

# Appendix M

# Solar Access: Detailed Provisions

2016



## Contents

---

<b>1</b>	<b>Purpose of this study</b>	<b>5</b>
<b>2</b>	<b>Sun access planes</b>	<b>7</b>
	Lang Park	18
	Hyde Park	22
	Hyde Park East	26
	Belmore Park	30
	Prince Alfred Park	34
	Harmony Park	42
	Harmony Park East	47
	Macquarie Place	50
	Martin Place	52
	Barangaroo South 'Northern Parkland'	56
	Darling Harbour	58
	Darling Harbour Live Park	62
	Central Park	66
	Railway Square	70
<b>3</b>	<b>No additional overshadowing controls</b>	<b>75</b>
	No additional overshadowing controls	76
	Macquarie Place	82
	Martin Place (between Pitt Street and George Street)	84
	Pitt Street Mall	86
	Australia Square	88
	First Government House Place	90
	Sydney Town Hall Steps	92
	Sydney Square	94
	Future Town Hall Square	96



## 1

### Purpose of this study

---

Maintaining sunlight to important public parks and places is a critical objective to maximise amenity and enjoyment of the city by the community.

Survey and analysis indicates that people's use and enjoyment of parks and places has a direct relationship with the extent of direct sunlight. People typically seek out the sun throughout most of the year, only seeking out shade in public places for a short period within summer. It is therefore necessary to retain and strengthen the Sun Protection control framework to ensure continued enjoyment of important parks and public places in Central Sydney.

The most significant of the height controls in Central Sydney are those that protect sunshine to important public parks and places.

There are two types of controls:

1. Sun Access Planes (SAP)
2. Overshadowing of Certain Public Places (No Additional Overshadowing - NAO)

The purpose of this study is to outline the technical parameters used to generate each of the proposed growth strategies of:

1. Sun Access Planes; and
2. No Additional Overshadowing Controls.

Further detail is found in Appendices A-L.



## 2

### Sun access planes

---

#### **Methodology**

Each of the SAP protected Open Spaces are identified in terms of:

1. Description: amenity considerations;
2. Proposed SAP Controls; and
3. The detailed setout parameters used to generate the Sun Access Plan Control, illustrated through text and mapping.

## The Royal Botanic Gardens

### Proposed SAP Control

Type	Sun Access Plane
Intended Period of Protection	9am - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	14.00

### Description

Regionally significant, scientific resource, part of a network of the botanic gardens. The landscape design of the Royal Botanic Gardens, and the plants themselves, has a high degree of Historic significance. The plantings are organised in such a way that many different types of landscape spaces and microclimates are created. The Gardens contain a number of significant monuments and other built heritage features.

Good solar access is a function of the location and scale of The Gardens. Potential for overshadowing is limited to the western edge. As such, most of the Gardens receive very good sunlight. Some overshadowing from existing, pre-SAP towers in the northern core occurs along the western edge near Macquarie Street. This is the area most used by office workers seeking a sunny patch of grass on which to enjoy their lunch.

The original and primary purposes of the Royal Botanic Gardens were botanical as well as for scientific and research functions. The gardens now also support a wide variety of passive and informal active recreation as well as providing a venue for a limited number of events, including New Year's Eve celebrations, though these are generally located away from the areas vulnerable to overshadowing from tall buildings in the core.

The Gardens provide an important landscape setting to Government House, and the CBD.



### Detailed Setout of Sun Access Planes shown in M\_01

#### construct Plane (i) joining Ray A1 to Ray B1

where Ray A1 is constructed as an ascending edge from Node A:		
Node A	Description:	a point 77.076m along a line extending north-northeastward – with horizontal bearing 12.89° – from Node B.
	MGA Coordinates:	334731.1E, 6252051.3N
	Elevation:	RL 48.5 AHD (where ground level is approximately RL 3.5 AHD)
and the ascending edge of Ray A1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray B1 is constructed as an ascending edge from Node B:		
Node B	Description:	3 Macquarie Street's site boundary northeast corner.
	MGA Coordinates:	334715.2E, 6251975.9N
	Elevation:	RL 52.0 AHD (where ground level is approximately RL 7.0 AHD)
and the ascending edge of Ray B1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

#### construct Plane (ii) joining Ray B1 to Ray C1

where Ray B1 is constructed as an ascending edge from Node B:		
Node B	Description:	3 Macquarie Street's site boundary northeast corner.
	MGA Coordinates:	334715.2E, 6251975.9N
	Elevation:	RL 52.0 AHD (where ground level is approximately RL 7.0 AHD)
and the ascending edge of Ray B1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray C1 is constructed as an ascending edge from Node C:		
Node C	Description:	Northeast corner of 61-69 Macquarie Street.
	MGA Coordinates:	334703.9E, 6251865.4N
	Elevation:	RL 55.5 AHD (where ground level is approximately RL 10.5 AHD)
and the ascending edge of Ray C1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°



**construct Plane (iii) joining Ray C1 to Ray D1**

where Ray C1 is constructed as an ascending edge from Node C:		
Node C	Description:	Northeast corner of 61-69 Macquarie Street.
	MGA Coordinates:	334703.9E, 6251865.4N
	Elevation:	RL 55.5 AHD (where ground level is approximately RL 10.5 AHD)
and the ascending edge of Ray C1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray D1 is constructed as an ascending edge from Node D:		
Node D	Description:	Southeast corner of 81 Macquarie Street.
	MGA Coordinates:	334693.1E, 6251766.7N
	Elevation:	RL 57.75 AHD (where ground level is approx. RL 12.75 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray D1 to Ray E1**

where Ray D1 is constructed as an ascending edge from Node D:		
Node D	Description:	Southeast corner of 81 Macquarie Street.
	MGA Coordinates:	334693.1E, 6251766.7N
	Elevation:	RL 57.75 AHD (where ground level is approx. RL 12.75 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray E1 is constructed as an ascending edge from Node E:		
Node E	Description:	Intersection of: - a northward extension of the western alignment of the portion of Macquarie Street between Albert and Bridge Streets; with - an eastward extension of the east-most portion of 89-91 Macquarie Street's northern site boundary.
	MGA Coordinates:	334690.5E, 6251745.9N
	Elevation:	RL 58.25 AHD (where ground level is approx. RL 13.25 AHD)
and the ascending edge of Ray E1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (v) joining Ray E1 to Ray F1**

where Ray E1 is constructed as an ascending edge from Node E:		
Node E	Description:	Intersection of: - a northward extension of the western alignment of the portion of Macquarie Street between Albert and Bridge Streets; with - an eastward extension of the east-most portion of 89-91 Macquarie Street's northern site boundary.
	MGA Coordinates:	334690.5E, 6251745.9N
	Elevation:	RL 58.25 AHD (where ground level is approx. RL 13.25 AHD)
and the ascending edge of Ray E1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray F1 is constructed as an ascending edge from Node F:		
Node F	Description:	Southeast corner of 115-119 Macquarie Street.
	MGA Coordinates:	334674.9E, 6251577.5N
	Elevation:	RL 66.0 AHD (where ground level is approximately RL 21.0 AHD)
and the ascending edge of Ray F1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vi) joining Ray F1 to Ray G1**

where Ray F1 is constructed as an ascending edge from Node F:		
Node F	Description:	Southeast corner of 115-119 Macquarie Street.
	MGA Coordinates:	334674.9E, 6251577.5N
	Elevation:	RL 66.0 AHD (where ground level is approximately RL 21.0 AHD)
and the ascending edge of Ray F1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

construct Plane (vi) joining Ray F1 to Ray G1 (continued)

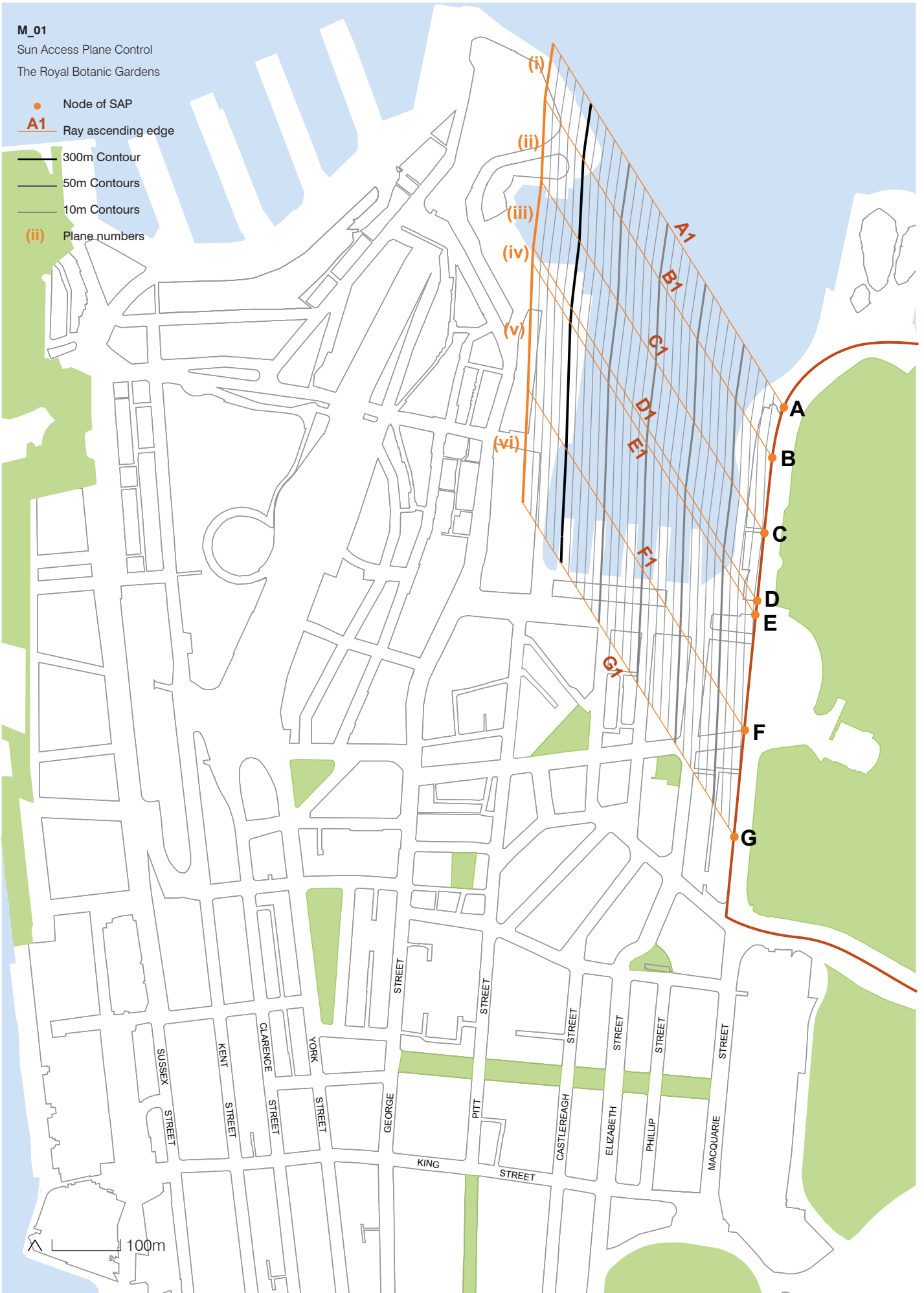
and where Ray G1 is constructed as an ascending edge from Node G:

Node G	Description:	Southeast corner of 139-141 Macquarie Street.
	MGA Coordinates:	334660.0E, 6251422.3N
	Elevation:	RL 72.5 AHD (where ground level is approximately RL 27.5 AHD)
and the ascending edge of Ray G1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**M\_01**

Sun Access Plane Control  
The Royal Botanic Gardens

- Node of SAP
- A1** Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii) Plane numbers



## The Domain

### Control

Type	Sun Access Plane
Intended Period of Protection	9am - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	14.00

### Description

Note that the Domain and the Botanic Gardens are subject to a new Masterplan that will intensify their use and significance.

The open grassland and significant tree plantings of the Domain parklands are locally and regionally significant. The Domain is an important passive and active recreational resource for Central Sydney. It has the only formal sports playing fields near the CBD. The Domain contains a number of mature trees of heritage significance, and the landscape as a whole has a high degree of heritage value.

The Domain is a flexible green open space and is well used throughout the day and year for formal and informal sports, running, boot camps and other recreational activities. Much of this activity is undertaken by workers in the city during the week, and local residents on weekends. The Domain is a sunny, green, open space destination for workers, residents and visitors at lunch time. The condition of the grass in the Domain is critical to supporting these activities.

The Domain is an important connector between the art gallery precinct, the royal botanic gardens, Central Sydney, Woolloomooloo and Darlinghurst.

The Domain is the landscape setting to the Art Gallery of NSW, making space for the building to be viewed from different angles and distances. The composition of tree planting, pathways and open, grassed landscape form a sequence of views to the building as it is approached.



### Detailed Setout of Sun Access Planes shown in M\_02

#### construct Plane (i) joining Ray A1 to Ray B1

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the western alignment of Hospital Road with the southern alignment of Shakespeare Place.
	MGA Coordinates:	334773.3E, 6251243.6N
	Elevation:	RL 55.5 AHD (where ground level is approximately RL 30.5 AHD)

and the ascending edge of Ray A1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of: - the western alignment of Hospital Road; with - the site boundary between 8 and 10A Macquarie Street.
	MGA Coordinates:	334743.2E, 6250956.5N
	Elevation:	RL 54.0 AHD (where ground level is approximately RL29.0 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

#### construct Plane (ii) joining Ray B1 to Ray C1

where Ray B1 is constructed as an ascending edge from Node B:

Node A	Description:	Intersection of - the western alignment of Hospital Road; with - the site boundary between 8 and 10A Macquarie Street.
	MGA Coordinates:	334743.2E, 6250956.5N
	Elevation:	RL 54.0 AHD (where ground level is approximately RL29.0 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray C1 is constructed as an ascending edge from Node C:

Node B	Description:	a south-southwestward 212.145m extension from Node B of the line connecting Nodes A and B.
	MGA Coordinates:	334721.2E, 6250745.5N
	Elevation:	RL 54.5 AHD (where ground level is approximately RL29.5 AHD)

and the ascending edge of Ray C1 has: Horizontal bearing 328.63° and Vertical angle 25.69°



M\_02

Sun Access Plane Control  
The Domain

- Node of SAP
- A1 Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii) Plane numbers

## Wynyard Park

### Control

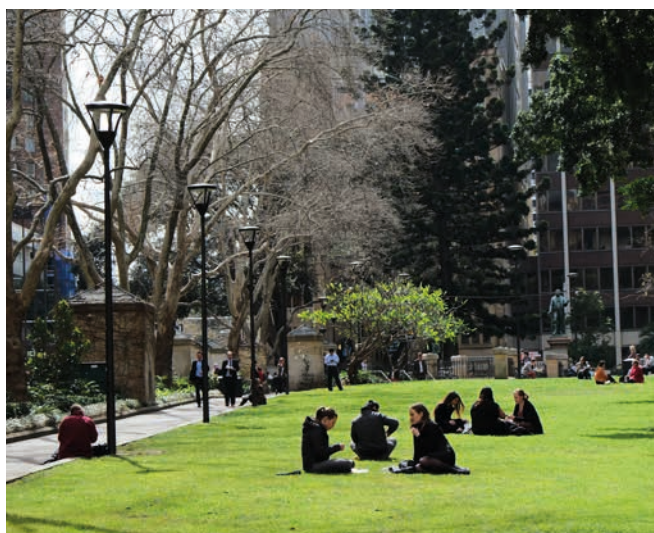
Type	Sun Access Plane
Intended Period of Protection	12pm - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	12.00 14.00
SAP Extension Dates and Times	23 September 21 December

### Description

Wynyard Park is the key green open space providing passive recreation opportunities to the western edge of the City. Wynyard Park was once the location of the parade grounds attached to the barracks in the early colony of Sydney, the Park is of heritage value and significance. The Park contains significant, mature feature trees, both deciduous and evergreen.

The Park receives good sunlight throughout the protected period, with the most significant overshadowing caused by existing buildings to the north.

The sunny grassed areas and seats in the park attract workers at lunch time. The Park is activated at all times by people accessing buses and trains.



### Detailed Setout of Sun Access Planes shown in M\_03

#### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:		
Node A	Description:	Intersection of the southern alignment of Wynyard Street with the western alignment of the adjacent portion of York Street.
	MGA Coordinates:	334034.8E, 6251132.0N
	Elevation:	RL 66.0 AHD (where ground level is approximately RL 21.0 AHD)
and the ascending edge of Ray A1 has:		Horizontal bearing 282.25° and Vertical angle 60.44°
and where Ray A2 is constructed as an ascending edge from Node A:		
Node A	Description: as defined above	
and the ascending edge of Ray A2 has:		Horizontal bearing 310.49° and Vertical angle 44.16°

#### construct Plane (ii) joining Ray A2 to Ray A3

where Ray A2 is constructed as an ascending edge from Node A:		
Node A	Description:	Intersection of the southern alignment of Wynyard Street with the western alignment of the adjacent portion of York Street.
	MGA Coordinates:	334034.8E, 6251132.0N
	Elevation:	RL 66.0 AHD (where ground level is approximately RL 21.0 AHD)
and the ascending edge of Ray A2 has:		Horizontal bearing 310.49° and Vertical angle 44.16°
and where Ray A3 is constructed as an ascending edge from Node A:		
Node A	Description: as defined above	
and the ascending edge of Ray A3 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iii) joining Ray A3 to Ray B1**

where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the southern alignment of Wynyard Street with the western alignment of the adjacent portion of York Street.
	MGA Coordinates:	334034.8E, 6251132.0N
	Elevation:	RL 66.0 AHD (where ground level is approximately RL 21.0 AHD)

and the ascending edge of Ray A3 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of the northern alignment of Erskine Street with the western alignment of the adjacent portion of York Street.
	MGA Coordinates:	334027.7E, 6251191.1N
	Elevation:	RL 66.0 AHD (where ground level is approximately RL 21.0 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray B1 to Ray C1**

where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of the northern alignment of Erskine Street with the western alignment of the adjacent portion of York Street.
	MGA Coordinates:	334027.7E, 6251191.1N
	Elevation:	RL 66.0 AHD (where ground level is approximately RL 21.0 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray B1 to Ray C1 (continued)**

and where Ray C1 is constructed as an ascending edge from Node C:

Node C	Description:	Intersection of - a northward extension of the western alignment of the portion of York St between Erskine and Margaret Sts; with - a westward extension of the northern alignment of the portion of Margaret St directly opposite Wynyard Park's northern end.
	MGA Coordinates:	334006.7E, 6251363.7N
	Elevation:	RL 68.0 AHD (where ground level is approximately RL 23.0 AHD)

and the ascending edge of Ray C1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and the ascending edge of Ray C1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and the ascending edge of Ray C1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (v) joining Ray C2 to Ray D1**

where Ray C2 is constructed as an ascending edge from Node C:

Node C	Description:	Intersection of - a northward extension of the western alignment of the portion of York St between Erskine and Margaret Sts; with - a westward extension of the northern alignment of the portion of Margaret St directly opposite Wynyard Park's northern end.
	MGA Coordinates:	334006.7E, 6251363.7N
	Elevation:	RL 53.0 AHD (where ground level is approximately RL 23.0 AHD)

and the ascending edge of Ray C2 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and the ascending edge of Ray C2 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and the ascending edge of Ray C2 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (v) joining Ray C2 to Ray D1 (continued)**

and where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - a northward extension of the eastern alignment of the northern portion of Carrington Street; with - the northern alignment of the portion of Margaret Street directly opposite Wynyard Park's northern end.
	MGA Coordinates:	334107.8E, 6251365.7N
	Elevation:	RL 50.0 AHD (where ground level is approximately RL 17.5 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vi) joining Ray D1 to Ray D2**

where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - a northward extension of the eastern alignment of the northern portion of Carrington Street; with - the northern alignment of the portion of Margaret Street directly opposite Wynyard Park's northern end.
	MGA Coordinates:	334107.8E, 6251365.7N
	Elevation:	RL 50.0 AHD (where ground level is approximately RL 17.5 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray D2 is constructed as an ascending edge from Node D:

Node D	Description: as defined above
and the ascending edge of Ray D2 has:	Horizontal bearing 359.16° and Vertical angle 32.72°



**M\_03**

Sun Access Plane Control

Wynyard Park

- Node of SAP
- A1** Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii)** Plane numbers



## Lang Park

### Control

Type	Sun Access Plane
Intended Period of Protection	12pm - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	12.00 14.00
SAP Extension Dates and Times	23 September 21 December

### Description

Lang Park is bounded by Grosvenor Street (north), York Street (west) and Lang Street (south-east). The park retains a significant collection of nineteenth century planting which reinforces the historic character of the precinct. The Park is defined by a typical structured treatment of informal row planting to the boundaries and individual specimen planting within the central lawn areas. The Park contains three majestic Moreton Bay Figs, these figs are outstanding examples of this species.

