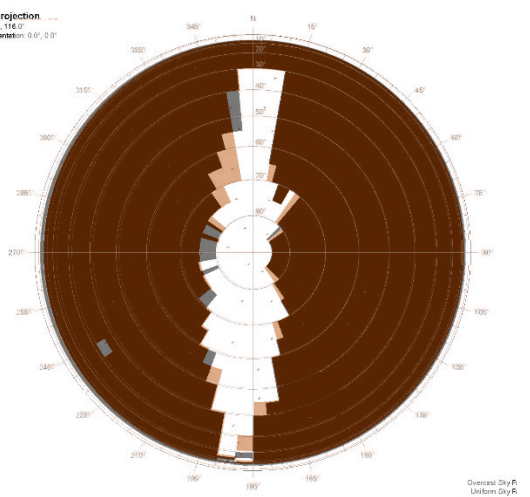


3.8. 20 Elizabeth Street

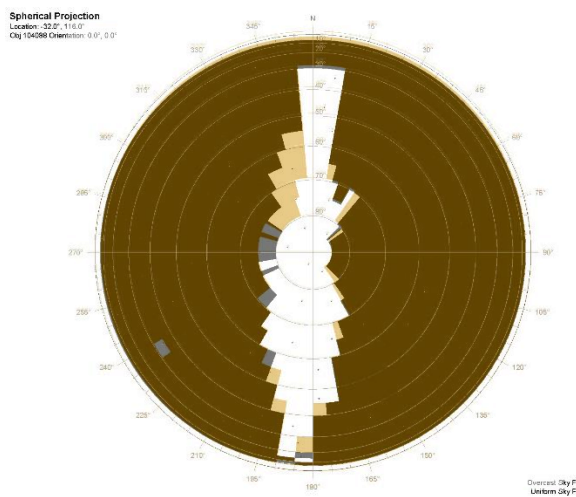
Existing Envelope
Skyview Factor: **0.110**