Lang Park was the site of Sydney's first clock tower (1798-1802) and the Church of St Phillip, named after Governor Phillip which stood on the site between 1798-1856. During this period, the site was known as "Lang's Triangle" in honour of Rev. Dr. J H Lang, who founded the Presbyterian Church in Australia. In 1866, the site was dedicated as a park for public recreation in honour of Rev. Dr. Lang.



### Detailed Setout of Sun Access Planes shown in M\_04

#### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - an eastward extension of the northern alignment of the west-most portion of Jamison St between Clarence and York Sts; with - a southward extension of the western alignment of the south-most portion of York St between Grosvenor and Jamison Sts.
	MGA Coordinates:	333996.0E, 6251451.2N
	Elevation:	RL 35.0 AHD (where ground level is approximately RL 26.0 AHD)

and the ascending edge of Ray A1 has:

Horizontal bearing 282.25° and Vertical angle 60.44°

and where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
and the ascending edge of Ray A2 has:		Horizontal bearing 310.49° and Vertical angle 44.16°

#### construct Plane (ii) joining Ray A2 to Ray A3

where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - an eastward extension of the northern alignment of the west-most portion of Jamison St between Clarence and York Sts; with - a southward extension of the western alignment of the south-most portion of York St between Grosvenor and Jamison Sts.
	MGA Coordinates:	333996.0E, 6251451.2N
	Elevation:	RL 35.0 AHD (where ground level is approximately RL 26.0 AHD)

and the ascending edge of Ray A2 has:

Horizontal bearing 310.49° and Vertical angle 44.16°

**construct Plane (ii) joining Ray A2 to Ray A3 (continued)**

and where Ray A3 is constructed as an ascending edge from Node A:	
Node A	Description: as defined above
and the ascending edge of Ray A3 has:	Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iii) joining Ray A3 to Ray B1**

where Ray A3 is constructed as an ascending edge from Node A:	
Node A	Description: Intersection of - an eastward extension of the northern alignment of the west-most portion of Jamison St between Clarence and York Sts; with - a southward extension of the western alignment of the south-most portion of York St between Grosvenor and Jamison Sts.
MGA Coordinates:	333996.0E, 6251451.2N
Elevation:	RL 35.0 AHD (where ground level is approximately RL 26.0 AHD)
and the ascending edge of Ray A3 has:	Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray B1 is constructed as an ascending edge from Node B:	
Node B	Description: as defined above - northward extension of the western alignment of the south-most portion of York St between Grosvenor and Jamison Sts, & - westward extension of a line between 205-227 George St's site boundaries' southwest corner and 16-18 Grosvenor St's site boundaries' southeast corner.
MGA Coordinates:	333982.7E, 6251559.0N
Elevation:	RL 35.0 AHD (where ground level is approximately RL 28.0 AHD)
and the ascending edge of Ray B1 has:	Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray B2 to Ray C1**

where Ray B2 is constructed as an ascending edge from Node B:	
Node B	Description: Intersection of - northward extension of the western alignment of the south-most portion of York St between Grosvenor and Jamison Sts, & - westward extension of a line between 205-227 George St's site boundaries' southwest corner and 16-18 Grosvenor St's site boundaries' southeast corner.
MGA Coordinates:	333982.7E, 6251559.0N
Elevation:	RL 43.0 AHD (where ground level is approximately RL 28.0 AHD)
and the ascending edge of Ray B2 has:	Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray C1 is constructed as an ascending edge from Node C:	
Node C	Description: 16-18 Grosvenor Street's site boundaries' southeast corner.
MGA Coordinates:	334024.3E, 6251558.7N
Elevation:	RL 30.0 AHD (where ground level is approximately RL 25.0 AHD)
and the ascending edge of Ray C1 has:	Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (v) joining Ray C2 to Ray D1**

where Ray C2 is constructed as an ascending edge from Node C:	
Node C	Description: 16-18 Grosvenor Street's site boundaries' southeast corner.
MGA Coordinates:	334024.3E, 6251558.7N
Elevation:	RL 30.0 AHD (where ground level is approximately RL 25.0 AHD)
and the ascending edge of Ray C2 has:	Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (v) joining Ray C2 to Ray D1 (continued)**

and where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - an eastward extension of a line between 205-227 George St's site boundaries' southwest corner and 16-18 Grosvenor St's site boundaries' southeast corner, with - a line perpendicular to this and also passing through 18-32 Jamison St's site boundaries' northwest corner, at the corner of Lang and Grosvenor Streets.
	MGA Coordinates:	334114.0E, 6251557.8N
	Elevation:	RL 30.0 AHD (where ground level is approximately RL 16.0 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vi) joining Ray D1 to Ray D2**

where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - an eastward extension of a line between 205-227 George St's site boundaries' southwest corner and 16-18 Grosvenor St's site boundaries' southeast corner, with - a line perpendicular to this and also passing through 18-32 Jamison St's site boundaries' northwest corner, at the corner of Lang and Grosvenor Streets
	MGA Coordinates:	334114.0E, 6251557.8N
	Elevation:	RL 30.0 AHD (where ground level is approximately RL 16.0 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray D2 is constructed as an ascending edge from Node D:

Node D	Description:	as defined above
and the ascending edge of Ray D2 has:		Horizontal bearing 359.16° and Vertical angle 32.72°

M\_04

Sun Access Plane Control

Lang Park

- Node of SAP
- A1** Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii)** Plane numbers



## Hyde Park

### Control

Type	Sun Access Plane
Intended Period of Protection	10am - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	10.00 12.00 14.00
SAP Extension Dates and Times	21 March 23 September 21 December

### Description

Hyde Park is used as an informal open space, providing for a variety of passive and active recreation.

It also caters for events, organised by the City of Sydney and the State Government that contribute to tourism and a vibrant global city.

Hyde Park is a major pedestrian thoroughfare. It connects several major precincts of the city and also contains entrances to two of the stations on the city circle train line, and is edged by major bus routes on the Elizabeth Street edge.

Hyde Park is of Historic Significance, monuments of great ceremonial and community value, including the Anzac memorial and the Archibald Fountain, are located in Hyde Park. It is attached to historic precincts of Macquarie Street, Hyde Park Barracks, St Mary's Cathedral and the Australian Museum.

Hyde Park provides a high degree of amenity to buildings and streets in the core of the city.



### Detailed Setout of Sun Access Planes shown in M\_05

#### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the western alignment of Elizabeth Street with the northern alignment of Liverpool Street.
	MGA Coordinates:	334385.2E, 6250063.4N
	Elevation:	RL 70.0 AHD (where ground level is approximately RL 25.0 AHD)

and the ascending edge of Ray A1 has: Horizontal bearing 282.25° and Vertical angle 60.44°

and where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray A2 has: Horizontal bearing 310.49° and Vertical angle 44.16°

#### construct Plane (ii) joining Ray A2 to Ray A3

where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the western alignment of Elizabeth Street with the northern alignment of Liverpool Street.
	MGA Coordinates:	334385.2E, 6250063.4N
	Elevation:	RL 70.0 AHD (where ground level is approximately RL 25.0 AHD)

and the ascending edge of Ray A2 has: Horizontal bearing 310.49° and Vertical angle 44.16°

and where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray A3 has: Horizontal bearing 328.63° and Vertical angle 25.69°

#### construct Plane (iii) joining Ray A3 to Ray B1

where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the western alignment of Elizabeth Street with the northern alignment of Liverpool Street.
	MGA Coordinates:	334385.2E, 6250063.4N
	Elevation:	RL 70.0 AHD (where ground level is approximately RL 25.0 AHD)

and the ascending edge of Ray A3 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iii) joining Ray A3 to Ray B1 (continued)**

and where Ray B1 is constructed as an ascending edge from Node B:		
Node B	Description:	Intersection of the western alignment of Elizabeth Street with the southern alignment of Park Street.
	MGA Coordinates:	334417.4E, 6250436.2N
	Elevation:	RL 71.0 AHD (where ground level is approximately RL 26.0 AHD)
and the ascending edge of Ray B1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray B1 to Ray C1**

where Ray B1 is constructed as an ascending edge from Node B:		
Node B	Description:	Intersection of the western alignment of Elizabeth Street with the southern alignment of Park Street.
	MGA Coordinates:	334417.4E, 6250436.2N
	Elevation:	RL 71.0 AHD (where ground level is approximately RL 26.0 AHD)
and the ascending edge of Ray B1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray C1 is constructed as an ascending edge from Node C:		
Node C	Description:	Intersection of - a westward extension of a line coincident with the south (St James Road)-facing central segment of the 102 Elizabeth Street site boundary; and - the western alignment of Elizabeth Street between King and Market Streets.
	MGA Coordinates:	334449.5E, 6250803.3N
	Elevation:	RL 69.0 AHD (where ground level is approximately RL 24.0 AHD)
and the ascending edge of Ray C1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (v) joining Ray C2 to Ray D1**

where Ray C2 is constructed as an ascending edge from Node C:		
Node C	Description:	Intersection of - a westward extension of a line coincident with the south (St James Road)-facing central segment of the 102 Elizabeth Street site boundary; and - the western alignment of Elizabeth Street between King and Market Streets.
	MGA Coordinates:	334449.5E, 6250803.3N
	Elevation:	RL 47.0 AHD (where ground level is approximately RL 24.0 AHD)
and the ascending edge of Ray C2 has:		Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray D1 is constructed as an ascending edge from Node D:		
Node D	Description:	Point on the south site boundary of 102 Elizabeth Street at the greatest horizontal angle change on the northern alignment of St James Road.
	MGA Coordinates:	334520.9E, 6250841.6N
	Elevation:	RL 50.5 AHD (where ground level is approximately RL 27.5 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vi) joining Ray D1 to Ray E1**

where Ray D1 is constructed as an ascending edge from Node D:		
Node D	Description:	Point on the south site boundary of 102 Elizabeth St at the greatest horizontal angle change on the northern alignment of St James Rd.
	MGA Coordinates:	334520.9E, 6250841.6N
	Elevation:	RL 50.5 AHD (where ground level is approximately RL 27.5 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vi) joining Ray D1 to Ray E1 (continued)**

and where Ray E1 is constructed as an ascending edge from Node E:		
Node E	Description:	Intersection of a - southward extension of a line coincident with the western alignment of Macquarie St between Martin Pl and St James Rd; & - northeastward extension of a line between Node D and the point on the northern alignment of St James Rd where the south site boundary of 102 Elizabeth St abuts that of 1C Macquarie St.
	MGA Coordinates:	334605.9E, 6250864.1N
	Elevation:	RL 54.0 AHD (where ground level is approximately RL 31.0 AHD)
and the ascending edge of Ray E1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vii) joining Ray E1 to Ray F1 (continued)**

and where Ray F1 is constructed as an ascending edge from Node F:		
Node F	Description:	Intersection of - a line drawn eastward From Node E, perpendicular to the line coincident with the western alignment of Macquarie St between Martin Pl and St James Rd; and - the southwest-facing site boundary of 12 Macquarie St, along-side the corner of Macquarie St and Prince Albert Rd.
	MGA Coordinates:	334648.7E, 6250859.9N
	Elevation:	RL 54.5 AHD (where ground level is approximately RL 31.5 AHD)
and the ascending edge of Ray F1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vii) joining Ray E1 to Ray F1**

where Ray E1 is constructed as an ascending edge from Node E:		
Node E	Description:	Intersection of a - southward extension of a line coincident with the western alignment of Macquarie St between Martin Pl and St James Rd; & - northeastward extension of a line between Node D and the point on the northern alignment of St James Rd where the south site boundary of 102 Elizabeth St abuts that of 1C Macquarie St.
	MGA Coordinates:	334605.9E, 6250864.1N
	Elevation:	RL 54.0 AHD (where ground level is approximately RL 31.0 AHD)
and the ascending edge of Ray E1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (viii) joining Ray F1 to Ray F2**

where Ray F1 is constructed as an ascending edge from Node F:		
Node F	Description:	Intersection of - a line drawn eastward From Node E, perpendicular to the line coincident with the western alignment of Macquarie St between Martin Pl and St James Rd; and - the southwest-facing site boundary of 12 Macquarie St, along-side the corner of Macquarie St and Prince Albert Rd.
	MGA Coordinates:	334648.7E, 6250859.9N
	Elevation:	RL 54.5 AHD (where ground level is approximately RL 31.5 AHD)
and the ascending edge of Ray F1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray F2 is constructed as an ascending edge from Node F:		
Node F	Description:	as defined above
and the ascending edge of Ray F2 has:		Horizontal bearing 359.16° and Vertical angle 32.72°



M\_05

Sun Access Plane Control

Hyde Park

- Node of SAP
- A1** Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii)** Plane numbers



## Hyde Park East

### Control

Type	Sun Access Plane
Intended Period of Protection	10am - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	10.00 12.00 14.00
SAP Extension Dates and Times	21 March 23 September 21 December

The SAP for Hyde Park East would only come into effect if the maximum permissible height of sites to the east of the Park is increased. The current maximum permissible height is below the identified SAP and does not overshadow Hyde Park. This SAP is provided as information only.



### Detailed Setout of Sun Access Planes shown in M\_06

#### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	coincident with the Hyde Park Sun Access Plane's Node F.
	MGA Coordinates:	334648.7E, 6250859.9N
	Elevation:	RL 54.5 AHD (where ground level is approximately RL 31.5 AHD)

and the ascending edge of Ray A1 has:

Horizontal bearing 359.16° and Vertical angle 32.72°

and where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray A2 has:

Horizontal bearing 29.98° and Vertical angle 26.34°

#### construct Plane (ii) joining Ray A2 to Ray B1

where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	coincident with the Hyde Park Sun Access Plane's Node F.
	MGA Coordinates:	334648.7E, 6250859.9N
	Elevation:	RL 54.5 AHD (where ground level is approximately RL 31.5 AHD)

and the ascending edge of Ray A2 has:

Horizontal bearing 29.98° and Vertical angle 26.34°

and where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Junction point on the site boundary of 2 St Marys Rd where the north end of the eastern straight alignment of College St meets the circular fillet at the corner of Prince Albert and St Marys Rds.
	MGA Coordinates:	334726.5E, 6250751.4N
	Elevation:	RL 43.0 AHD (where ground level is approximately RL 29.5 AHD)

and the ascending edge of Ray B1 has:

Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (iii) joining Ray B1 to Ray C1**

where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Junction point on the site boundary of 2 St Marys Rd where the north end of the eastern straight alignment of College St meets the circular fillet at the corner of Prince Albert and St Marys Rds.
	MGA Coordinates:	334726.5E, 6250751.4N
	Elevation:	RL 43.0 AHD (where ground level is approximately RL 29.5 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

and where Ray C1 is constructed as an ascending edge from Node C:

Node C	Description:	Intersection of - College Street's eastern alignment at the north end of the portion of College St between Stanley and Liverpool Sts; with - 18 College St's site boundary chamfer at the junction of College and Stanley Sts.
	MGA Coordinates:	334678.1E, 6250216.9N
	Elevation:	RL 45.0 AHD (where ground level is approximately RL 31.0 AHD)

and the ascending edge of Ray C1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (iv) joining Ray C2 to Ray D1**

where Ray C2 is constructed as an ascending edge from Node C:

Node C	Description:	Intersection of - College St's eastern alignment at the north end of the portion of College St between Stanley and Liverpool Sts; with - 18 College St's site boundary chamfer at the junction of College and Stanley Sts..
	MGA Coordinates:	334678.1E, 6250216.9N
	Elevation:	RL 76.0 AHD (where ground level is approximately RL 31.0 AHD)

and the ascending edge of Ray C2 has: Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (lv) joining Ray C2 to Ray D1 (continued)**

and where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - a southward extension of the eastern alignment of the portion of College St between Stanley and Liverpool Sts; with - a westward extension of the northern alignment of the portion of Liverpool St between College and Hargrave Sts.
	MGA Coordinates:	334664.3E, 6250065.2N
	Elevation:	RL 79.5 AHD (where ground level is approximately RL 34.5 AHD)

and the ascending edge of Ray D1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (v) joining Ray D1 to Ray D2**

where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - a southward extension of the eastern alignment of the portion of College St between Stanley and Liverpool Sts; with - a westward extension of the northern alignment of the portion of Liverpool St between College and Hargrave Sts.
	MGA Coordinates:	334664.3E, 6250065.2N
	Elevation:	RL 79.5 AHD (where ground level is approximately RL 34.5 AHD)

and the ascending edge of Ray D1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

and where Ray D2 is constructed as an ascending edge from Node D:

Node D	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray D2 has: Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (vi) joining Ray D2 to Ray D3**

where Ray D2 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - a southward extension of the eastern alignment of the portion of College St between Stanley and Liverpool Sts; with - a westward extension of the northern alignment of the portion of Liverpool St between College and Hargrave Sts.
	MGA Coordinates:	334664.3E, 6250065.2N
	Elevation:	RL 79.5 AHD (where ground level is approximately RL 34.5 AHD)

and the ascending edge of Ray D2 has: Horizontal bearing 46.60° and Vertical angle 45.48°

and where Ray D3 is constructed as an ascending edge from Node D:

Node D	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray D3 has: Horizontal bearing 74.55° and Vertical angle 63.21°

M\_06

Sun Access Plane Control  
Hyde Park East

- Node of SAP
- A1 Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii) Plane numbers



## Belmore Park

### Control

Type	Sun Access Plane
Intended Period of Protection	10am - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	10.00 12.00 14.00
SAP Extension Dates and Times	21 March 23 September 21 December

### Description

Belmore Park is the primary public open space in the southern precinct of Central Sydney. It is characterised by large grassed areas and significant tree plantings, both deciduous and evergreen. The extensive grass and tree plantings in the park depend on good solar access to support healthy growth and user amenity.