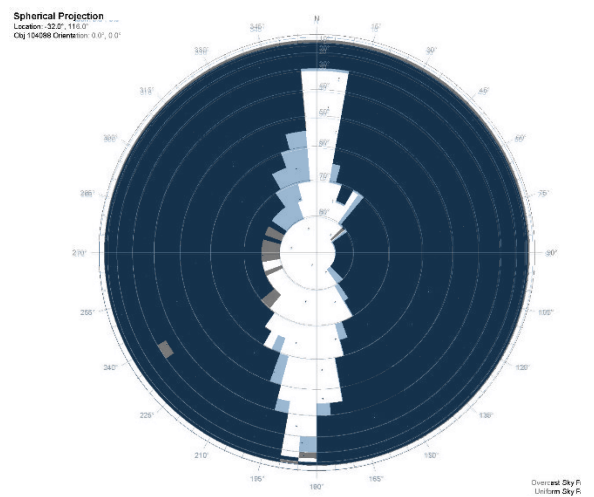
DCP Envelope
Skyview Factor: **0.110**



SSDA Envelope
Skyview Factor: **0.095**



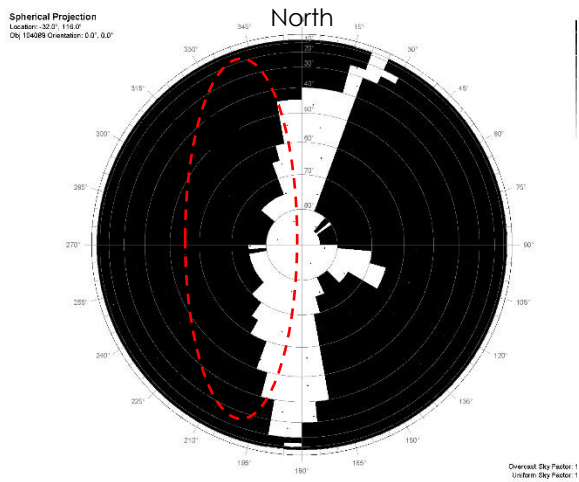
PP Envelope
Skyview Factor: **0.095**



3.9. 7 Elizabeth Street

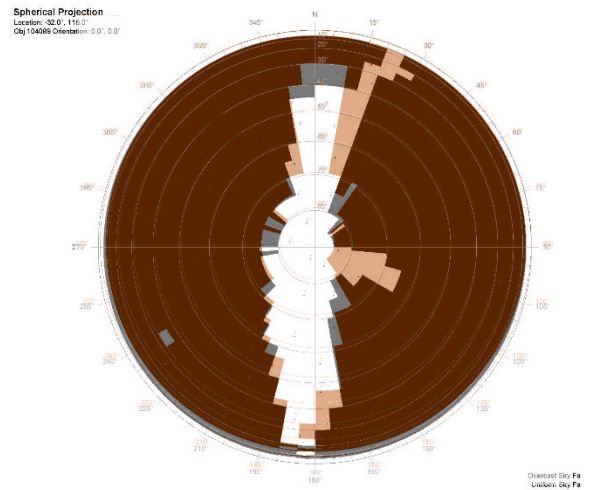
Existing Envelope

Skyview Factor: **0.130**



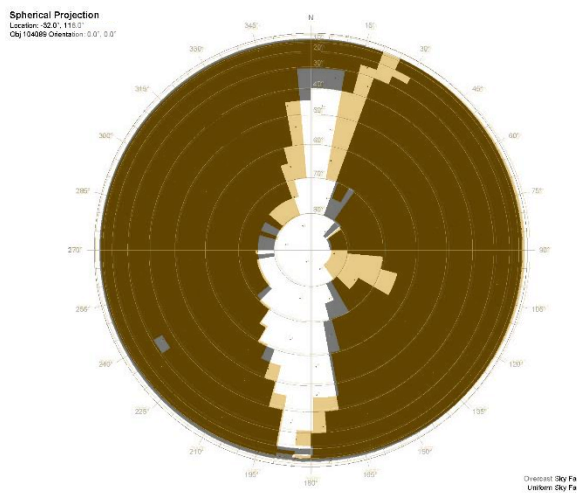