The majority of Belmore Park receives good sunshine during the middle of the day in winter. Most of the shade in the space is cast by existing evergreen specimen trees, rather than buildings.

The park is well used at lunch time all year round. During the winter, people were observed using the park in these ways:

- Eating lunch
- Sitting on the grass, lying on the grass
- Gathering of group of people
- Boot camp
- Sitting on the seats
- Waiting (for public transport etc, for people)
- Resting

The Park also provides an important pedestrian link between Central Station, the southern business district and Chinatown. At all times it is activated by pedestrian movement through the space, and particularly catches crowds that spill over from the bus stops outside Central Station.

The park provides a curtilage to the heritage facade of Central Station. The facade defines the southern edge of the park.



### Detailed Setout of Sun Access Planes shown in M\_07

#### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the western alignment of Pitt Street with the northern alignment of Barlow Street.
	MGA Coordinates:	334112.7E, 6249582.2N
	Elevation:	RL 44.5 AHD (where ground level is approximately RL 9.5 AHD)

and the ascending edge of Ray A1 has: Horizontal bearing 282.25° and Vertical angle 60.44°

and where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray A2 has: Horizontal bearing 310.49° and Vertical angle 44.16°

#### construct Plane (ii) joining Ray A2 to Ray A3

where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the western alignment of Pitt Street with the northern alignment of Barlow Street.
	MGA Coordinates:	334112.7E, 6249582.2N
	Elevation:	RL 44.5 AHD (where ground level is approximately RL 9.5 AHD)

and the ascending edge of Ray A2 has: Horizontal bearing 310.49° and Vertical angle 44.16°

and where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray A3 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iii) joining Ray A3 to Ray B1**

where Ray A3 is constructed as an ascending edge from Node A:		
Node A	Description:	Intersection of the western alignment of Pitt Street with the northern alignment of Barlow Street.
	MGA Coordinates:	334112.7E, 6249582.2N
	Elevation:	RL 44.5 AHD (where ground level is approximately RL 9.5 AHD)
and the ascending edge of Ray A3 has:		Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray B1 is constructed as an ascending edge from Node B:		
Node B	Description:	Mid-block vertex on the western alignment of Pitt Street between its intersections with Barlow Street and Hay Street.
	MGA Coordinates:	334139.0E, 6249624.4N
	Elevation:	RL 43.0 AHD (where ground level is approximately RL 8.0 AHD)
and the ascending edge of Ray B1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (v) joining Ray C2 to Ray D1**

where Ray C2 is constructed as an ascending edge from Node C:		
Node C	Description:	Intersection of the western alignment of Pitt Street with the northern alignment of Hay Street.
	MGA Coordinates:	334157.8E, 6249710.9N
	Elevation:	RL 31.5 AHD (where ground level is approximately RL 6.5 AHD)
and the ascending edge of Ray C2 has:		Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray D1 is constructed as an ascending edge from Node D:		
Node D	Description:	Intersection of the northern alignment of Hay Street with the eastern alignment of Castlereagh Street.
	MGA Coordinates:	334314.5E, 6249677.2N
	Elevation:	RL 34.34 AHD (where ground level is approximately RL 9.5 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray B1 to Ray C1**



where Ray B1 is constructed as an ascending edge from Node B:		
Node B	Description:	Mid-block vertex on the western alignment of Pitt Street between its intersections with Barlow Street and Hay Street.
	MGA Coordinates:	334139.0E, 6249624.4N
	Elevation:	RL 43.0 AHD (where ground level is approximately RL 8.0 AHD)
and the ascending edge of Ray B1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray C1 is constructed as an ascending edge from Node C:		
Node C	Description:	Intersection of the western alignment of Pitt Street with the northern alignment of Hay Street.
	MGA Coordinates:	334157.8E, 6249710.9N
	Elevation:	RL 41.5 AHD (where ground level is approximately RL 6.5 AHD)
and the ascending edge of Ray C1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vi) joining Ray D1 to Ray D2**

where Ray D1 is constructed as an ascending edge from Node D:		
Node D	Description:	Intersection of the northern alignment of Hay Street with the eastern alignment of Castlereagh Street.
	MGA Coordinates:	334314.5E, 6249677.2N
	Elevation:	RL 34.34 AHD (where ground level is approximately RL 9.5 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 328.63° and Vertical angle 25.69°
and where Ray D2 is constructed as an ascending edge from Node D:		
Node D	Description: as defined above	
and the ascending edge of Ray D2 has:		Horizontal bearing 359.16° and Vertical angle 32.72°

**construct Plane (vii) joining Ray D2 to Ray D3**

where Ray D2 is constructed as an ascending edge from Node D:		
Node D	Description:	Intersection of the northern alignment of Hay Street with the eastern alignment of Castlereagh Street.
	MGA Coordinates:	334314.5E, 6249677.2N
	Elevation:	RL 34.34 AHD (where ground level is approximately RL 9.5 AHD)
and the ascending edge of Ray D2 has:		Horizontal bearing 359.16° and Vertical angle 32.72°
and where Ray D3 is constructed as an ascending edge from Node D:		
Node D	Description: as defined above	
and the ascending edge of Ray D3 has:		Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (viii) joining Ray D4 to Ray E1**

where Ray D4 is constructed as an ascending edge from Node D:		
Node D	Description:	Intersection of the northern alignment of Hay Street with the eastern alignment of Castlereagh Street.
	MGA Coordinates:	334314.5E, 6249677.2N
	Elevation:	RL 19.5 AHD (where ground level is approximately RL 9.5 AHD)
and the ascending edge of Ray D4 has:		Horizontal bearing 29.98° and Vertical angle 26.34°
and where Ray E1 is constructed as an ascending edge from Node E:		
Node E	Description: Intersection of the western face of the Campbell Street to Central Station elevated railway lines with the northern alignment of Eddy Avenue.	
	MGA Coordinates:	334261.9E, 6249434.5N
	Elevation:	RL 22.5 AHD (where ground level is approximately RL 14.5 AHD)
and the ascending edge of Ray E1 has:		Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (ix) joining Ray E1 to Ray E2**

where Ray E1 is constructed as an ascending edge from Node E:		
Node E	Description:	Intersection of the western face of the Campbell Street to Central Station elevated railway lines with the northern alignment of Eddy Avenue.
	MGA Coordinates:	334261.9E, 6249434.5N
	Elevation:	RL 22.5 AHD (where ground level is approximately RL 14.5 AHD)
and the ascending edge of Ray E1 has:		Horizontal bearing 29.98° and Vertical angle 26.34°
and where Ray E2 is constructed as an ascending edge from Node E:		
Node E	Description: as defined above	
and the ascending edge of Ray E2 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (x) joining Ray E2 to Ray E3**

where Ray E2 is constructed as an ascending edge from Node E:		
Node E	Description:	Intersection of the western face of the Campbell Street to Central Station elevated railway lines with the northern alignment of Eddy Avenue.
	MGA Coordinates:	334261.9E, 6249434.5N
	Elevation:	RL 22.5 AHD (where ground level is approximately RL 14.5 AHD)
and the ascending edge of Ray E2 has:		Horizontal bearing 46.60° and Vertical angle 45.48°
and where Ray E3 is constructed as an ascending edge from Node E:		
Node E	Description: as defined above	
and the ascending edge of Ray E3 has:		Horizontal bearing 74.55° and Vertical angle 63.21°



M\_07

Sun Access Plane Control  
Belmore Park

- Node of SAP
- A1 Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii) Plane numbers



## Prince Alfred Park

### Control

Type	Sun Access Plane
Intended Period of Protection	12pm - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	12.00 14.00
SAP Extension Dates and Times	23 September 21 December

### Intent

Prince Alfred Park forms the southern gateway to Central Sydney and provides a major recreational resource for residents and workers in the Surry Hills and Redfern areas. Introduction of sun access planes will ensure that any development on the Central Railway Station or Railyards will not restrict mid-winter sun access to this park.



### Detailed Setout of Sun Access Planes shown in M\_08 and M\_09

#### PRIMARY Sun Access Planes:

##### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - a southward extension of a line drawn between Node B and 242 Cleveland Street's site boundary southeast corner; with - a line drawn between the site boundary corners of 187-189 & 191-193 Cleveland Street across the junction of George and Cleveland Streets.
	MGA Coordinates:	333798.7E, 6248663.2N
	Elevation:	RL 52.0 AHD (where ground level is approximately RL 31.5 AHD)

and the ascending edge of Ray A1 has: Horizontal bearing 282.25° and Vertical angle 60.44°

and where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
	and the ascending edge of Ray A2 has:	Horizontal bearing 310.49° and Vertical angle 44.16°

##### construct Plane (ii) joining Ray A2 to Ray A3

where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - a southward extension of a line drawn between Node B and 242 Cleveland Street's site boundary southeast corner; with - a line drawn between the site boundary corners of 187-189 & 191-193 Cleveland Street across the junction of George and Cleveland Streets.
	MGA Coordinates:	333798.7E, 6248663.2N
	Elevation:	RL 52.0 AHD (where ground level is approximately RL 31.5 AHD)
	and the ascending edge of Ray A2 has:	Horizontal bearing 310.49° and Vertical angle 44.16°

**construct Plane (ii) joining Ray A2 to Ray A3 (continued)**

and where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
and the ascending edge of Ray A3 has:	Horizontal bearing 328.63° and Vertical angle 25.69°	

**construct Plane (iii) joining Ray A3 to Ray B1**

where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - a southward extension of a line drawn between Node B and 242 Cleveland Street's site boundary southeast corner; with - a line drawn between the site boundary corners of 187-189 & 191-193 Cleveland Street across the junction of George and Cleveland Streets.
	MGA Coordinates:	333798.7E, 6248663.2N
	Elevation:	RL 52.0 AHD (where ground level is approximately RL 31.5 AHD)

and the ascending edge of Ray A3 has:

Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Site boundary northwest corner of 103 Chalmers Street (Prince Alfred Park), approximately 2.44m north of the 242 Cleveland Street site boundary's northern corner.
	MGA Coordinates:	333814.2E, 6248773.6N
	Elevation:	RL 48.0 AHD (where ground level is approximately RL 28.0 AHD)

and the ascending edge of Ray B1 has:

Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray B1 to Ray C1**

where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Site boundary northwest corner of 103 Chalmers Street (Prince Alfred Park), approximately 2.44m north of the 242 Cleveland Street site boundary's northern corner.
	MGA Coordinates:	333814.2E, 6248773.6N
	Elevation:	RL 48.0 AHD (where ground level is approximately RL 28.0 AHD)

and the ascending edge of Ray B1 has:

Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray C1 is constructed as an ascending edge from Node C:

Node C	Description:	103A Chalmers Street's site boundary west-most corner.
	MGA Coordinates:	333841.4E, 6248796.1N
	Elevation:	RL 48.0 AHD (where ground level is approximately RL 25.0 AHD)

and the ascending edge of Ray C1 has:

Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (v) joining Ray C2 to Ray D1**

where Ray C2 is constructed as an ascending edge from Node C:

Node C	Description:	103A Chalmers Street's site boundary west-most corner.
	MGA Coordinates:	333841.4E, 6248796.1N
	Elevation:	RL 45.0 AHD (where ground level is approximately RL 25.0 AHD)

and the ascending edge of Ray C2 has:

Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - a northward extension of a line drawn between Node C and the point where 103 Chalmers Street's west site boundary meets the 101 Chalmers Street (Railway Institute) site boundary; with - the point where that extension meets the eastern (Chalmers Street) site boundary of 101 Chalmers Street.
	MGA Coordinates:	334169.2E, 6249058.5N
	Elevation:	RL 43.5 AHD (where ground level is approximately RL 23.5 AHD)

and the ascending edge of Ray D1 has:

Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vi) joining Ray D1 to Ray E1**

where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - a northward extension of a line drawn between Node C and the point where 103 Chalmers Street's west site boundary meets the 101 Chalmers Street (Railway Institute) site boundary; with - the point where that extension meets the eastern (Chalmers Street) site boundary of 101 Chalmers Street.
	MGA Coordinates:	334169.2E, 6249058.5N
	Elevation:	RL 43.5 AHD (where ground level is approximately RL 23.5 AHD)

and the ascending edge of Ray D1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray E1 is constructed as an ascending edge from Node E:

Node E	Description:	Northwest corner of 86-92 Chalmers Street, at the junction of Chalmers and Devonshire Streets.
	MGA Coordinates:	334189.7E, 6249057.8N
	Elevation:	RL 44.0 AHD (where ground level is approximately RL 24.0 AHD)

and the ascending edge of Ray E1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vii) joining Ray E1 to Ray E2**

where Ray E1 is constructed as an ascending edge from Node E:

Node E	Description:	Northwest corner of 86-92 Chalmers Street, at the junction of Chalmers and Devonshire Streets.
	MGA Coordinates:	334189.7E, 6249057.8N
	Elevation:	RL 44.0 AHD (where ground level is approximately RL 24.0 AHD)

and the ascending edge of Ray E1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray E2 is constructed as an ascending edge from Node E:

Node E	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray E2 has: Horizontal bearing 359.16° and Vertical angle 32.72°

**construct Plane (viii) joining Ray E2 to Ray E3**

where Ray E2 is constructed as an ascending edge from Node E:

Node E	Description:	Northwest corner of 86-92 Chalmers Street, at the junction of Chalmers and Devonshire Streets.
	MGA Coordinates:	334189.7E, 6249057.8N
	Elevation:	RL 44.0 AHD (where ground level is approximately RL 24.0 AHD)

and the ascending edge of Ray E2 has: Horizontal bearing 359.16° and Vertical angle 32.72°

and where Ray E3 is constructed as an ascending edge from Node E:

Node E	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray E3 has: Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (ix) joining Ray E3 to Ray F1**

where Ray E3 is constructed as an ascending edge from Node E:

Node E	Description:	Northwest corner of 86-92 Chalmers Street, at the junction of Chalmers and Devonshire Streets.
	MGA Coordinates:	334189.7E, 6249057.8N
	Elevation:	RL 44.0 AHD (where ground level is approximately RL 24.0 AHD)

and the ascending edge of Ray E3 has: Horizontal bearing 29.98° and Vertical angle 26.34°

and where Ray F1 is constructed as an ascending edge from Node F:

Node F	Description:	Southwest corner of 142-144 Chalmers Street, at the junction of Chalmers and Bedford Streets.
	MGA Coordinates:	334160.4E, 6248873.6N
	Elevation:	RL 49.5 AHD (where ground level is approximately RL 29.5 AHD)

and the ascending edge of Ray F1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (x) joining Ray F1 to Ray G1**

where Ray F1 is constructed as an ascending edge from Node F:

Node F	Description:	Southwest corner of 142-144 Chalmers Street, at the junction of Chalmers and Bedford Streets.
	MGA Coordinates:	334160.4E, 6248873.6N
	Elevation:	RL 49.5 AHD (where ground level is approximately RL 29.5 AHD)

and the ascending edge of Ray F1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

and where Ray G1 is constructed as an ascending edge from Node G:

Node G	Description:	West-most corner of 146-164 Chalmers Street's site boundary chamfer at the junction of Chalmers and Bedford Streets.
	MGA Coordinates:	334157.3E, 6248856.6N
	Elevation:	RL 49.5 AHD (where ground level is approximately RL 29.5 AHD)

and the ascending edge of Ray G1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (xi) joining Ray G1 to Ray H1**

where Ray G1 is constructed as an ascending edge from Node G:

Node G	Description:	West-most corner of 146-164 Chalmers Street's site boundary chamfer at the junction of Chalmers and Bedford Streets.
	MGA Coordinates:	334157.3E, 6248856.6N
	Elevation:	RL 49.5 AHD (where ground level is approximately RL 29.5 AHD)

and the ascending edge of Ray G1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

and where Ray H1 is constructed as an ascending edge from Node H:

Node H	Description:	Southwest corner of 168-180 Chalmers Street, at the junction of Chalmers and Belvoir Streets.
	MGA Coordinates:	334141.3E, 6248754.7N
	Elevation:	RL 51.5 AHD (where ground level is approximately RL 30.5 AHD)

and the ascending edge of Ray H1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (xii) joining Ray H1 to Ray I1**

where Ray H1 is constructed as an ascending edge from Node H:

Node H	Description:	Southwest corner of 168-180 Chalmers Street, at the junction of Chalmers and Belvoir Streets.
	MGA Coordinates:	334141.3E, 6248754.7N
	Elevation:	RL 51.5 AHD (where ground level is approximately RL 30.5 AHD)

and the ascending edge of Ray H1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

and where Ray I1 is constructed as an ascending edge from Node I:

Node I	Description:	Northwest corner of 188 Chalmers Street, at the junction of Chalmers and Belvoir Streets.
	MGA Coordinates:	334138.9E, 6248741.5N
	Elevation:	RL 51.5 AHD (where ground level is approximately RL 30.5 AHD)

and the ascending edge of Ray I1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (xiii) joining Ray I1 to Ray J1**

where Ray I1 is constructed as an ascending edge from Node I:

Node I	Description:	Northwest corner of 188 Chalmers Street, at the junction of Chalmers and Belvoir Streets.
	MGA Coordinates:	334138.9E, 6248741.5N
	Elevation:	RL 51.5 AHD (where ground level is approximately RL 30.5 AHD)

and the ascending edge of Ray I1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (xiii) joining Ray I1 to Ray J1 (continued)**

and where Ray J1 is constructed as an ascending edge from Node J:

Node J	Description:	Intersection of - a southward extension of the eastern alignment of the portion of Chalmers Street between Belvoir and Cleveland Streets; with - an eastward extension of a line drawn between the southeast site boundary corners of 246-250A Cleveland Street (at its junction with the western alignment of Pembroke Street) and 99-101 Buckingham Street (at its junction with the northern alignment of Cleveland Street).
	MGA Coordinates:	334121.9E, 6248637.6N
	Elevation:	RL 51.5 AHD (where ground level is approximately RL 31.5 AHD)
and the ascending edge of Ray J1 has:		Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (xiv) joining Ray J1 to Ray J2**

where Ray J1 is constructed as an ascending edge from Node J:

Node J	Description:	Intersection of - a southward extension of the eastern alignment of the portion of Chalmers Street between Belvoir and Cleveland Streets; with - an eastward extension of a line drawn between the southeast site boundary corners of 246-250A Cleveland Street (at its junction with the western alignment of Pembroke Street) and 99-101 Buckingham Street (at its junction with the northern alignment of Cleveland Street).
	MGA Coordinates:	334121.9E, 6248637.6N
	Elevation:	RL 51.5 AHD (where ground level is approximately RL 31.5 AHD)
and the ascending edge of Ray J1 has:		Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (xiv) joining Ray J1 to Ray J2 (continued)**

and where Ray J2 is constructed as an ascending edge from Node J:

Node J	Description:	as defined above
and the ascending edge of Ray J2 has:	Horizontal bearing 46.60° and Vertical angle 45.48°	

**construct Plane (xv) joining Ray J2 to Ray J3**

where Ray J2 is constructed as an ascending edge from Node J:

Node J	Description:	Intersection of - a southward extension of the eastern alignment of the portion of Chalmers Street between Belvoir and Cleveland Streets; with - an eastward extension of a line drawn between the southeast site boundary corners of 246-250A Cleveland Street (at its junction with the western alignment of Pembroke Street) and 99-101 Buckingham Street (at its junction with the northern alignment of Cleveland Street).
	MGA Coordinates:	334121.9E, 6248637.6N
	Elevation:	RL 51.5 AHD (where ground level is approximately RL 31.5 AHD)
and the ascending edge of Ray J2 has:		Horizontal bearing 46.60° and Vertical angle 45.48°
and where Ray J3 is constructed as an ascending edge from Node J:		
Node J	Description:	as defined above
and the ascending edge of Ray J3 has:	Horizontal bearing 74.55° and Vertical angle 63.21°	

**SECONDARY Sun Access Planes (above the Cleveland Street Intensive English High School site):**

**construct Plane (xvi) joining Ray K1 to Ray L1**

where Ray K1 is constructed as an ascending edge from Node K:

Node K	Description:	242A Cleveland Street's site boundary northwest corner.
	MGA Coordinates:	334070.2E, 6248752.1N
	Elevation:	RL 40.0 AHD (where ground level is approximately RL 26.5 AHD)
and the ascending edge of Ray K1 has:		Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (xvi) joining Ray K1 to Ray L1 (continued)**

and where Ray L1 is constructed as an ascending edge from Node L:		
Node L	Description:	Intersection of - a southward extension of a line drawn coincident with 242A Cleveland Street's western site boundary; with - a straight line drawn between the northeast site boundary corner of 217 Cleveland Street (at Cleveland Street's junction with the western alignment of Pitt Street) and the northwest site boundary corner of 243 Cleveland Street (at Cleveland Street's junction with the eastern alignment of Chalmers Street).
	MGA Coordinates:	334036.9E, 6248628.6N
	Elevation:	RL 40.0 AHD (where ground level is approximately RL 31.5 AHD)
and the ascending edge of Ray L1 has:		Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (xvii) joining Ray L1 to Ray L2**

where Ray L1 is constructed as an ascending edge from Node L:		
Node L	Description:	Intersection of - a southward extension of a line drawn coincident with 242A Cleveland Street's western site boundary; with - a straight line drawn between the northeast site boundary corner of 217 Cleveland Street (at Cleveland Street's junction with the western alignment of Pitt Street) and the northwest site boundary corner of 243 Cleveland Street (at Cleveland Street's junction with the eastern alignment of Chalmers Street).
	MGA Coordinates:	334036.9E, 6248628.6N
	Elevation:	RL 40.0 AHD (where ground level is approximately RL 31.5 AHD)
and the ascending edge of Ray L1 has:		Horizontal bearing 29.98° and Vertical angle 26.34°
and where Ray L2 is constructed as an ascending edge from Node L:		
Node L	Description: as defined above	
and the ascending edge of Ray L2 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (xviii) joining Ray L2 to Ray L3**

where Ray L2 is constructed as an ascending edge from Node L:		
Node L	Description:	Intersection of - a southward extension of a line drawn coincident with 242A Cleveland Street's western site boundary; with - a straight line drawn between the northeast site boundary corner of 217 Cleveland Street (at Cleveland Street's junction with the western alignment of Pitt Street) and the northwest site boundary corner of 243 Cleveland Street (at Cleveland Street's junction with the eastern alignment of Chalmers Street).
	MGA Coordinates:	334036.9E, 6248628.6N
	Elevation:	RL 40.0 AHD (where ground level is approximately RL 31.5 AHD)
and the ascending edge of Ray L2 has:		Horizontal bearing 46.60° and Vertical angle 45.48°
and where Ray L3 is constructed as an ascending edge from Node L:		
Node L	Description: as defined above	
and the ascending edge of Ray L3 has:		Horizontal bearing 74.55° and Vertical angle 63.21°

**M\_08**

Sun Access Plane Control

Prince Alfred Park

- Node of SAP
- A1** Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii) Plane numbers



^ | 100m



M\_09

Sun Access Plane Control

Prince Alfred Park Secondary Planes  
(above the Cleveland Street Intensive  
English High School site)

- Node of SAP
- A1** Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii)** Plane numbers



100m

## Harmony Park

### Control

Type	Sun Access Plane
Intended Period of Protection	10am - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	10.00 12.00 14.00
SAP Extension Dates and Times	23 September 21 December

### Description

This park was known as Surry Hills Park until its opening in 2006, when it was officially named Harmony Park in recognition of the site's history and the cultural and social diversity of Surry Hills and Darlinghurst. Harmony Park is very well used by workers during lunch break and provides a gathering place for the community.



### Detailed Setout of Sun Access Planes shown in M\_10

#### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - the northwestern alignment of the south portion of Brisbane Street; with - 80 Commonwealth Street's site boundary chamfer at the junction of Brisbane, Commonwealth and Hunt Streets.
	MGA Coordinates:	334553.8E, 6249754.2N
	Elevation:	RL 47.0 AHD (where ground level is approximately RL 27.0 AHD)

and the ascending edge of Ray A1 has: Horizontal bearing 282.25° and Vertical angle 60.44°

and where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
	and the ascending edge of Ray A2 has:	Horizontal bearing 310.49° and Vertical angle 44.16°

#### construct Plane (ii) joining Ray A2 to Ray A3

where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - the northwestern alignment of the south portion of Brisbane Street; with - 80 Commonwealth Street's site boundary chamfer at the junction of Brisbane, Commonwealth and Hunt Streets.
	MGA Coordinates:	334553.8E, 6249754.2N
	Elevation:	RL 47.0 AHD (where ground level is approximately RL 27.0 AHD)

and the ascending edge of Ray A2 has: Horizontal bearing 310.49° and Vertical angle 44.16°

and where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
	and the ascending edge of Ray A3 has:	Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iii) joining Ray A3 to Ray B1**

where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - the northwestern alignment of the south portion of Brisbane Street; with - 80 Commonwealth Street's site boundary chamfer at the junction of Brisbane, Commonwealth and Hunt Streets.
	MGA Coordinates:	334553.8E, 6249754.2N
	Elevation:	RL 47.0 AHD (where ground level is approximately RL 27.0 AHD)

and the ascending edge of Ray A3 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of the extensions of lines coincident with the - northwestern alignment of the south portion of Brisbane St; & - western alignment of the north portion of Brisbane Street.
	MGA Coordinates:	334600.9E, 6249781.0N
	Elevation:	RL 46.5 AHD (where ground level is approximately RL 26.5 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray B1 to Ray C1**

where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of the extensions of lines coincident with the - northwestern alignment of the south portion of Brisbane St; & - western alignment of the north portion of Brisbane Street.
	MGA Coordinates:	334600.9E, 6249781.0N
	Elevation:	RL 46.5 AHD (where ground level is approximately RL 26.5 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray B1 to Ray C1 (continued)**

and where Ray C1 is constructed as an ascending edge from Node C:

Node C	Description:	Intersection of - the western alignment of the north portion of Brisbane Street; with - 133 Goulburn Street's site boundary chamfer at the junction of Brisbane and Goulburn Streets.
	MGA Coordinates:	334610.2E, 6249842.9N
	Elevation:	RL 43.5 AHD (where ground level is approximately RL 23.5 AHD)

and the ascending edge of Ray C1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (v) joining Ray C1 to Ray D1**

where Ray C1 is constructed as an ascending edge from Node C:

Node C	Description:	Intersection of - the western alignment of the north portion of Brisbane Street; with - 133 Goulburn Street's site boundary chamfer at the junction of Brisbane and Goulburn Streets.
	MGA Coordinates:	334610.2E, 6249842.9N
	Elevation:	RL 43.5 AHD (where ground level is approximately RL 23.5 AHD)

and the ascending edge of Ray C1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - the northern alignment at the west end of the portion of Goulburn Street between Brisbane and Pelican Streets; with - 156-160 Goulburn Street's site boundary chamfer at the junction of Brisbane and Goulburn Streets.
	MGA Coordinates:	334627.9E, 6249858.4N
	Elevation:	RL 43.5 AHD (where ground level is approximately RL 23.5 AHD)

and the ascending edge of Ray D1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vi) joining Ray D1 to Ray D2**

where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - the northern alignment at the west end of the portion of Goulburn Street between Brisbane and Pelican Streets; with - 156-160 Goulburn Street's site boundary chamfer at the junction of Brisbane and Goulburn Streets.
	MGA Coordinates:	334627.9E, 6249858.4N
	Elevation:	RL 43.5 AHD (where ground level is approximately RL 23.5 AHD)

and the ascending edge of Ray D1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray D2 is constructed as an ascending edge from Node D:

Node D	Description:	as defined above
and the ascending edge of Ray D2 has:		Horizontal bearing 359.16° and Vertical angle 32.72°

**construct Plane (vii) joining Ray D3 to Ray D4**

where Ray D3 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - the northern alignment at the west end of the portion of Goulburn Street between Brisbane and Pelican Streets; with - 156-160 Goulburn Street's site boundary chamfer at the junction of Brisbane and Goulburn Streets.
	MGA Coordinates:	334627.9E, 6249858.4N
	Elevation:	RL 68.5 AHD (where ground level is approximately RL 23.5 AHD)

and the ascending edge of Ray D3 has: Horizontal bearing 359.16° and Vertical angle 32.72°

and where Ray D4 is constructed as an ascending edge from Node D:

Node D	Description:	as defined above
and the ascending edge of Ray D4 has:		Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (viii) joining Ray D4 to Ray E1**

where Ray D4 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - the northern alignment at the west end of the portion of Goulburn Street between Brisbane and Pelican Streets; with - 156-160 Goulburn Street's site boundary chamfer at the junction of Brisbane and Goulburn Streets.
	MGA Coordinates:	334627.9E, 6249858.4N
	Elevation:	RL 68.5 AHD (where ground level is approximately RL 23.5 AHD)

and the ascending edge of Ray D4 has: Horizontal bearing 29.98° and Vertical angle 26.34°

and where Ray E1 is constructed as an ascending edge from Node E:

Node E	Description:	Point on the south site boundary of 174-186 Goulburn Street where the northern alignment of the portion of Goulburn Street between Brisbane and Pelican Streets changes its horizontal angle.
	MGA Coordinates:	334695.2E, 6249818.8N
	Elevation:	RL 73.0 AHD (where ground level is approximately RL 28.0 AHD)

and the ascending edge of Ray E1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (ix) joining Ray E1 to Ray F1**

where Ray E1 is constructed as an ascending edge from Node E:

Node E	Description:	Point on the south site boundary of 174-186 Goulburn Street where the northern alignment of the portion of Goulburn Street between Brisbane and Pelican Streets changes its horizontal angle.
	MGA Coordinates:	334695.2E, 6249818.8N
	Elevation:	RL 73.0 AHD (where ground level is approximately RL 28.0 AHD)

and the ascending edge of Ray E1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (ix) joining Ray E1 to Ray F1 (continued)**

and where Ray F1 is constructed as an ascending edge from Node F:		
Node F	Description:	Intersection of - the northern alignment at the east end of the portion of Goulburn Street between Brisbane and Pelican Streets; with - 174-186 Goulburn Street's site boundary chamfer at the junction of Pelican and Goulburn Streets.
	MGA Coordinates:	334713.8E, 6249810.3N
	Elevation:	RL 74.5 AHD (where ground level is approximately RL 29.5 AHD)
and the ascending edge of Ray F1 has:		Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (x) joining Ray F1 to Ray F2**

where Ray F1 is constructed as an ascending edge from Node F:		
Node F	Description:	Intersection of - the northern alignment at the east end of the portion of Goulburn Street between Brisbane and Pelican Streets; with - 174-186 Goulburn Street's site boundary chamfer at the junction of Pelican and Goulburn Streets.
	MGA Coordinates:	334713.8E, 6249810.3N
	Elevation:	RL 74.5 AHD (where ground level is approximately RL 29.5 AHD)
and the ascending edge of Ray F1 has:		Horizontal bearing 29.98° and Vertical angle 26.34°
and where Ray F2 is constructed as an ascending edge from Node F:		
Node F	Description:	as defined above
and the ascending edge of Ray F2 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (xi) joining Ray F2 to Ray F3**

where Ray F2 is constructed as an ascending edge from Node F:		
Node F	Description:	Intersection of - the northern alignment at the east end of the portion of Goulburn Street between Brisbane and Pelican Streets; with - 174-186 Goulburn Street's site boundary chamfer at the junction of Pelican and Goulburn Streets.
	MGA Coordinates:	334713.8E, 6249810.3N
	Elevation:	RL 74.5 AHD (where ground level is approximately RL 29.5 AHD)
and the ascending edge of Ray F2 has:		Horizontal bearing 46.60° and Vertical angle 45.48°
and where Ray F3 is constructed as an ascending edge from Node F:		
Node F	Description:	as defined above
and the ascending edge of Ray F3 has:		Horizontal bearing 74.55° and Vertical angle 63.21°

M\_10

Sun Access Plane Control

Harmony Park

- Node of SAP
- A1 Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii) Plane numbers



## Harmony Park East

### Control

Type	Sun Access Plane
Intended Period of Protection	10am - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	10.00 12.00 14.00
SAP Extension Dates and Times	23 September 21 December

This SAP would only come into effect if the maximum permissible height of sites to the east of the park is increased. The current maximum permissible height is below the identified SAP and does not overshadow Harmony Park. This SAP is provided as information only.



### Detailed Setout of Sun Access Planes shown in M\_11

#### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - the southwestern corner of 112 Campbell Street's site boundaries; with - the northern alignment of Campbell Street, just to the east of its transition into Hunt Street.
	MGA Coordinates:	334648.3E, 6249684.7N
	Elevation:	RL 34.0 AHD (where ground level is approximately RL 27.0 AHD)

and the ascending edge of Ray A1 has:

Horizontal bearing 74.55° and Vertical angle 63.21°

and where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
and the ascending edge of Ray A2 has:	Horizontal bearing 46.60° and Vertical angle 45.48°	

#### construct Plane (ii) joining Ray A2 to Ray A3

where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - the southwestern corner of 112 Campbell Street's site boundaries; with - the northern alignment of Campbell Street, just to the east of its transition into Hunt Street.
	MGA Coordinates:	334648.3E, 6249684.7N
	Elevation:	RL 34.0 AHD (where ground level is approximately RL 27.0 AHD)

and the ascending edge of Ray A2 has:

Horizontal bearing 46.60° and Vertical angle 45.48°

and where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
and the ascending edge of Ray A3 has:	Horizontal bearing 29.98° and Vertical angle 26.34°	

**construct Plane (iii) joining Ray A3 to Ray B1**

where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - the southwestern corner of 112 Campbell Street's site boundaries; with - the northern alignment of Campbell Street, just to the east of its transition into Hunt Street.
	MGA Coordinates:	334648.3E, 6249684.7N
	Elevation:	RL 34.0 AHD (where ground level is approximately RL 27.0 AHD)

and the ascending edge of Ray A3 has: Horizontal bearing 29.98° and Vertical angle 26.34°

and where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of - the northwestern corner of 112 Campbell Street's site boundaries; with - the southern alignment of Goulburn Street at the west end of the portion of it between Brisbane and Pelican Streets.
	MGA Coordinates:	334669.6E, 6249810.5N
	Elevation:	RL 34.0 AHD (where ground level is approximately RL 33.0 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 29.98° and Vertical angle 26.34°

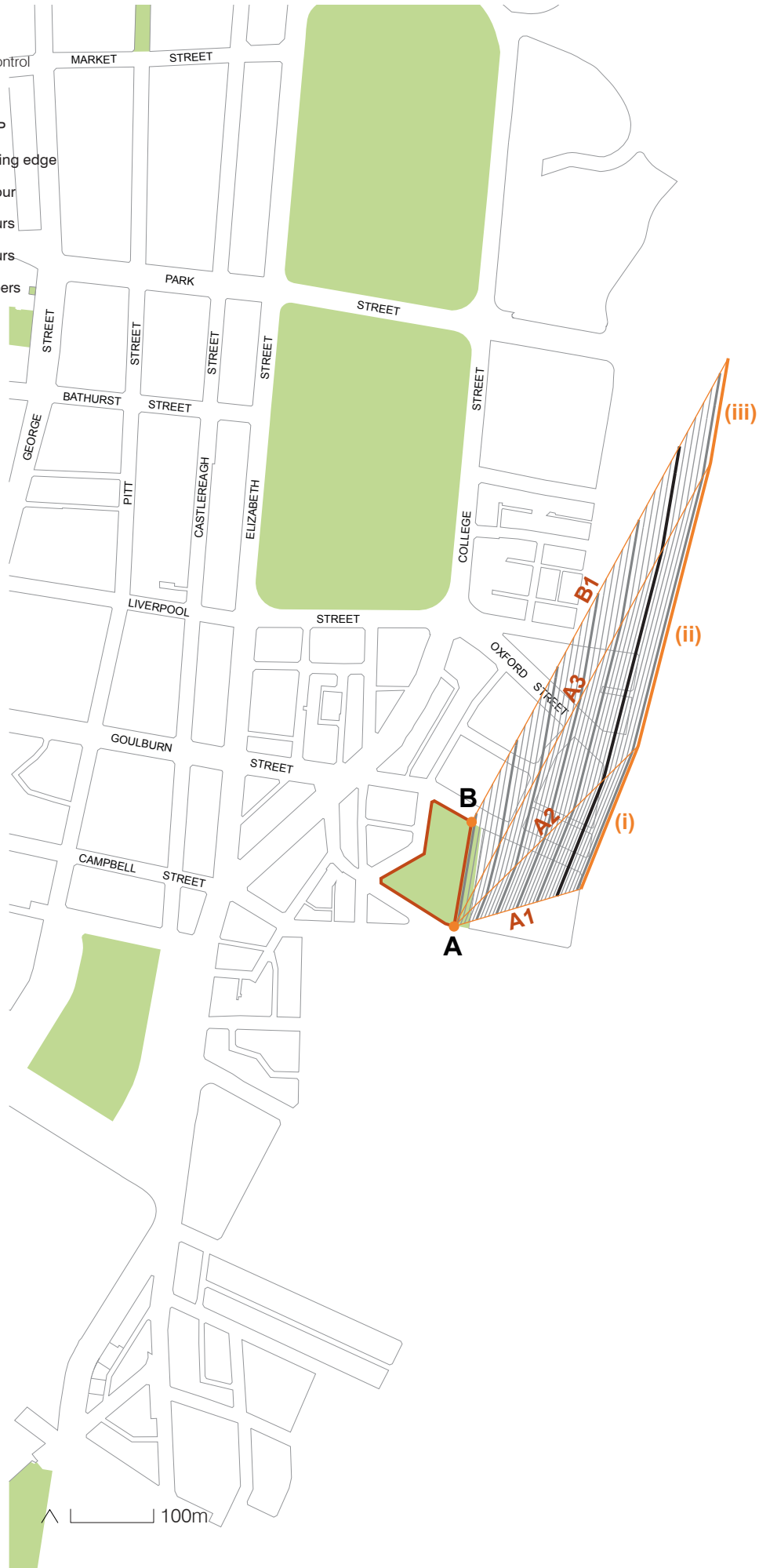


M\_11

Sun Access Plane Control

Harmony Park East

- Node of SAP
- A1 Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii) Plane numbers



## Macquarie Place

### Control

Type	Sun Access Plane
Intended Period of Protection	10am - 12pm, throughout the summer months
Primary Plane Date	14 April
Primary Plane Time	10.00

### Intent

Macquarie Place is a place of great importance and historical significance and is also a small park offering major recreational benefit for the northern sector of the city. It is extensively overshadowed at present and, combined with its heavy pedestrian use, is under threat of losing more of its vegetation.