DCP Envelope

Skyview Factor: **0.130**



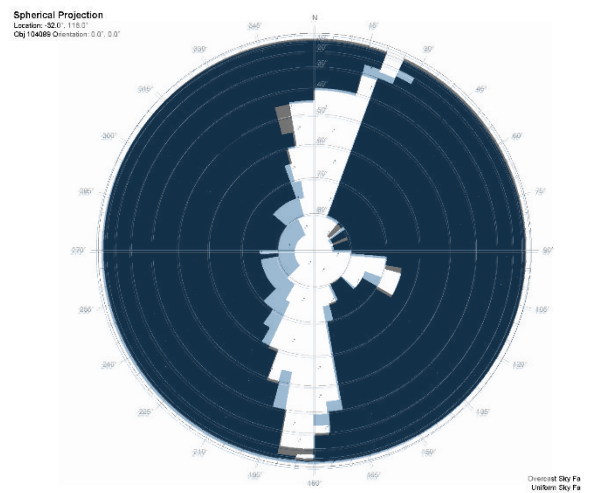
SSDA Envelope

Skyview Factor: **0.120**



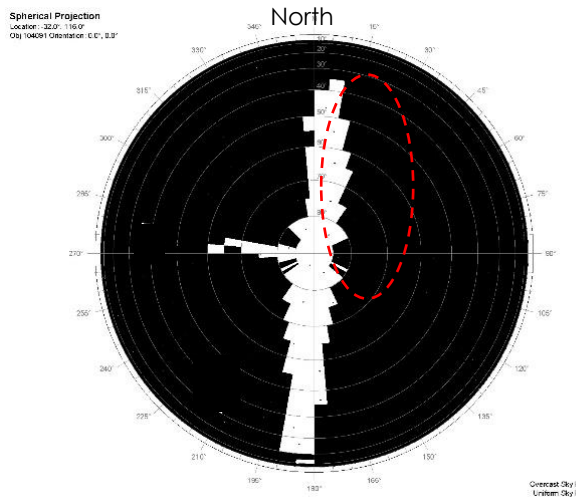
PP Envelope

Skyview Factor: **0.120**

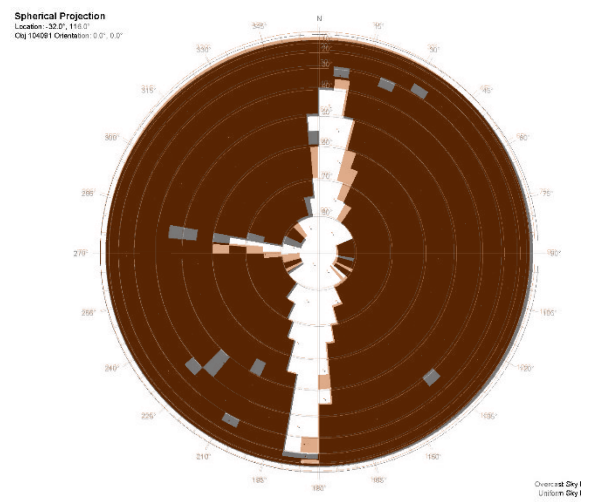


3.10. 9/17 Castlereagh Street

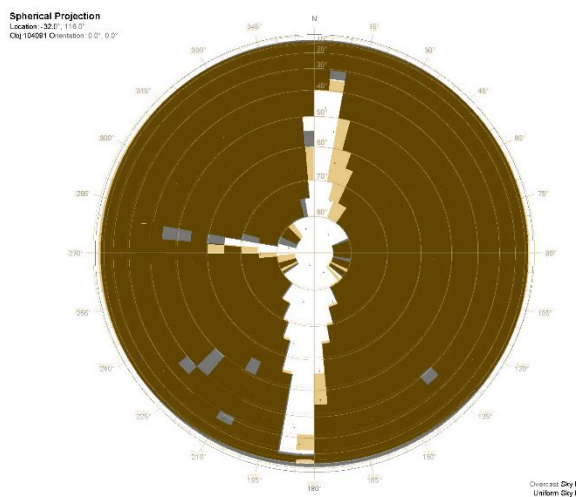
Existing Envelope
Skyview Factor: **0.100**



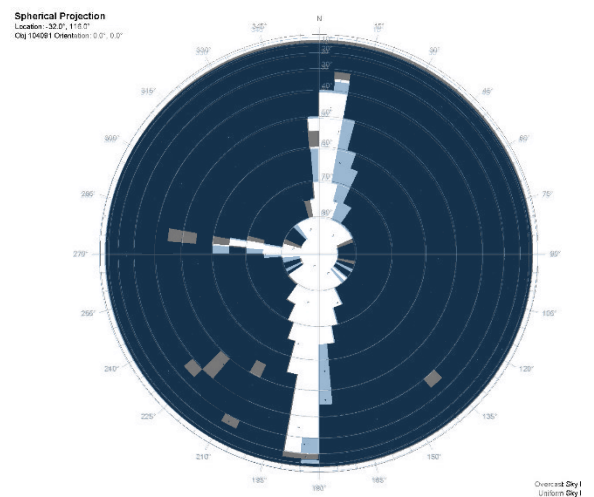
DCP Envelope
Skyview Factor: **0.095**



SSDA Envelope
Skyview Factor: **0.085**

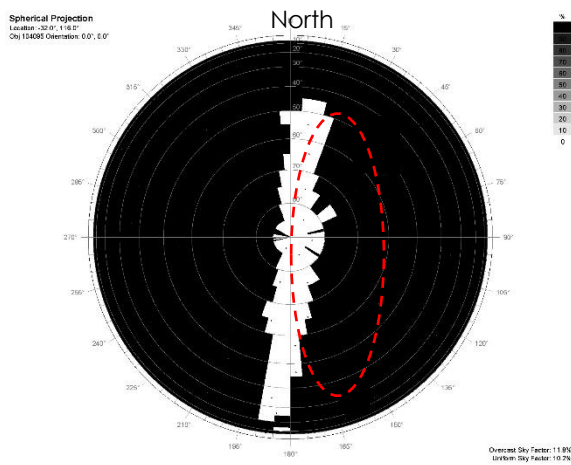


PP Envelope
Skyview Factor: **0.080**

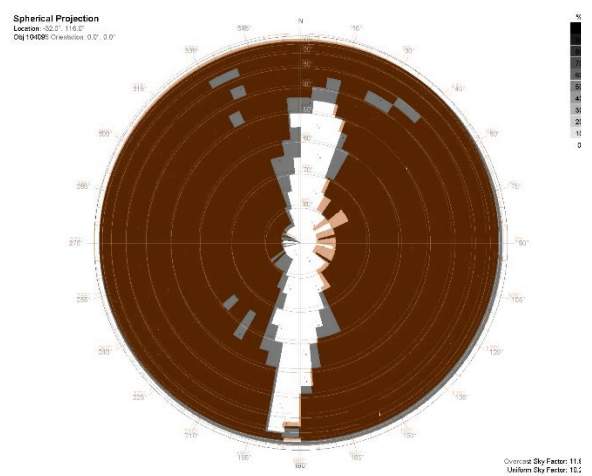


3.11. 4 Castlereagh Street

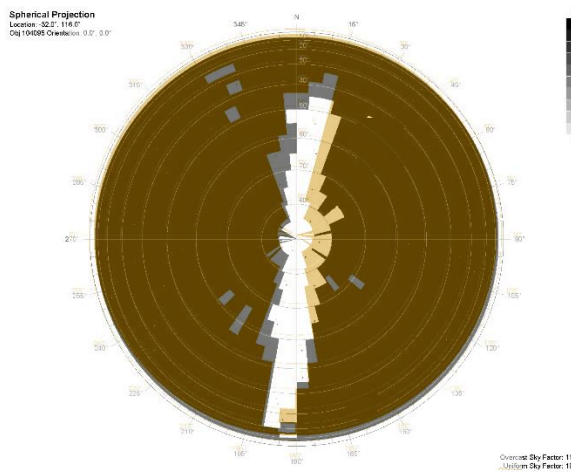
Existing Envelope
Skyview Factor: **0.140**