### Detailed Setout of Sun Access Planes shown in M\_12

#### construct Plane (i) joining Ray A1 to Ray B1

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the eastern alignment of Loftus Street with the southern alignment of Customs House Lane.
	MGA Coordinates:	334475.0E, 6251660.0N
	Elevation:	RL 34.0 AHD (where ground level is approximately RL 27.0 AHD)

and the ascending edge of Ray A1 has: RL 39.0 AHD (where ground level is approximately RL 4.0 AHD)

and where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of - the northern alignment of Loftus Lane at its junction with Loftus Street, and - the eastern alignment of Loftus Street.
	MGA Coordinates:	334469.0E, 6251581.0N
	Elevation:	RL 43.0 AHD (where ground level is approximately RL 8.0 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 37.90° and Vertical angle 39.00°



M\_12

Sun Access Plane Control

Macquarie Place

- Node of SAP
- A1** Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii)** Plane numbers



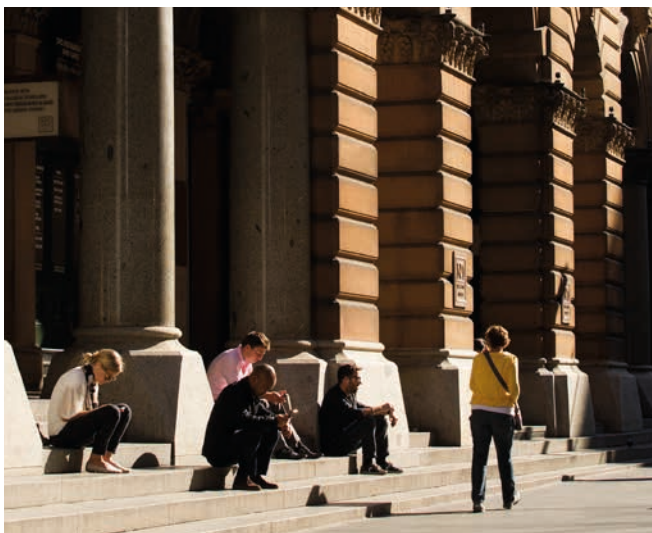
## Martin Place

### Control

Type	Sun Access Plane
Intended Period of Protection	12pm - 2pm, outside the winter months
Primary Plane Date	14 April
Primary Plane Time	12.00 14.00
SAP Extension Dates and Times	23 September (2pm) 21 December (2pm)

### Intent

Martin Place has great cultural significance due to the important buildings which line this public space and the Cenotaph which is prominently located within it. It receives extensive all day pedestrian usage and intensive lunchtime use with frequent entertainment activities. The east west orientation of Martin Place limits sunlight access to the ground plane. However, the shafts of light which penetrate along the north-south crossing streets or onto the facades of buildings on the south side become very important in providing some indirect light.



### Detailed Setout of Sun Access Planes shown in M\_13

#### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the western alignment of George Street with the northern alignment of Barrack Street.
	MGA Coordinates:	334149.1E, 6251080.4N
	Elevation:	RL 62.4 AHD (where ground level is approximately RL 16.0 AHD)

and the ascending edge of Ray A1 has: Horizontal bearing 282.25° and Vertical angle 60.44°

and where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray A2 has: Horizontal bearing 310.49° and Vertical angle 44.16°

#### construct Plane (ii) joining Ray A2 to Ray A3

where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the western alignment of George Street with the northern alignment of Barrack Street.
	MGA Coordinates:	334149.1E, 6251080.4N
	Elevation:	RL 62.4 AHD (where ground level is approximately RL 16.0 AHD)

and the ascending edge of Ray A2 has: Horizontal bearing 310.49° and Vertical angle 44.16°

and where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray A3 has: Horizontal bearing 319.44° and Vertical angle 38.28°

**construct Plane (iii) joining Ray A3 to Ray B1**

where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the western alignment of George Street with the northern alignment of Barrack Street.
	MGA Coordinates:	334149.1E, 6251080.4N
	Elevation:	RL 62.4 AHD (where ground level is approximately RL 16.0 AHD)

and the ascending edge of Ray A3 has: Horizontal bearing 319.44° and Vertical angle 38.28°

and where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of the western alignment of George Street with the southern alignment of Wynyard Street.
	MGA Coordinates:	334152.2E, 6251123.7N
	Elevation:	RL 62.4 AHD (where ground level is approximately RL 15.5 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 319.44° and Vertical angle 38.28°

**construct Plane (iv) joining Ray C1 to Ray D1**

where Ray C1 is constructed as an ascending edge from Node C:

Node C	Description:	354-360 George Street's site boundaries' southeast corner.
	MGA Coordinates:	334207.9E, 6251106.0N
	Elevation:	RL 60.0 AHD (where ground level is approximately RL 15.0 AHD)

and the ascending edge of Ray C1 has: Horizontal bearing 358.41° and Vertical angle 46.76°

and where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of the northern alignment of Martin Place with the eastern alignment of Pitt Street.
	MGA Coordinates:	334297.3E, 6251097.5N
	Elevation:	RL 60.0 AHD (where ground level is approximately RL 15.0 AHD)

and the ascending edge of Ray D1 has: Horizontal bearing 358.41° and Vertical angle 46.76°

**construct Plane (v) joining Ray D1 to Ray E1**

where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of the northern alignment of Martin Place with the eastern alignment of Pitt Street.
	MGA Coordinates:	334297.3E, 6251097.5N
	Elevation:	RL 60.0 AHD (where ground level is approximately RL 15.0 AHD)

and the ascending edge of Ray D1 has: Horizontal bearing 358.41° and Vertical angle 46.76°

and where Ray E1 is constructed as an ascending edge from Node E:

Node E	Description:	Intersection of the northern alignment of Martin Place with the western alignment of Macquarie Street.
	MGA Coordinates:	334626.0E, 6251068.8N
	Elevation:	RL 77.5 AHD (where ground level is approximately RL 32.5 AHD)

and the ascending edge of Ray E1 has: Horizontal bearing 358.41° and Vertical angle 46.76°

**construct Plane (vi) joining Ray E1 to Ray F1**

where Ray E1 is constructed as an ascending edge from Node E:

Node E	Description:	Intersection of the northern alignment of Martin Place with the western alignment of Macquarie Street..
	MGA Coordinates:	334626.0E, 6251068.8N
	Elevation:	RL 77.5 AHD (where ground level is approximately RL 32.5 AHD)

and the ascending edge of Ray E1 has: Horizontal bearing 358.41° and Vertical angle 46.76°

construct Plane (vi) joining Ray E1 to Ray F1 (continued)

and where Ray F1 is constructed as an ascending edge from Node F:

Node F	Description:	Intersection of - a line drawn eastward From Node E and coincident with the adjacent northern alignment of Martin Place; with - the western alignment of Macquarie Street.
	MGA Coordinates:	334650.9E, 6251066.6N
	Elevation:	RL 77.5 AHD (where ground level is approximately RL 33.0 AHD)
and the ascending edge of Ray F1 has:		Horizontal bearing 358.41° and Vertical angle 46.76°

M\_13

Sun Access Plane Control

Martin Place

- Node of SAP
- A1 Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii) Plane numbers



## Barangaroo South 'Northern Parkland'

### Control

Type	Sun Access Plane
Intended Period of Protection	12pm - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	10.00 12.00 14.00
SAP Extension Dates and Times	21 March 21 December

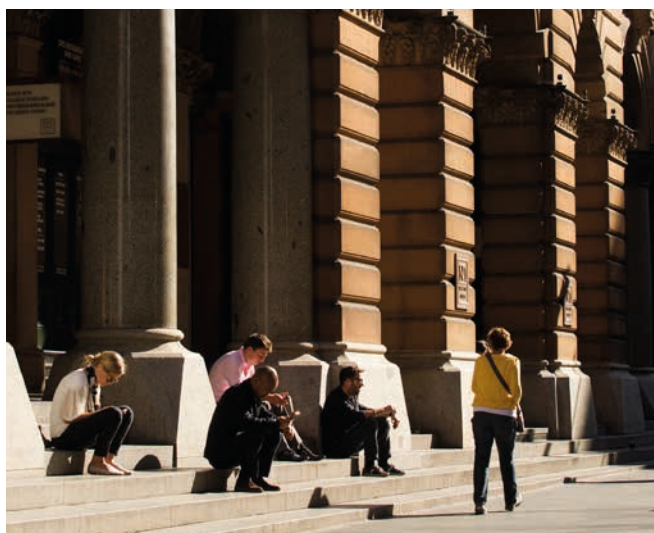
### Intent

The intent of this SAP is to maximise the sun access to the future 'Northern Parkland'.

### Detailed Setout of Sun Access Planes shown in M\_14

#### construct Plane (i) joining Ray A1 to Ray B1

where Ray A1 is constructed as an ascending edge from Node A:		
Node A	Description:	A point on the west site boundary of 30-34 Hickson Road – approximately 2.02m north along Hickson Road's eastern alignment from the southwest corner of 30-34 Hickson Road's site boundary.
	MGA Coordinates:	333774.3E, 6251665.7N
	Elevation:	RL 35.5 AHD (where ground level is approximately RL 3.0 AHD)
and the ascending edge of Ray A1 has:		Horizontal bearing 359.16° and Vertical angle 32.72°
and where Ray B1 is constructed as an ascending edge from Node B:		
Node B	Description:	A point 135.6m west-northwest of Node A following the alignment of the northern boundary of Barangaroo South.
	MGA Coordinates:	333643.4E, 6251701.2N
	Elevation:	RL 35.5 AHD (where ground level is approximately RL 2.5 AHD)
and the ascending edge of Ray B1 has:		Horizontal bearing 359.16° and Vertical angle 32.72°





**M\_14**

Sun Access Plane Control  
Barangaroo South 'Northern  
Parkland'

- Node of SAP
- A1** Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii)** Plane numbers



## Darling Harbour

### Control

Type	Sun Access Plane
Intended Period of Protection	9am - 5pm, mid summer 11am - 3pm, mid winter
Primary Plane Date	21 March (east plane) 21 December (west plane)
Primary Plane Time	10am (east plane) 5pm (west plane)
SAP Extension Dates and Times	east plane 21 June (12pm) west plane 21 June (3pm)

### Intent

The intent of this SAP is to protect sun access to the public domain around the water front. This area is heavily used through out the day by workers as well as visitors and provides a relief from the density of the city.



### Detailed Setout of Sun Access Planes shown in M\_15

#### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - a northward extension of the western alignment of Quay St; with - an eastward extension of a line drawn between the south-west corner of 54 Pirrama Road and the northeast corner of 50G Pirrama Road.
	MGA Coordinates:	333357.6E, 6251004.4N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 0.0 AHD)

and the ascending edge of Ray A1 has: Horizontal bearing 316.26° and Vertical angle 18.10°

and where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
	and the ascending edge of Ray A2 has:	Horizontal bearing 256.61° and Vertical angle 23.42°

#### construct Plane (ii) joining Ray A2 to Ray B1

where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - a northward extension of the western alignment of Quay St; with - an eastward extension of a line drawn between the south-west corner of 54 Pirrama Road and the northeast corner of 50G Pirrama Road.
	MGA Coordinates:	333357.6E, 6251004.4N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 0.0 AHD)

and the ascending edge of Ray A2 has: Horizontal bearing 256.61° and Vertical angle 23.42°

**construct Plane (i) joining Ray A1 to Ray A2 (continued)**

and where Ray B1 is constructed as an ascending edge from Node B:		
Node B	Description:	Intersection of - a northward extension of the western alignment of Quay St; with - a westward extension of a line drawn coincident with the north boundary of the portion of 2-58 Hay Street that abuts the west boundary of 17 Little Pier Street.
	MGA Coordinates:	333674.7E, 6249957.8N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 3.0 AHD)
and the ascending edge of Ray B1 has:		Horizontal bearing 256.61° and Vertical angle 23.42°

**construct Plane (iii) joining Ray C1 to Ray D1**

where Ray C1 is constructed as an ascending edge from Node C:		
Node C	Description:	Intersection of - a southward extension of the eastern alignment of the King Street Wharf 'Promenade' public accessway; with - a westward extension of the northern alignment of the portion of Goulburn Street between Dixon and Sussex Streets.
	MGA Coordinates:	333772.7E, 6249967.1N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 3.0 AHD)
and the ascending edge of Ray C1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

and where Ray D1 is constructed as an ascending edge from Node D:		
Node D	Description:	Intersection of - a southward extension of the eastern alignment of the King Street Wharf 'Promenade' public accessway; with - a westward extension of the southern boundary of 11 Harbour Street.
	MGA Coordinates:	333750.1E, 6250171.1N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 4.0 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (iv) joining Ray D1 to Ray E1**

where Ray D1 is constructed as an ascending edge from Node D:		
Node D	Description:	Intersection of - a southward extension of the eastern alignment of the King Street Wharf 'Promenade' public accessway; with - a westward extension of the southern boundary of 11 Harbour Street.
	MGA Coordinates:	333750.1E, 6250171.1N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 4.0 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°
and where Ray E1 is constructed as an ascending edge from Node E:		
Node E	Description:	Northeast cnr of King St Wharf 'Promenade' public accessway.
	MGA Coordinates:	333628.9E, 6251266.0N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 2.5 AHD)
and the ascending edge of Ray E1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (v) joining Ray E1 to Ray F1**

where Ray E1 is constructed as an ascending edge from Node E:		
Node E	Description:	Northeast cnr of King St Wharf 'Promenade' public accessway.
	MGA Coordinates:	333628.9E, 6251266.0N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 2.5 AHD)
and the ascending edge of Ray E1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (v) joining Ray E1 to Ray F1 (continued)**

and where Ray F1 is constructed as an ascending edge from Node F:		
Node F	Description:	Intersection of - a northward extension of the eastern alignment of the King Street Wharf 'Promenade' public accessway; with - a westward extension of a line drawn coincident with the north edge of the development parcel on 51A Hickson Rd Containing the northern-most of the three International Towers Sydney buildings.
	MGA Coordinates:	333601.1E, 6251516.7N.
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 2.0 AHD)
and the ascending edge of Ray F1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (vi) joining Ray G1 to Ray H1**

where Ray G1 is constructed as an ascending edge from Node G:		
Node G	Description:	The northwest corner of the development parcel on 51A Hickson Road containing the northern-most of the three International Towers Sydney buildings.
	MGA Coordinates:	333643.3E, 6251521.5N.
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 2.0 AHD)
and the ascending edge of Ray G1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°
and where Ray H1 is constructed as an ascending edge from Node H:		
Node H	Description:	Intersection of - a northward extension of the western alignment of the development parcels on 29-51 Hickson Road; with - a line 11.5m north of the north edge of the northern-most development parcel on 29-51 Hickson Road, and oriented 77.924° west of True North.
	MGA Coordinates:	333643.6E, 6251918.0N.
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 2.5 AHD)
and the ascending edge of Ray H1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (vii) joining Ray H1 to Ray H2**

where Ray H1 is constructed as an ascending edge from Node H:		
Node H	Description:	Intersection of - a northward extension of the western alignment of the development parcels on 29-51 Hickson Road; with - a line 11.5m north of the north edge of the northern-most development parcel on 29-51 Hickson Road, and oriented 77.924° west of True North.
	MGA Coordinates:	333643.6E, 6251918.0N.
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 2.5 AHD)
and the ascending edge of Ray H1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°
and where Ray H2 is constructed as an ascending edge from Node H:		
Node H	Description:	as defined above
and the ascending edge of Ray H2 has:		Horizontal bearing 359.16° and Vertical angle 32.72°

M\_15

Sun Access Plane Control  
Darling Harbour

- Node of SAP
- A1** Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii)** Plane numbers



## Darling Harbour Live Park

### Control

Type	Sun Access Plane
Intended Period of Protection	12m - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	12.00 14.00
SAP Extension Dates and Times	21 March 23 September

### Intent

The intent of this SAP is to protect sun access to a key green space located in Darling Harbour around the water front. This area is heavily used through out the day by workers as well as visitors and provides a relief from the density of the city.