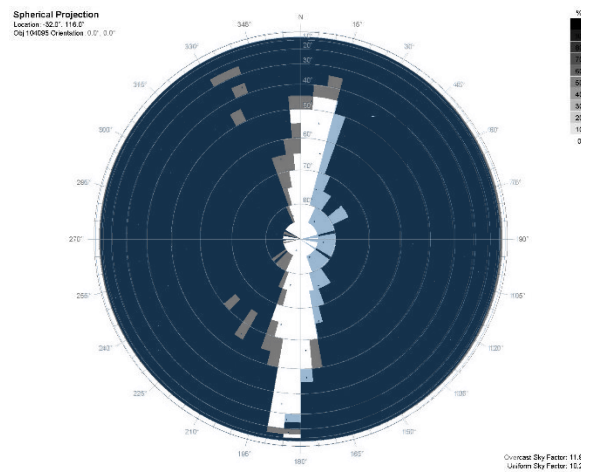
DCP Envelope
Skyview Factor: **0.115**



SSDA Envelope
Skyview Factor: **0.075**

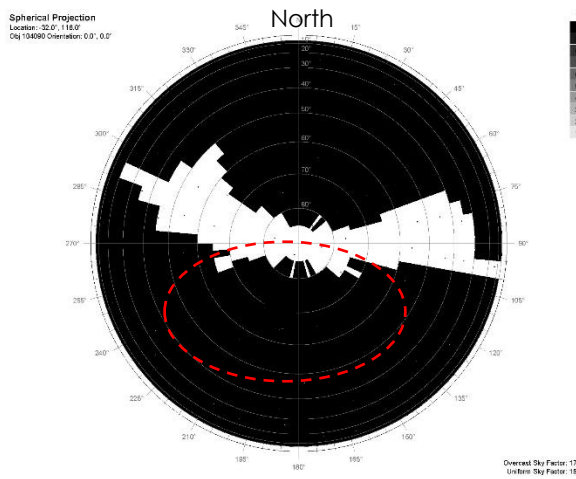


PP Envelope
Skyview Factor: **0.075**

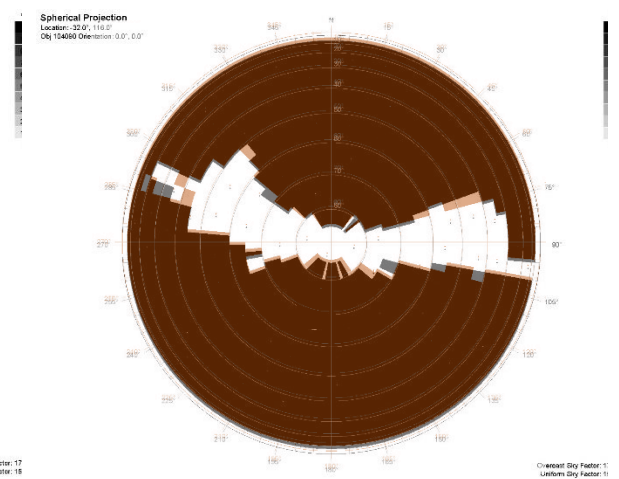


3.12. 8/55 Hunter Street

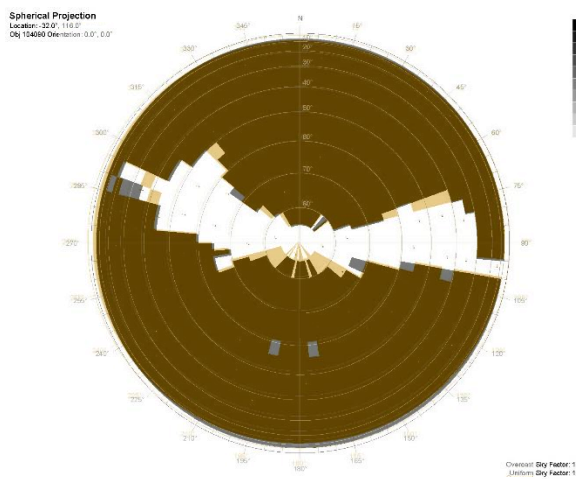
Existing Envelope
Skyview Factor: **0.110**