### Detailed Setout of Sun Access Planes shown in M\_16

#### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - a northward extension of the western alignment of Quay St; with - a line parallel to and 70.0m north of the northern alignment of Hay Street between Quay and Thomas Streets.
	MGA Coordinates:	333712.7E, 6249846.0N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 3.0 AHD)

and the ascending edge of Ray A1 has: Horizontal bearing 282.25° and Vertical angle 60.44°

and where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
	and the ascending edge of Ray A2 has:	Horizontal bearing 310.49° and Vertical angle 44.16°

#### construct Plane (ii) joining Ray A2 to Ray A3

where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - a northward extension of the western alignment of Quay St; with - a line parallel to and 70.0m north of the northern alignment of Hay Street between Quay and Thomas Streets.
	MGA Coordinates:	333712.7E, 6249846.0N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 3.0 AHD)

and the ascending edge of Ray A2 has: Horizontal bearing 310.49° and Vertical angle 44.16°

and where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
	and the ascending edge of Ray A3 has:	Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iii) joining Ray A3 to Ray B1**

where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of - a northward extension of the western alignment of Quay St; with - a line parallel to and 70.0m north of the northern alignment of Hay Street between Quay and Thomas Streets.
	MGA Coordinates:	333712.7E, 6249846.0N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 3.0 AHD)

and the ascending edge of Ray A3 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of - a northward extension of the western alignment of Quay St; with - a line perpendicular to that extension and 70.0m south of a point on the southern alignment of Pier St mid-way between Quay and Harbour Streets.
	MGA Coordinates:	333698.2E, 6249892.8N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 3.0 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray B1 to Ray C1**

where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of - a northward extension of the western alignment of Quay St; with - a line perpendicular to that extension and 70.0m south of a point on the southern alignment of Pier St mid-way between Quay and Harbour Streets.
	MGA Coordinates:	333698.2E, 6249892.8N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 3.0 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray C1 is constructed as an ascending edge from Node C:

Node C	Description:	Intersection of - a line parallel to and 79.0m west of the eastern alignment of Harbour Street between Factory and Little Hay Streets; with - a line perpendicular to a northward extension of the western alignment of Quay St, and 70.0m south of a point on the southern alignment of Pier St midway between Quay and Harbour Sts.
	MGA Coordinates:	333761.0E, 6249919.7N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 3.0 AHD)

and the ascending edge of Ray C1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (v) joining Ray C1 to Ray C2**

where Ray C1 is constructed as an ascending edge from Node C:

Node C	Description:	Intersection of - a line parallel to and 79.0m west of the eastern alignment of Harbour Street between Factory and Little Hay Streets; with - a line perpendicular to a northward extension of the western alignment of Quay St, and 70.0m south of a point on the southern alignment of Pier St midway between Quay and Harbour Sts.
	MGA Coordinates:	333761.0E, 6249919.7N
	Elevation:	RL 18.0 AHD (where ground level is approximately RL 3.0 AHD)

and the ascending edge of Ray C1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray C2 is constructed as an ascending edge from Node C:

Node C	Description: as defined above
--------	----------------------------------

and the ascending edge of Ray C2 has: Horizontal bearing 359.16° and Vertical angle 32.72°



**M\_16**

Sun Access Plane Control  
Darling Harbour Live Park

- Node of SAP
- A1** Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii)** Plane numbers



100m

## Central Park

### Control

Type	Sun Access Plane
Intended Period of Protection	12m - 2pm, all year
Primary Plane Date	21 June
Primary Plane Time	12.00 14.00
SAP Extension Dates and Times	23 September 21 December

### Intent

Central Park is a high amenity open space supporting the new high density residential community as well as being very well used by workers during lunch breaks.



### Detailed Setout of Sun Access Planes shown in M\_17

#### construct Plane (i) joining Ray A1 to Ray A2

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the northern alignment of O'Connor Street with the eastern alignment of Central Park Avenue.
	MGA Coordinates:	333494.2E, 6249021.6N
	Elevation:	RL 39.5 AHD (where ground level is approximately RL 14.5 AHD)

and the ascending edge of Ray A1 has: Horizontal bearing 282.25° and Vertical angle 60.44°

and where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray A2 has: Horizontal bearing 310.49° and Vertical angle 44.16°

#### construct Plane (ii) joining Ray A2 to Ray A3

where Ray A2 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the northern alignment of O'Connor Street with the eastern alignment of Central Park Avenue.
	MGA Coordinates:	333494.2E, 6249021.6N
	Elevation:	RL 39.5 AHD (where ground level is approximately RL 14.5 AHD)

and the ascending edge of Ray A2 has: Horizontal bearing 310.49° and Vertical angle 44.16°

and where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray A3 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iii) joining Ray A3 to Ray B1**

where Ray A3 is constructed as an ascending edge from Node A:

Node A	Description:	Intersection of the northern alignment of O'Connor Street with the eastern alignment of Central Park Avenue.
	MGA Coordinates:	333494.2E, 6249021.6N
	Elevation:	RL 39.5 AHD (where ground level is approximately RL 14.5 AHD)

and the ascending edge of Ray A3 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of the northern alignment of former Irving Street with the eastern alignment of Central Park Avenue.
	MGA Coordinates:	333490.4E, 6249079.1N
	Elevation:	RL 37.5 AHD (where ground level is approximately RL 12.5 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray B1 to Ray C1**

where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of the northern alignment of former Irving Street with the eastern alignment of Central Park Avenue.
	MGA Coordinates:	333490.4E, 6249079.1N
	Elevation:	RL 37.5 AHD (where ground level is approximately RL 12.5 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (iv) joining Ray B1 to Ray C1 (continued)**

and where Ray C1 is constructed as an ascending edge from Node C:

Node C	Description:	Intersection of the northern alignment of former Irving Street with the eastern alignment of former Balfour Avenue.
	MGA Coordinates:	333556.3E, 6249085.4N
	Elevation:	RL 38.5 AHD (where ground level is approximately RL 13.5 AHD)

and the ascending edge of Ray C1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (v) joining Ray C1 to Ray D1**

where Ray C1 is constructed as an ascending edge from Node C:

Node C	Description:	Intersection of the northern alignment of former Irving Street with the eastern alignment of former Balfour Avenue.
	MGA Coordinates:	333556.3E, 6249085.4N
	Elevation:	RL 38.5 AHD (where ground level is approximately RL 13.5 AHD)

and the ascending edge of Ray C1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - the northern alignment of former Irving Street, with - the eastern edge of the new Central Park.
	MGA Coordinates:	333605.8E, 6249087.8N
	Elevation:	RL 40.5 AHD (where ground level is approximately RL 15.5 AHD)

and the ascending edge of Ray D1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

**construct Plane (vi) joining Ray D1 to Ray D2**

where Ray D1 is constructed as an ascending edge from Node D:

Node D	Description:	Intersection of - the northern alignment of former Irving Street, with - the eastern edge of the new Central Park.
	MGA Coordinates:	333605.8E, 6249087.8N
	Elevation:	RL 40.5 AHD (where ground level is approximately RL 15.5 AHD)

and the ascending edge of Ray D1 has: Horizontal bearing 328.63° and Vertical angle 25.69°

and where Ray D2 is constructed as an ascending edge from Node D:

Node D	Description:	as defined above
--------	--------------	------------------

and the ascending edge of Ray D2 has: Horizontal bearing 359.16° and Vertical angle 32.72°

M\_17

Sun Access Plane Control

Central Park

- Node of SAP
- A1 Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii) Plane numbers



100m

## Railway Square

### Control

Type	Sun Access Plane
Intended Period of Protection	9am - 2pm, mid summer 11am - 12pm, mid winter
Primary Plane Date	21 March (east plane) 21 June (north and west plane)
Primary Plane Time	10.00 12.00 14.00
SAP Extension Dates and Times	21 March 21 December

### Intent

Railway Square is an urban plaza located between Broadway, Lee Street, Pitt Street and George Street. It serves as a major bus interchange and entrance to Central Railway and as a result has a significant pedestrian patronage all day.



### Detailed Setout of Sun Access Planes shown in M\_18

#### construct Plane (i) joining Ray A1 to Ray B1

where Ray A1 is constructed as an ascending edge from Node A:

Node A	Description:	814 George Street's site boundary southeast corner.
	MGA Coordinates:	333961.2E, 6249419.1N
	Elevation:	RL 51.0 AHD (where ground level is approximately RL 14.5 AHD)

and the ascending edge of Ray A1 has: Horizontal bearing 359.16° and Vertical angle 32.72°

and where Ray B1 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of - a northward extension of the western alignment of Pitt Street between Railway Square and Rawson Place; with - an eastward extension of 11-23 Rawson Place's northern site boundary.
	MGA Coordinates:	334049.1E, 6249510.7N
	Elevation:	RL 51.0 AHD (where ground level is approximately RL 11.0 AHD)

and the ascending edge of Ray B1 has: Horizontal bearing 359.16° and Vertical angle 32.72°

#### construct Plane (ii) joining Ray B2 to Ray C1

where Ray B2 is constructed as an ascending edge from Node B:

Node B	Description:	Intersection of - a northward extension of the western alignment of Pitt Street between Railway Square and Rawson Place; with - an eastward extension of 11-23 Rawson Place's northern site boundary
	MGA Coordinates:	334049.1E, 6249510.7N
	Elevation:	RL 38.01 AHD (where ground level is approx. RL 11.0 AHD)

and the ascending edge of Ray B2 has: Horizontal bearing 359.16° and Vertical angle 32.72°

**construct Plane (ii) joining Ray B2 to Ray C1 (continued)**

and where Ray C1 is constructed as an ascending edge from Node C:		
Node C	Description:	Intersection of - a northward extension of a line drawn coincident with the Central Main Station Building (Sydney Terminal) west wing's western elevation; and - the adjacent southern alignment of Eddy Avenue.
	MGA Coordinates:	334101.3E, 6249475.5N
	Elevation:	RL 38.01 AHD (where ground level is approx. RL 12.0 AHD)
and the ascending edge of Ray C1 has:		Horizontal bearing 359.16° and Vertical angle 32.72°

**construct Plane (iii) joining Ray C1 to Ray C2**

where Ray C1 is constructed as an ascending edge from Node C:		
Node C	Description:	Intersection of - a northward extension of a line drawn coincident with the Central Main Station Building (Sydney Terminal) west wing's western elevation; and - the adjacent southern alignment of Eddy Avenue.
	MGA Coordinates:	334101.3E, 6249475.5N
	Elevation:	RL 38.01 AHD (where ground level is approx. RL 12.0 AHD)
and the ascending edge of Ray C1 has:		Horizontal bearing 359.16° and Vertical angle 32.72°
and where Ray C2 is constructed as an ascending edge from Node C:		
Node C	Description: as defined above	
and the ascending edge of Ray C2 has:		Horizontal bearing 29.98° and Vertical angle 26.34°

**construct Plane (iv) joining Ray C2 to Ray C3**

where Ray C2 is constructed as an ascending edge from Node C:		
Node C	Description:	Intersection of - a northward extension of a line drawn coincident with the Central Main Station Building (Sydney Terminal) west wing's western elevation; and - the adjacent southern alignment of Eddy Avenue.
	MGA Coordinates:	334101.3E, 6249475.5N
	Elevation:	RL 38.01 AHD (where ground level is approx. RL 12.0 AHD)
and the ascending edge of Ray C2 has:		Horizontal bearing 29.98° and Vertical angle 26.34°
and where Ray C3 is constructed as an ascending edge from Node C:		
Node C	Description: as defined above	
and the ascending edge of Ray C3 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (v) joining Ray C3 to Ray D1**

where Ray C3 is constructed as an ascending edge from Node C:		
Node C	Description:	Intersection of - a northward extension of a line drawn coincident with the Central Main Station Building (Sydney Terminal) west wing's western elevation; and - the adjacent southern alignment of Eddy Avenue.
	MGA Coordinates:	334101.3E, 6249475.5N
	Elevation:	RL 38.01 AHD (where ground level is approx. RL 12.0 AHD)
and the ascending edge of Ray C3 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (v) joining Ray C3 to Ray D1 (continued)**

and where Ray D1 is constructed as an ascending edge from Node D:		
Node D	Description:	Intersection of - a southward extension of a line drawn coincident with the Central Main Station Building (Sydney Terminal) west wing's western elevation; and - a westward extension of a line drawn coincident with the Central Main Station Building (Sydney Terminal) west wing's southern elevation.
	MGA Coordinates:	334049.8E, 6249393.1N
	Elevation:	RL 38.01 AHD (where ground level is approx. RL 20.0 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (vi) joining Ray D1 to Ray E1**

where Ray D1 is constructed as an ascending edge from Node D:		
Node D	Description:	Intersection of - a southward extension of a line drawn coincident with the Central Main Station Building (Sydney Terminal) west wing's western elevation; and - a westward extension of a line drawn coincident with the Central Main Station Building (Sydney Terminal) west wing's southern elevation.
	MGA Coordinates:	334049.8E, 6249393.1N
	Elevation:	RL 38.01 AHD (where ground level is approx. RL 20.0 AHD)
and the ascending edge of Ray D1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°
and where Ray E1 is constructed as an ascending edge from Node E:		
Node E	Description:	Intersection of - the Central Main Station Building (Sydney Terminal) west wing's southern elevation; with - the Central Station Parcel Dock Building's western elevation.
	MGA Coordinates:	334053.7E, 6249390.7N
	Elevation:	RL 38.01 AHD (where ground level is approx. RL 20.0 AHD)
and the ascending edge of Ray E1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (vii) joining Ray E2 to Ray F1**

where Ray E2 is constructed as an ascending edge from Node E:		
Node E	Description:	Intersection of - the Central Main Station Building (Sydney Terminal) west wing's southern elevation; with - the Central Station Parcel Dock Building's western elevation.
	MGA Coordinates:	334053.7E, 6249390.7N
	Elevation:	RL 28.95 AHD (where ground level is approx. RL 20.0 AHD)
and the ascending edge of Ray E2 has:		Horizontal bearing 46.60° and Vertical angle 45.48°
and where Ray F1 is constructed as an ascending edge from Node F:		
Node F	Description:	The southernmost point of the Central Station Parcel Dock Building's western elevation.
	MGA Coordinates:	333992.0E, 6249291.6N
	Elevation:	RL 28.91 AHD (where ground level is approx. RL 20.0 AHD)
and the ascending edge of Ray F1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°

**construct Plane (viii) joining Ray F1 to Ray F2**

where Ray F1 is constructed as an ascending edge from Node F:		
Node F	Description:	The southernmost point of the Central Station Parcel Dock Building's western elevation.
	MGA Coordinates:	333992.0E, 6249291.6N
	Elevation:	RL 28.91 AHD (where ground level is approx. RL 20.0 AHD)
and the ascending edge of Ray F1 has:		Horizontal bearing 46.60° and Vertical angle 45.48°
and where Ray F2 is constructed as an ascending edge from Node F:		
Node F	Description: as defined above	
and the ascending edge of Ray F2 has:		Horizontal bearing 74.55° and Vertical angle 63.21°



M\_18

Sun Access Plane Control  
Railway Square

- Node of SAP
- A1** Ray ascending edge
- 300m Contour
- 50m Contours
- 10m Contours
- (ii) Plane numbers



∧ | 100m



### 3

## No additional overshadowing controls

---

### **General**

The following section outlines the methodology used to construct each of the detailed No Additional Overshadowing (NAO) protected Open Spaces.

Each of the identified open spaces protected by NAOs are then identified in terms of:

1. Proposed NAO Controls; and
2. Proposed NAO Control Map.

## No additional overshadowing controls

### Methodology

*Sydney Local Environmental Plan (LEP) 2012* Clause 6.19:

- lists ten Public Places in the City Centre which must not be additionally overshadowed by new development; and
- identifies those Public Places' locations as those "shown with blue hatching on the Sun Access Protection Map".

Modelling of nine of the City Centre Public Places was undertaken to determine the NAO controls. These can be seen in the LEP 2012's *Sun Access Protection Map Sheets*:

- SAP\_014 (Map identification number 7200\_COM\_SAP\_014\_005\_20121107) and
- SAP\_015 (Map identification number 7200\_COM\_SAP\_015\_005\_20121002).

For each of the nine City Centre Public Places, a complex 3D surface (Fan) was modelled to depict the height limits above which any proposed new City Centre building will result in additional overshadowing to that Place.

These Fans were constructed via a process which involved the following 5 key steps:

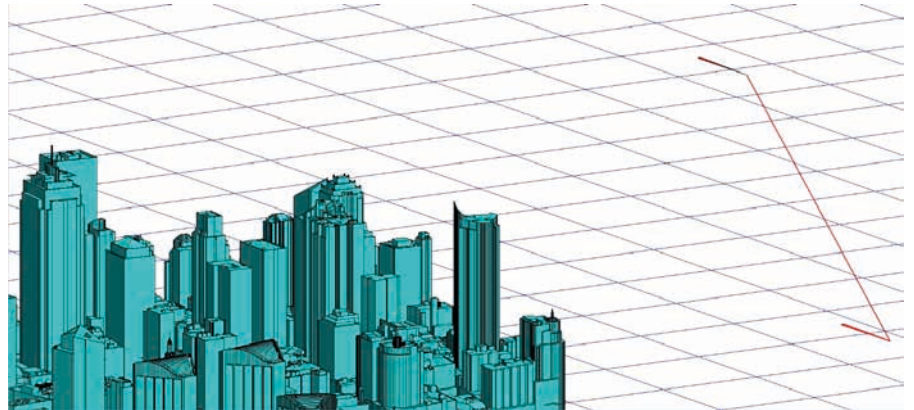
#### 1. Modelling a 3D representation

A 3D model was created of the extent of sunlight which reaches the ground surface of the Public Place on each single one of a selected range of the Sydney LEP 2012's specified range of Place-specific dates and times (Prisms). The modelling was completed to a height of either RL 450 or RL 600. The unique shape of each Prism was a consequence of the extent to which sunlight is partially blocked from reaching a Public Place by the existing buildings surrounding that particular Place at a specific date and time. The construction of each prism included:

- using MicroStation's 'Solar Shadow Generator' tool with 'Outline' Output Mode to cast a shadow at RL 0.0 of a cone with axis horizontal at the arbitrary height of RL 450;
- drawing a single construction line connecting the apexes of this cone and its shadow to represent the direction of the sun's rays at that Prism's unique date-and-time (M\_19);
- orienting the MicroStation View to a near sun's-eye position and copying this sloping line to
  - selected intersection points on the Public Place boundary,
  - locations which coincide with sun's-eye junctions between the vertical faces of the existing buildings which frame the extent of solar access to that Place;
- trimming the lower and upper ends of these sloping lines to RL 0.0 and RL 450, respectively;
- drawing/trimming horizontal lines at RL 0.0 and RL 450.0 to connect these ends, thus forming simple convex or concave polygons at the bottom and top of the sloping lines; and
- using MicroStation's 'Create Complex Shape' tool to combine this set of date-and-time-specific sloping and horizontal lines into a polyhedron to form that date-and-time's unique Prism (M\_20).
- Ensuring each of the Prisms – and the sloping lines from which they're formed – was drawn in a unique CAD layer.

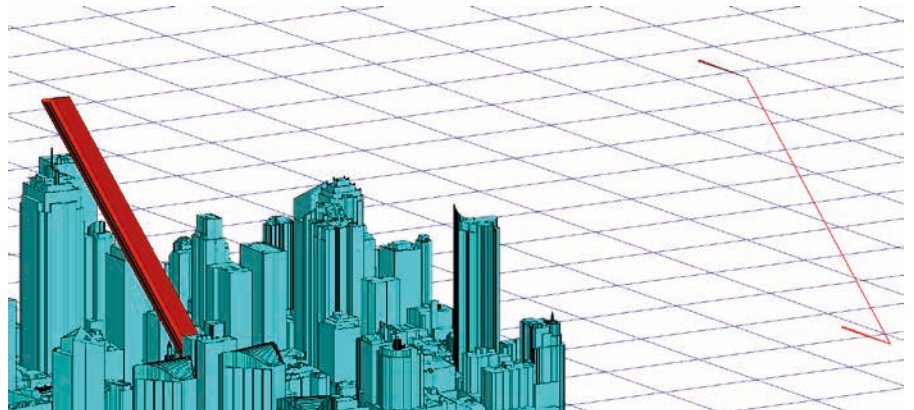
**M\_19**

This date-and-time-specific (2.30pm on 23 April) red construction line connects the apex of the floating RL 450 cone with that of its RL 0.0 shadow. To the left is a portion of the AAM Group's CAD modelling of the City Centre buildings.



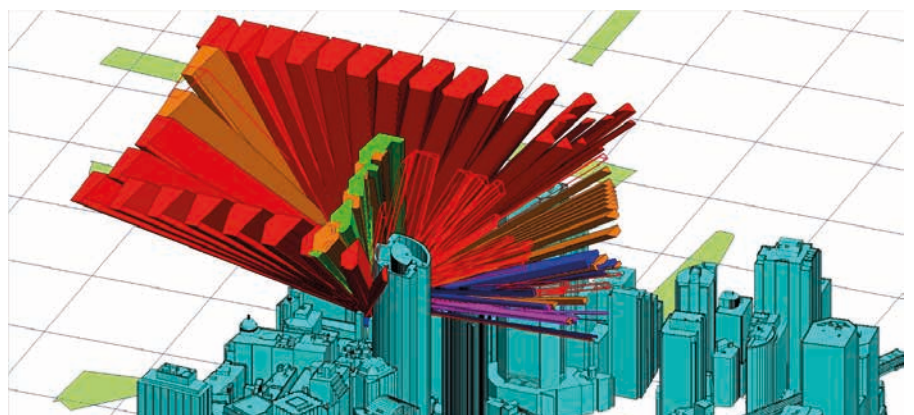
**M\_20**

This red Prism depicts the extent of sunlight which reaches Sydney Square at the same date and time as the red construction line from Figure A.1, i.e. 2.30pm on 23 April. The horizontal top surface of this Prism is also at RL 450.0.



**M\_21**

The set of 89 separate Prisms assembled to describe the existing solar access to Australia Square.



## **2. Assembling a set of Prisms (see for example M\_21) for each of the Public Places**

Time intervals between the sets of Prisms ranged from a:

- maximum of 10 calendar days to minimum 1 day, and
- maximum 30 minutes to minimum 5 minutes.

Dates within these sets were selected with regard to the sun's position along the figure-of-eight ('Analemma') shaped Hour Lines on the Sun-Path Diagram solar chart for Sydney latitudes (M\_22). In order to assess the instances of greatest impact within the calendar year, prisms were modelled for only one of the pair of dates upon which any Hour Line intersects with the Diagram's Date Lines – and in each case were modelled only for the one date of this pair that has the greater horizontal angle ('Azimuth') from the Diagram's north-south meridian line.

The result was that Prisms have been modelled for the times of day

- before noon only on the dates between
  - 21 June and 31 August, and
  - 22 December and 14 April; and
- after noon only on the dates between
  - 14 April and 21 June, and
  - 31 August and 22 December.

To improve the accuracy of the Fans in areas where solar access to the Public Places passes between especially complicated clusters of buildings, a greater concentrations of Prisms were modelled with commensurately smaller day-of-month or time-of-day intervals between them.

Prisms with a horizontal cross-sectional area less than 20m<sup>2</sup> (or 8m<sup>2</sup> for Town Hall Steps) played no further part in the Fan-modelling process.

Prisms with a horizontal cross-sectional area greater than 20m<sup>2</sup> (8m<sup>2</sup> for Town Hall Steps) were used to generate the Fan 'Ribs'.

In a few locations where it was obvious which sides of a Prism would inform the Fan surfaces, modelling was only undertaken on the sloping side faces on those sides of such Prisms.

The number of Prisms that has been used to construct each of the No Additional Overshadowing Fans is recorded in the individual fans that follow.

## **3. Adding a series of lines (Ribs) – drawn coincident with those of each Prism that are closest to the ground**

The Ribs formed a network of lines radiating upward and outward from the Public Place (M\_23). Each of these Ribs, were associated with each unique Prism.

## **4. Drawing horizontal straight Contour lines between all adjacent outermost Ribs, within the vertical range RL 30 to RL 600.**

Generally these Contours are spaced as follows:

- at 10m-intervals below RL 350; and
- at 50m-intervals between RL 350 and RL 600 (M\_24).

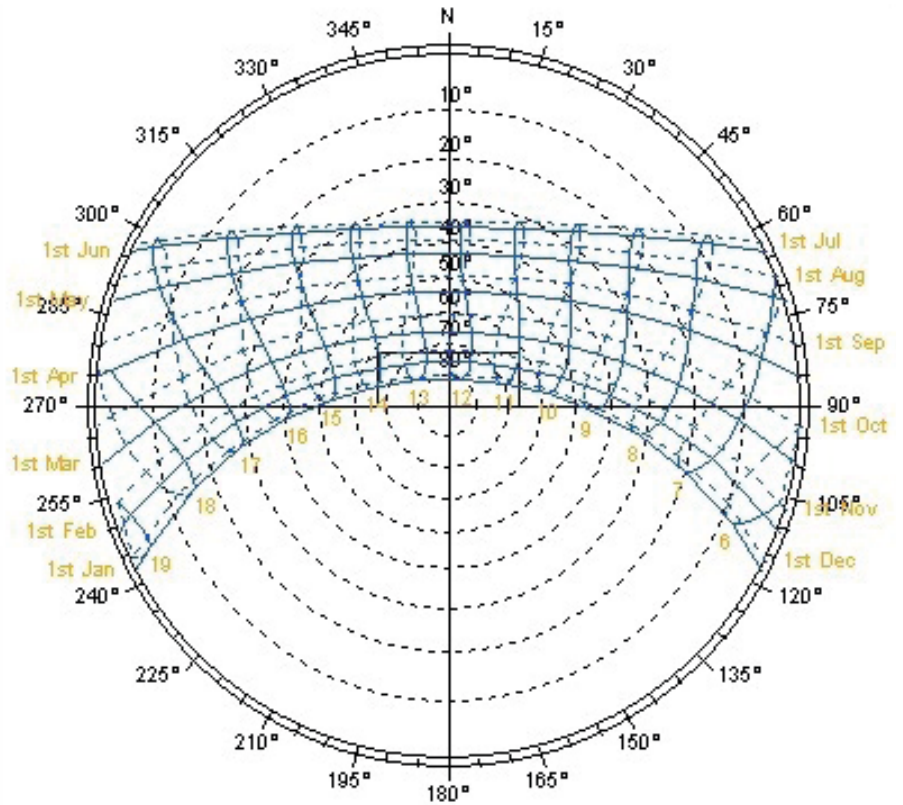
In key locations adjacent to especially complicated clusters of buildings, the Contours are spaced at 5m-intervals to improve the Fans' resolution.

## **5. Infilling the lattice formed by the intersecting network of Ribs and Contours**

The lattice was infilled with a mosaic of triangular Shapes to form the Fans.

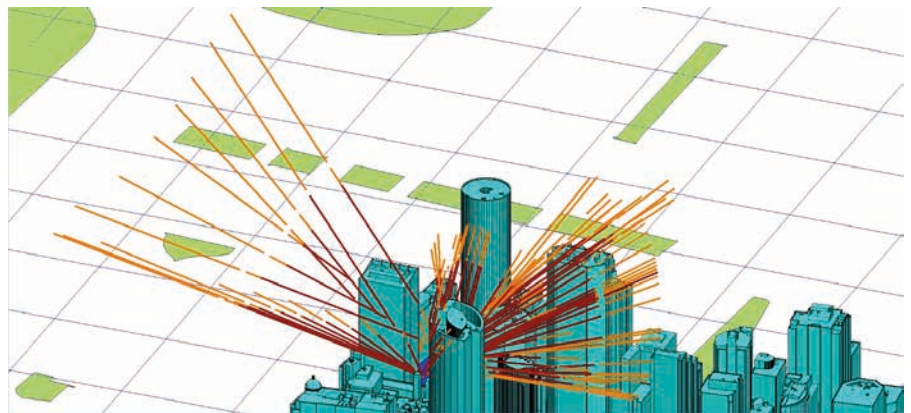
**M\_22**

Sun-Path Diagram. Hour Lines represent the position of the sun at a specific hour of the day, throughout the year, and are shown as figure-8 style ('Analemma'-shaped) lines that intersect the Date Lines. Points of intersection between Date and Hour Lines describe the position of the sun. The dashed half of each hour line indicates that this portion is during the latter six months of the calendar year.



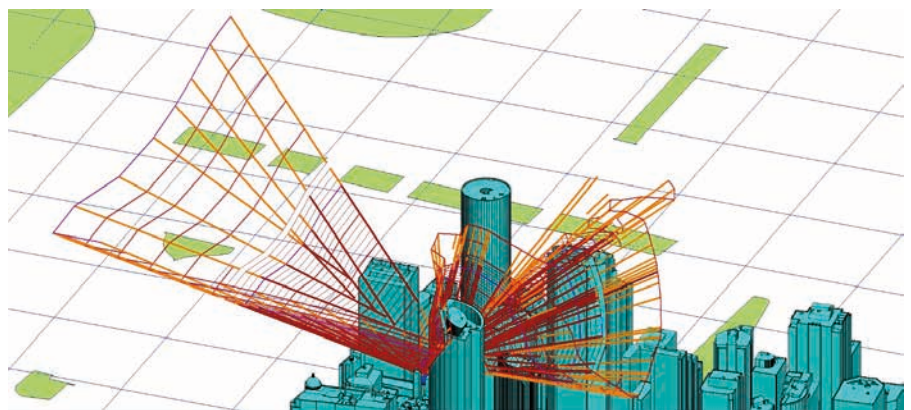
**M\_23**

The set of Ribs – representing 72 separate date-and-time combinations – for Australia Square. A portion of the Square’s modelled ground surface, coloured dark blue, is visible to the immediate left (east) of Grosvenor Place tower.



**M\_24**

Contour lines added to the Ribs for Australia Square. In this instance, to the left (east) the Contours extend to RL 600 whereas to the right (west) the highest Contour is RL 450.



### No Additional Overshadowing Controls Map

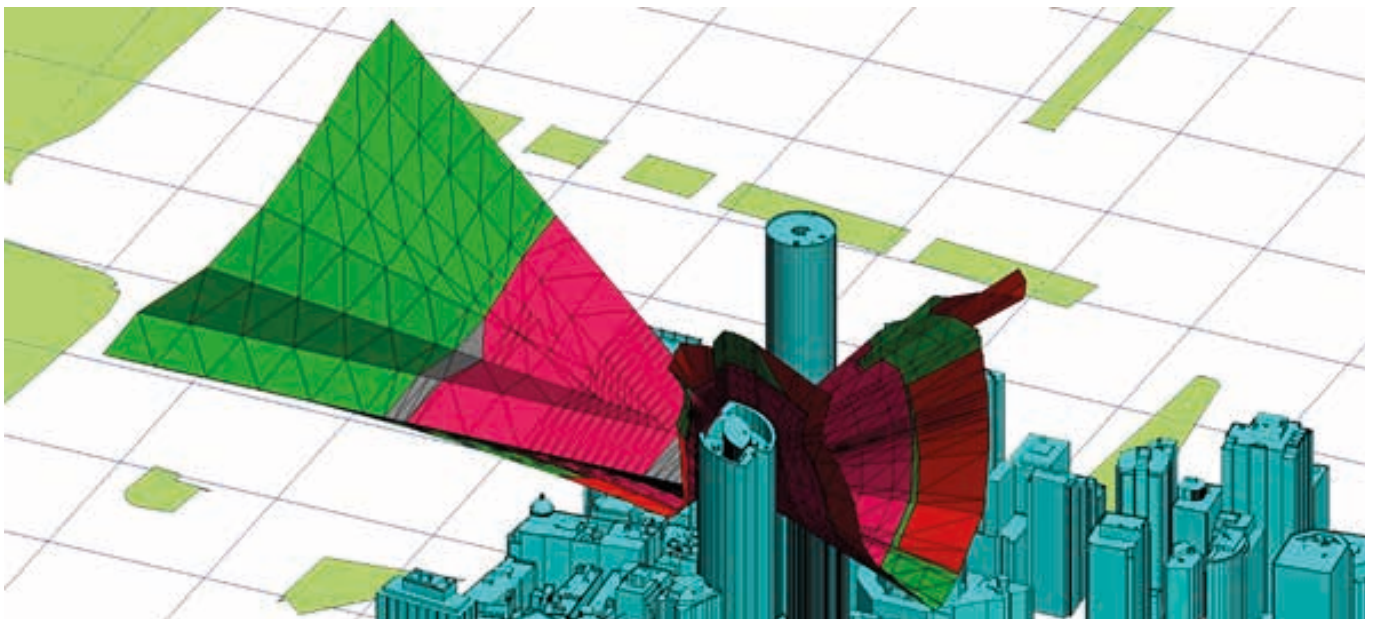
The map shown in M\_26 illustrates all of the spaces that are protected by no additional overshadowing controls, and their extent up to a height of RL350, and detailed descriptions of the methodology used to generate each NAO follows,

The following key can be used alongside this map to locate each space

1. Australia Square
2. First Government House Place
3. Macquarie Place
4. Martin Place
5. Pitt Street Mall
6. Sydney Square
7. Town Hall Square
8. Town Hall Steps

#### M\_25

the mosaic of triangles which forms the surface of the No Additional Overshadowing 'Fan' for Australia Square.








**M\_26**

No Additional Overshadowing Control

Key

-  Protected Space
-  300m Contour
-  Edge of Monolith



500m

## Macquarie Place






### Control

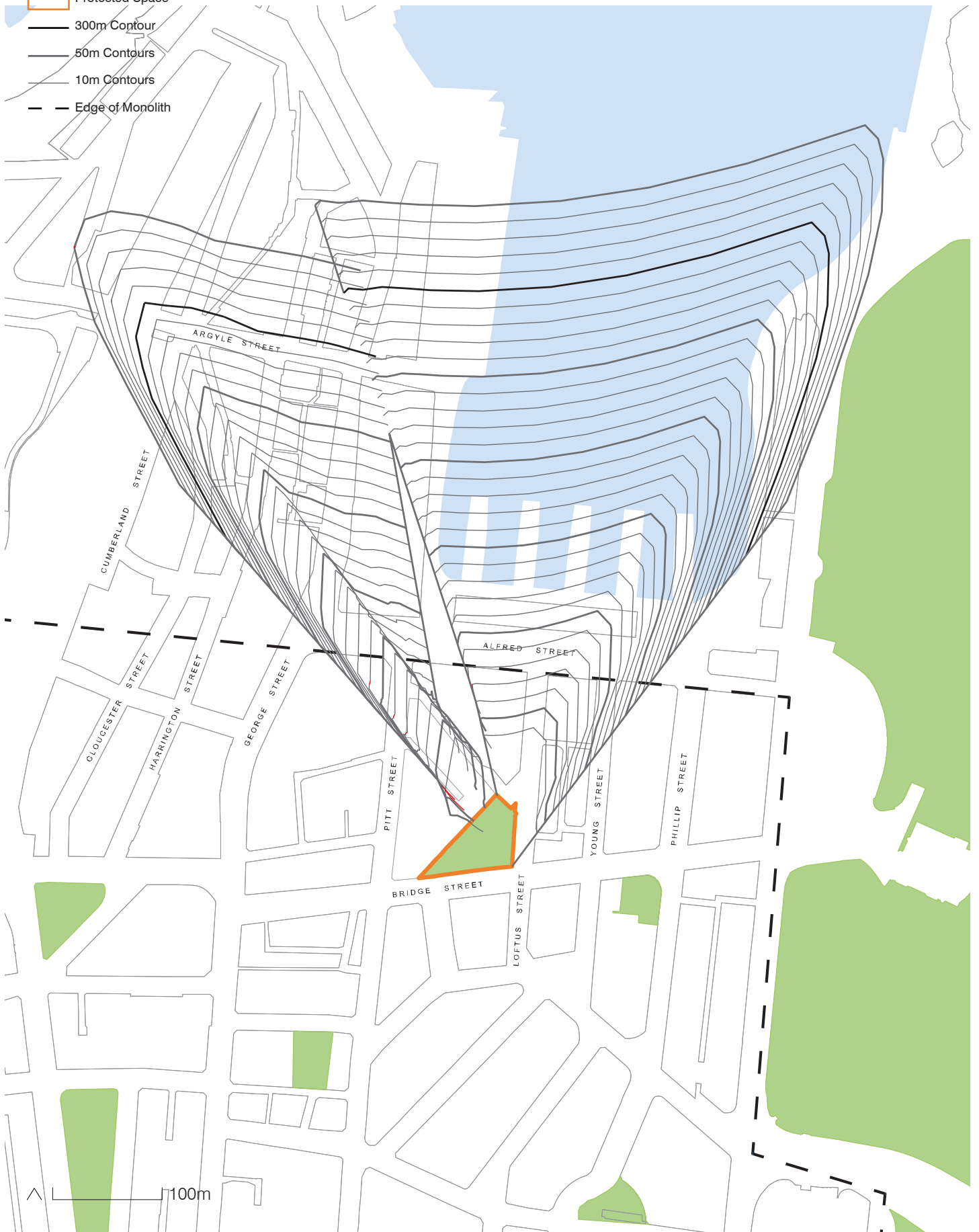
Type	No Additional Overshadowing
Intended Date of Protection	14 April - 31 August
Intended Time of Protection	10am - 2pm

**M\_27**

No Additional Overshadowing Control

Macquarie Place

-  Protected Space
-  300m Contour
-  50m Contours
-  10m Contours
-  Edge of Monolith