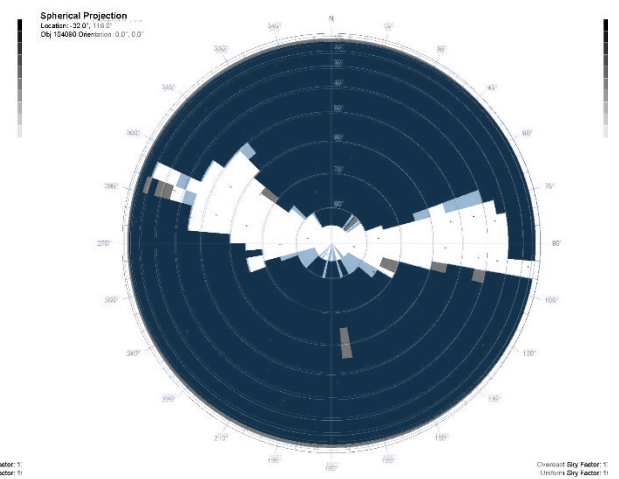
DCP Envelope
Skyview Factor: **0.100**



SSDA Envelope
Skyview Factor: **0.100**



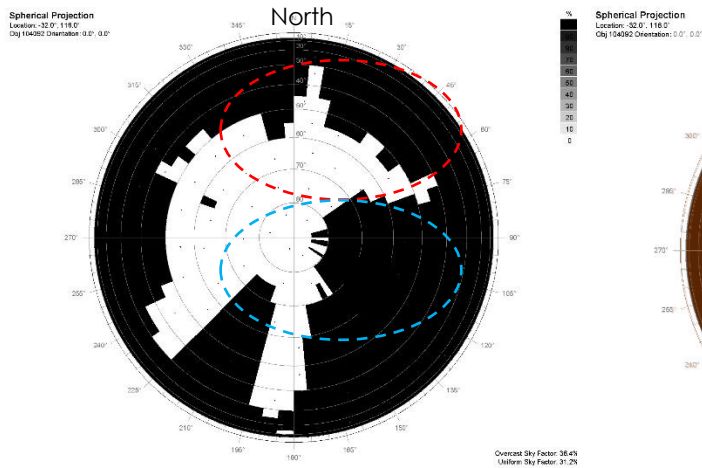
PP Envelope
Skyview Factor: **0.100**



3.13. 30 Castlereagh Street

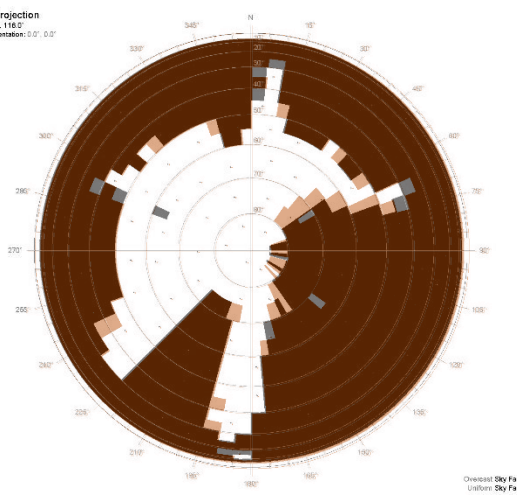
Existing Envelope

Skyview Factor: **0.225**



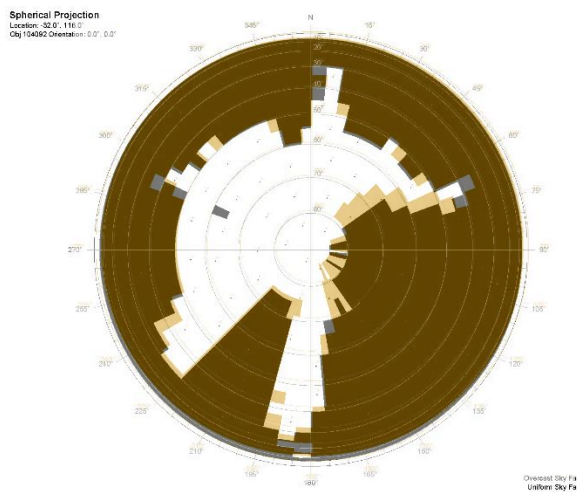
DCP Envelope

Skyview Factor: **0.200**



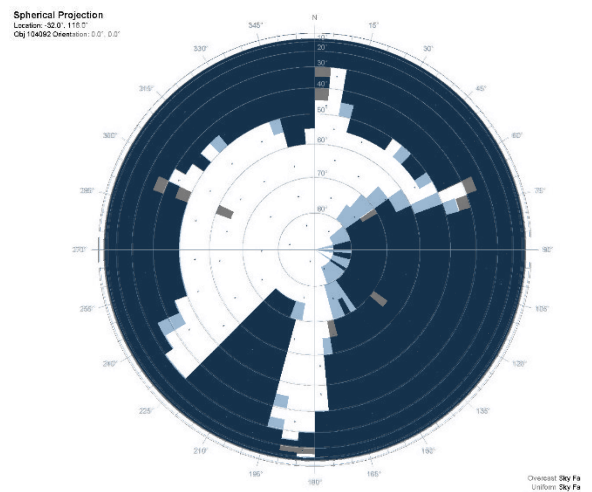
SSDA Envelope

Skyview Factor: **0.190**



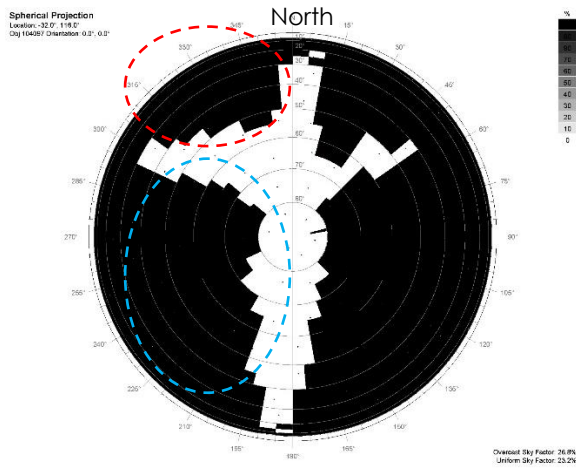
PP Envelope

Skyview Factor: **0.190**

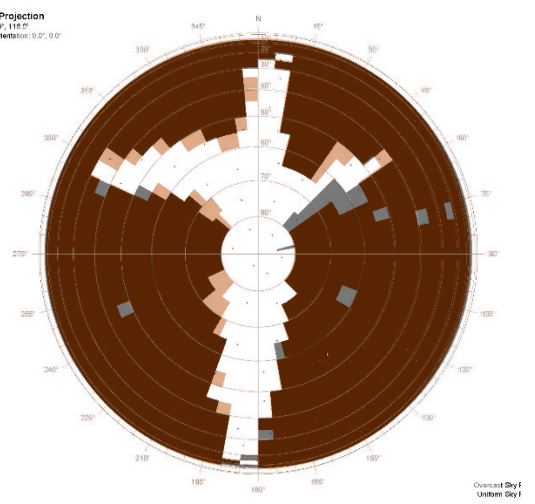


3.14. 80-85 Elizabeth Street

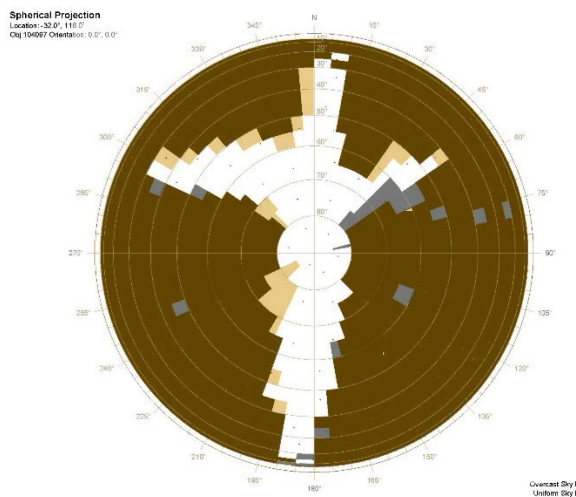
Existing Envelope
Skyview Factor: **0.190**



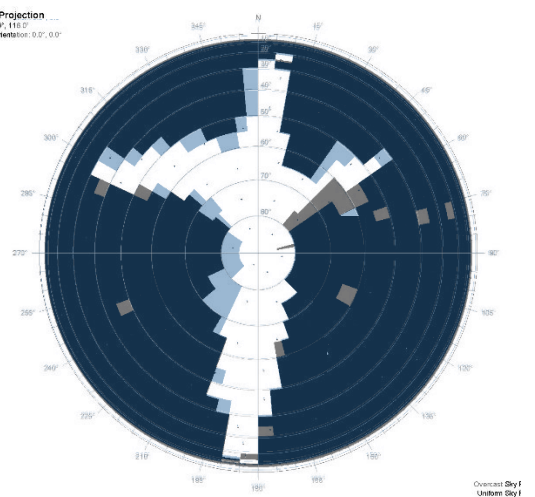
DCP Envelope
Skyview Factor: **0.170**



SSDA Envelope
Skyview Factor: **0.175**



PP Envelope
Skyview Factor: **0.170**



4. Conclusion

All 14 points maintained their classification as either low sky view factor or typical sky view factor when comparing the SSDA and PP model with the base case DCP model envelope. This demonstrates that each point has the equivalent sky view factor when compared to the base DCP model.

In reference to the base case "DCP" envelope it was noted that SSDA and PP model was identical for 3 points. Nine of the eleven remaining points reduce in Sky View Factor by up to 2%. This is equivalent to 2-4 points of reference sky views. The last two points, point 3, 37 Martin Place reduced by 2.5% and point 11, 4 Castlereagh St reduced the most by 4.0%