## Martin Place (between Pitt Street and George Street)






### Control

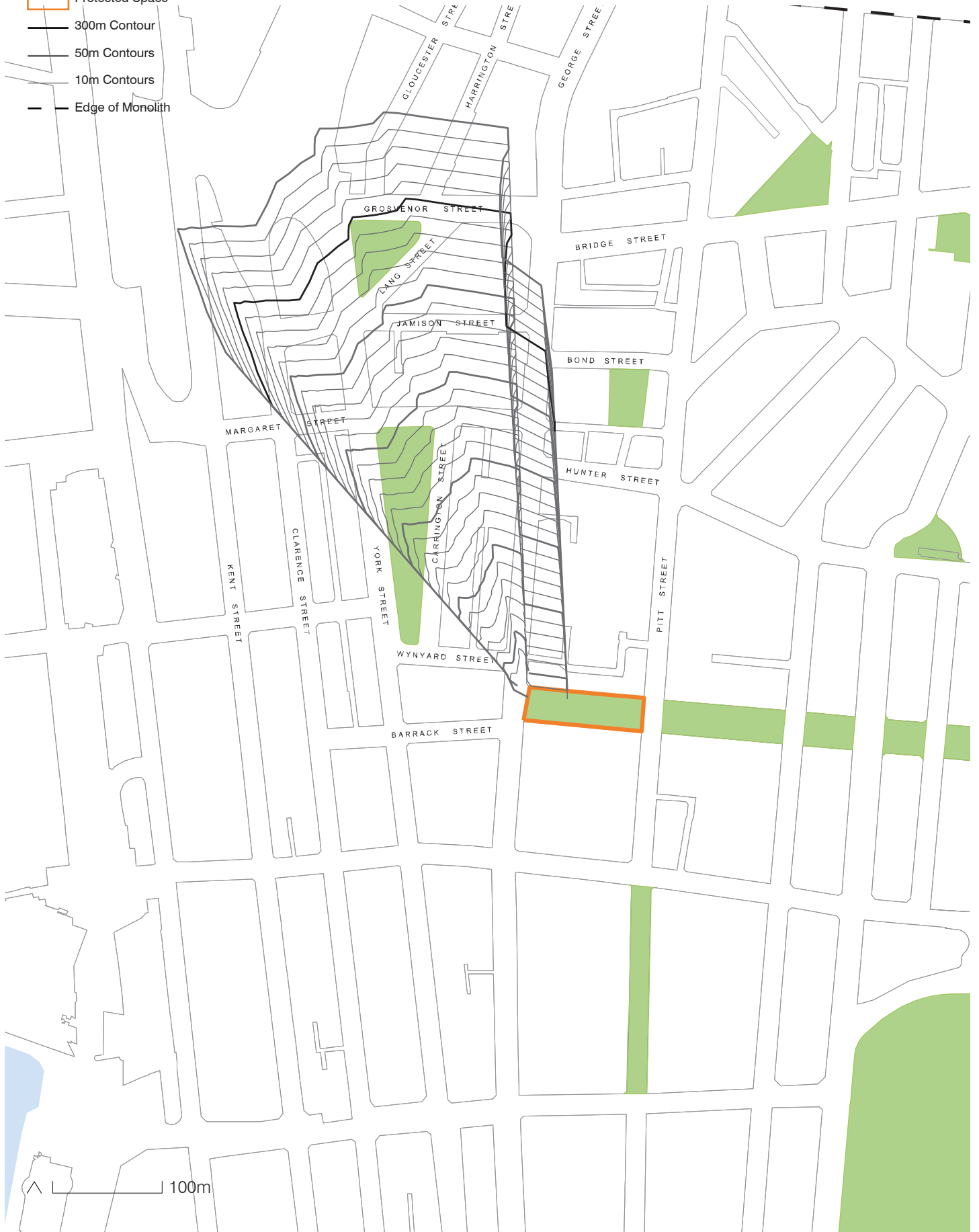
Type	No Additional Overshadowing
Intended Date of Protection	14 April - 31 August
Intended Time of Protection	12 - 2pm

**M\_28**

No Additional Overshadowing Control

Martin Place

-  Protected Space
-  300m Contour
-  50m Contours
-  10m Contours
-  Edge of Monolith



## Pitt Street Mall

### Control

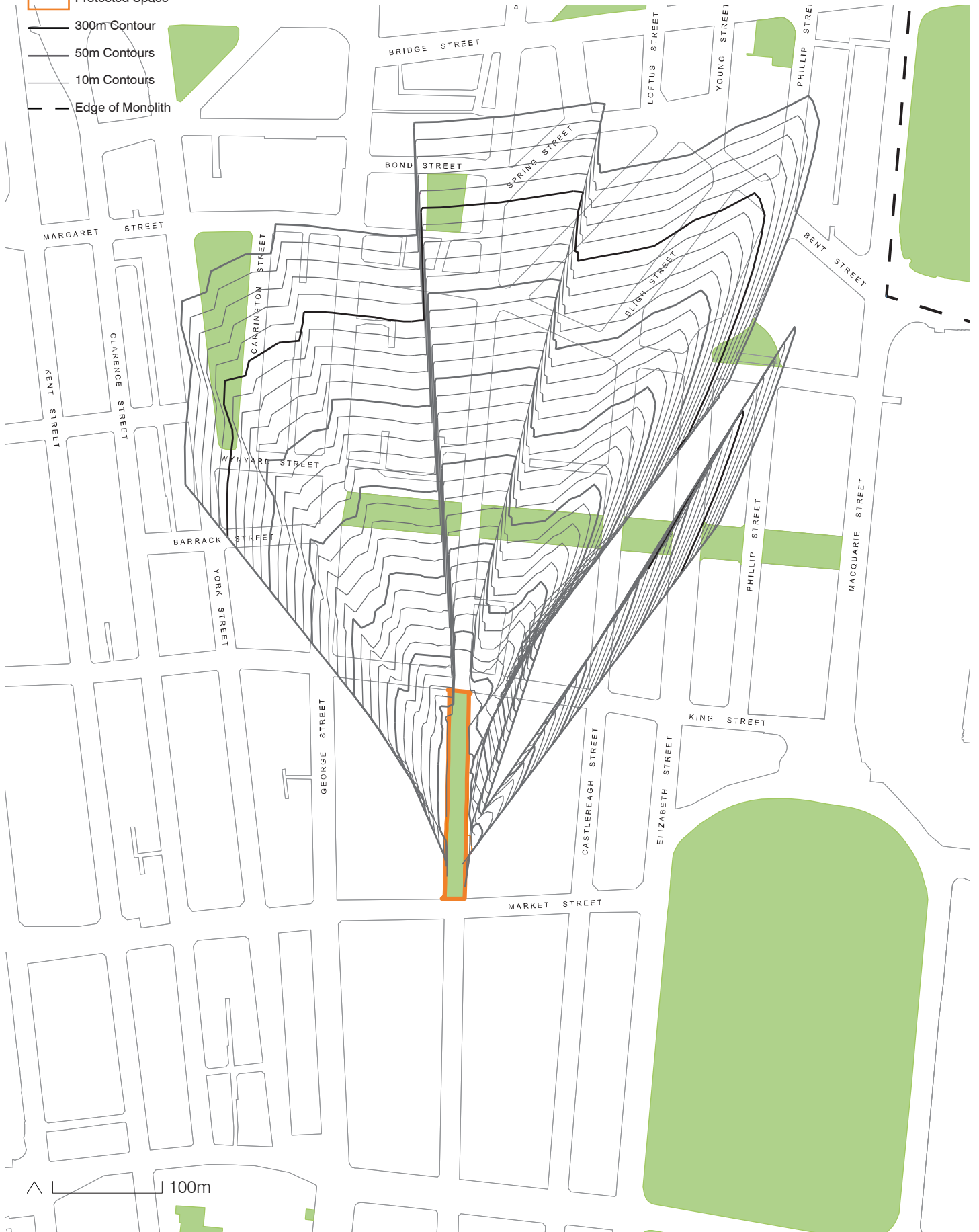
Type	No Additional Overshadowing
Intended Date of Protection	14 April - 31 August
Intended Time of Protection	10am - 2pm

M\_29

No Additional Overshadowing Control

Pitt Street Mall

- Protected Space
- 300m Contour
- 50m Contours
- 10m Contours
- Edge of Monolith



## Australia Square

### Control

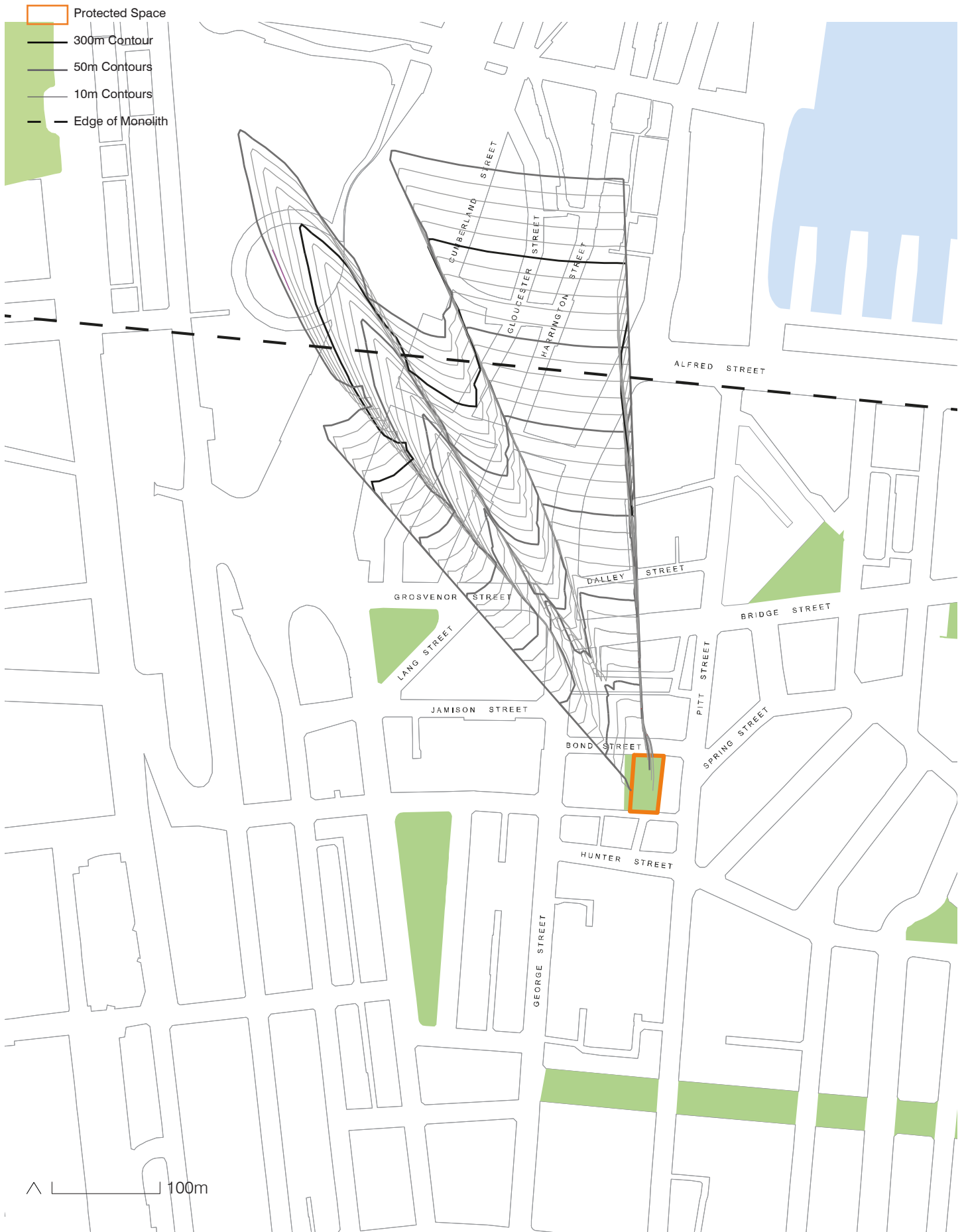
Type	No Additional Overshadowing
Intended Date of Protection	14 April - 31 August
Intended Time of Protection	12pm - 2pm



M\_30

No Additional Overshadowing Control

Australia Square



## First Government House Place

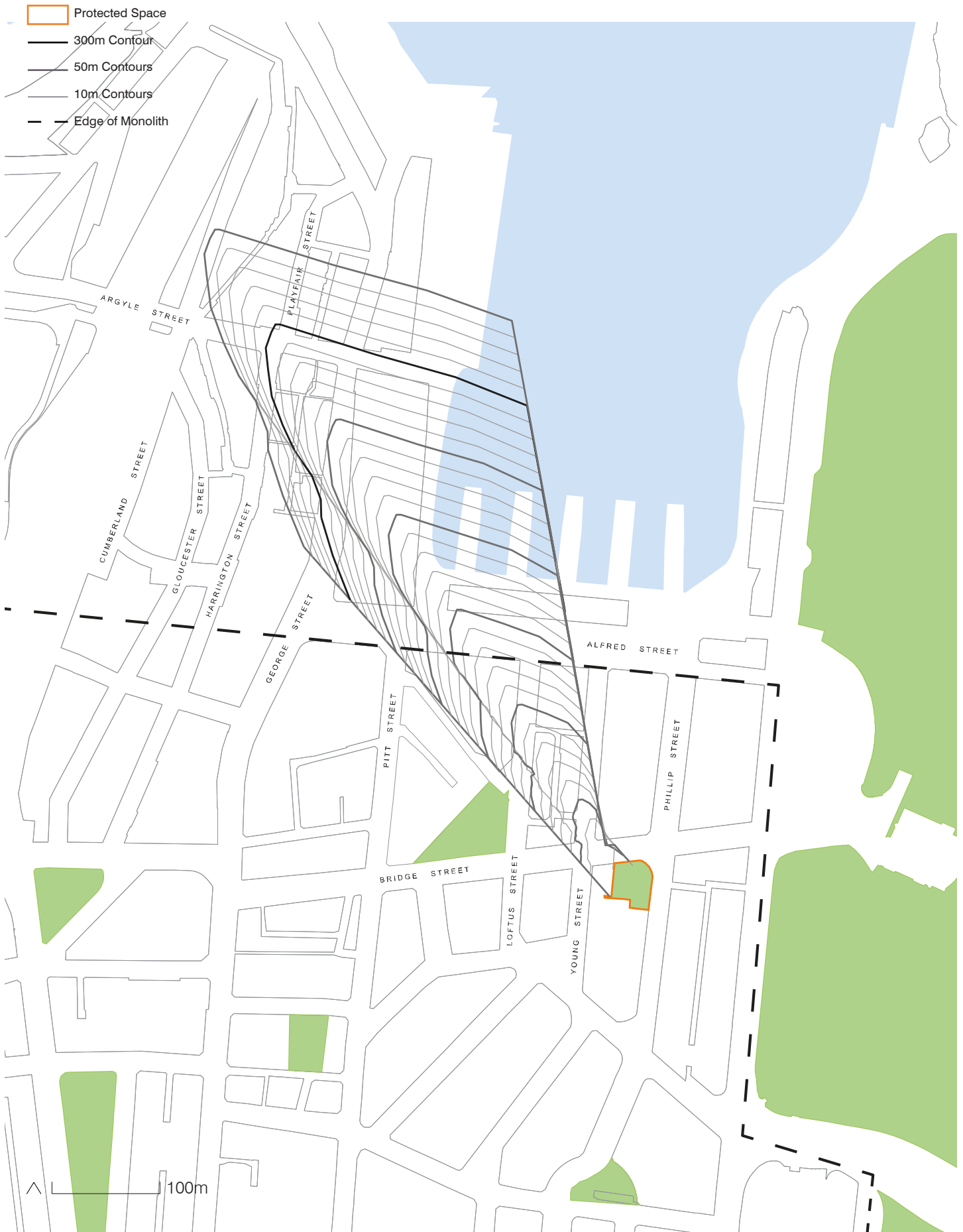
### Control

Type	No Additional Overshadowing
Intended Date of Protection	14 April - 31 August
Intended Time of Protection	10am - 2pm

M\_31

No Additional Overshadowing Control

First Government House Place



## Sydney Town Hall Steps

### Control

Type	No Additional Overshadowing
Intended Date of Protection	14 April - 31 August
Intended Time of Protection	10.30am - 4pm

M\_32

No Additional Overshadowing Control

Sydney Town Hall Steps



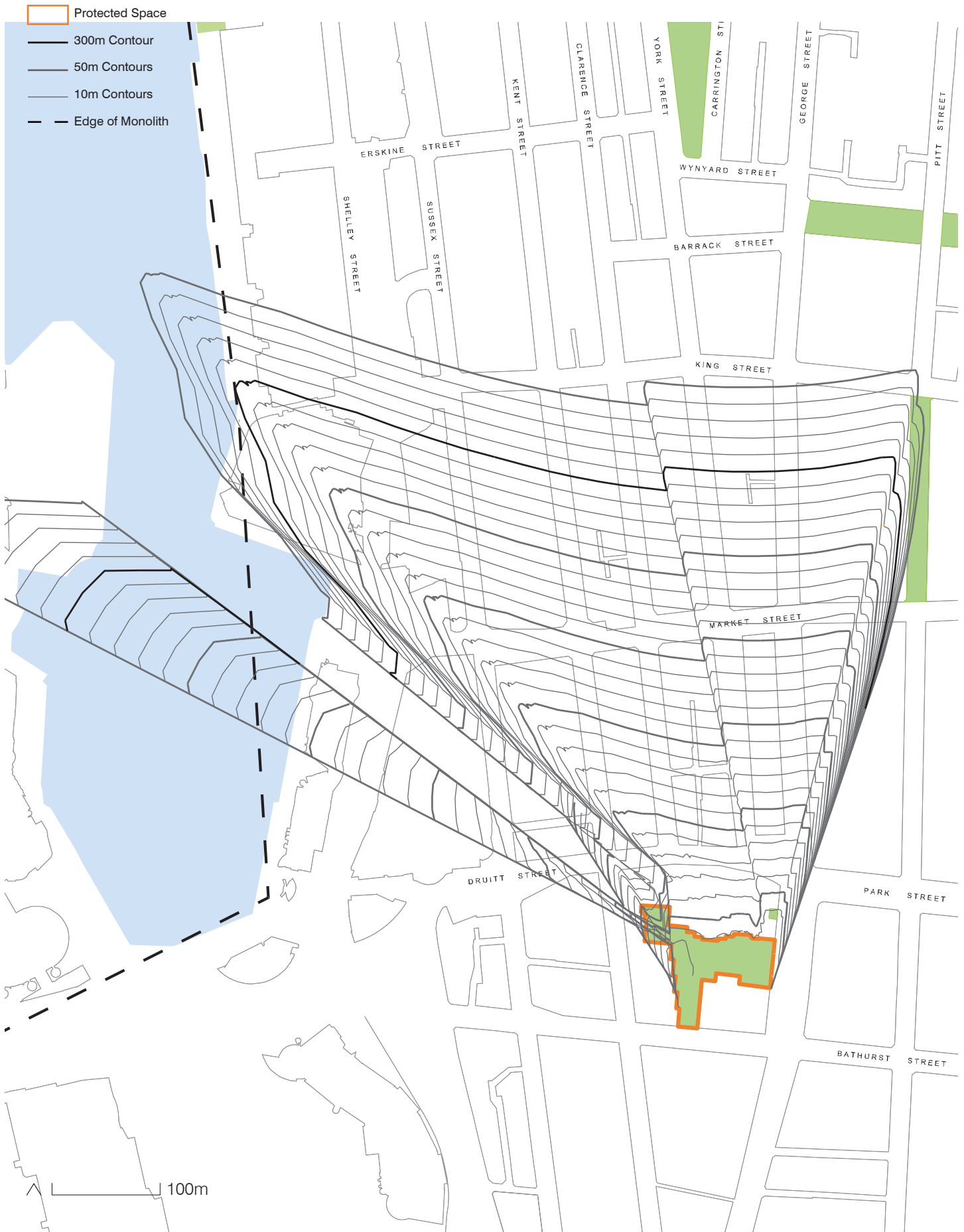
## Sydney Square

### Control

Type	No Additional Overshadowing
Intended Date of Protection	14 April - 31 August
Intended Time of Protection	11am - 4pm

M\_33

No Additional Overshadowing Control  
Sydney Square



## Future Town Hall Square

### Control

Type	No Additional Overshadowing
Intended Date of Protection	All year round
Intended Time of Protection	12pm - sunset



M\_34

No Additional Overshadowing Control

Sydney Town Hall Steps

- Protected Space
- 300m Contour
- 50m Contours
- 10m Contours
- Edge of Monolith

