

SYDNEY OPERA HOUSE



Shade Cover Improvements Sydney Opera House: Lower Concourse

Environmental Impact Statement
to Accompany a State Significant
Development Application



ENVIRONMENTAL IMPACT STATEMENT

STATE SIGNIFICANT DEVELOPMENT APPLICATION

SSD 7430

LOWER CONCOURSE

SHADE COVER IMPROVEMENTS

SYDNEY OPERA HOUSE:

LOWER CONCOURSE

Prepared by
BBC Consulting Planners

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Certification of Environmental Impact Assessment

Applicant, Site and Project Details

Applicant	Sydney Opera House Trust Sydney Opera House GPO Box 4274 SYDNEY NSW 2001
Site:	Sydney Opera House Bennelong Point
Real Property Description:	Lot 5 in Deposited Plan 775888 Lot 4 in Deposited Plan 787933
Proposal:	Lower Concourse Shade Cover Improvements

Authorship

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Declaration

I certify that the contents of the Environmental Impact Assessment to the best of my knowledge, has been prepared in accordance with the requirements of clauses 6 and 7 of Schedule 2 of *Environmental Planning and Assessment Regulation 2000*; contains all available information that is relevant to the assessment of the development and that to the best of my knowledge the information contained in this report is neither false nor misleading.

A handwritten signature in blue ink, appearing to read 'Dan Brindle', is written over a horizontal line.

Signed by:

Date: 16 February 2016



SUMMARY OF THE EIS

The Proposed Development This Environmental Impact Statement (“EIS”) has been prepared as part of a State Significant Development Application lodged pursuant to Section 78A(8A) of the *Environmental Planning and Assessment Act 1979* (“the EP&A Act”) for shade cover improvements on the Lower Concourse of Sydney Opera House.

In accordance with section 78A(8A) of the EP&A Act, the Secretary notified the applicant of the Environmental Assessment Requirements (SEARs) for the State significant development application and these have been addressed in this EIS.

The Proposed Development

The proposal comprises removal of the existing umbrellas and their replacement with new purpose-built shade cover structures.

The new shade structures will have a maximum height of 3.34m with the western edge being higher than the eastern edge so as to retain and enhance views along and from the Lower Concourse. The maximum height is equal to the top of the solid upturn along the western edge of the Opera House Forecourt. This ensures that there will be minimal obstruction of views from the Forecourt.

The new shade structures will be equipped with the same heaters and speakers as are attached to the existing umbrellas. Each will have strip LED up-lighting similar to existing. Some will have drop-down screens to provide greater weather protection and acoustic attenuation when in place.

The colour, maximum height, shape and general configuration of the new shade structures are all designed to minimise their visual impact, and their impact on views.

The Site

The Sydney Opera House is a State, National and World Heritage listed building and Australia’s most important tourist destination attracting around 8.2 million visitors each year.

The proposed development is on the southern part of the Opera House site on the Sydney Opera House Lower Concourse on the approach from East Circular Quay.

Statutory and Strategic Context

The Sydney Opera House is designated as a State Significant Development Site under *SEPP (State and Regional Development) 2011* (“the SRD SEPP”). Pursuant to Clause 8 in Part 2 of the SRD SEPP and to Item 1 in Schedule 2, all development identified as being within the Sydney Opera House site is State Significant Development (“SSD”). Therefore the Minister for Planning, or his delegate, is the consent authority.

The proposed development is permissible with consent being located on land within Zone B8 Metropolitan Centre under Sydney Local Environmental Plan 2012.

The Sydney Opera House site is declared a World Heritage property and a National Heritage place under the Environment Protection Biodiversity Conservation Act 1999.

Clause 288 of the Environmental Planning and Assessment Regulation 2000 requires consent authorities to consider the Sydney Opera House Management Plan (2005) when determining development applications on the Sydney Opera House site.

A range of environmental planning instruments apply to the site and are considered in this EIS.

Consideration has been given to site specific documents and policies including:

- Management Plan for the Sydney Opera House;
- Sydney Opera House: Conservation Management Plan; and
- Utzon Design Principles.

Impact Assessment

Heritage

Weir Phillips Heritage have considered the likely impacts of proposed new shelters on the Lower Concourse of the Sydney Opera House on the significance of the site and on nearby heritage items/conservation areas and conclude that:

- The proposed works will considerably improve amenity not only for people attending performances within the Opera House but also for people enjoying its unique location;
- The proposed works are consistent with the Conservation Plan for the Site, the Management Plan for the site and Utzon's design principles;
- The proposed works will not block view corridors to/from nearby heritage items/conservation areas and will have no impact on the character of the setting of nearby heritage items/conservation areas because they are minor and visually recessive;
- The proposed works are minor and do not give rise to a significant impact as it is defined by the Matters of National Environmental Significance Significant Impact Guidelines 1:1 and do not require a separate approval under this Act;

Weir Phillips Heritage state that:

The impact is minimal and acceptable because the shelters have been carefully designed to be recessive against the granite podium of the Opera House and the original, principal, approaches to the Opera House. The shelters are designed to lie below the height of the Forecourt, within the base wall. Significant view corridors to and from the Opera House are thus retained. The underside of the shelters is raised into the same zone, thereby maintaining views along and out of the Lower Concourse. The primacy of, and relationship between, the solid granite podium below and the tiled white shells above, is retained. There will be no impact on the ability to understand the building's architectural and technological significance and no impact upon the way in which it reads as a free standing sculptural element within its harbour setting.



Urban Design and Visual Impacts

The new shade structures will be purpose-built, better shaped to suit the configuration of the outdoor seating area and their colour will complement their immediate context. This will be an improvement on the existing umbrellas and will improve the overall design cohesion of the outdoor seating area on the Lower Concourse.

The maximum height of the new shade structures (3.34m) is slightly less than the maximum height of the existing umbrellas improving the outlook from the Opera House Forecourt. The underside of the shade structures is higher than the existing umbrellas enabling improved views along and out of the Opera House Lower Concourse. The structures have been carefully designed to be recessive against the granite podium of the Opera House and the principal approaches to the Opera House. The shelters are designed to lie below the height of the Opera House Forecourt, thus retaining and improving significant views to and from the Opera House.

The proposed form reflects the horizontality of the Lower Concourse and Forecourt in general. It is designed such that the form of the new structure will have no detrimental impact on views from to or from the Opera House and surrounding precinct.

The new shade structure references the established geometry of the existing concourse including the radial grid but is an otherwise independent structure. Accordingly that new structure does not interfere with the form and continuity of curvature of the existing concourses.

The visual connection between the Forecourt and Lower Concourse will not be obscured. In fact despite the increase in size, the new forms would appear to be simpler, less distracting than the existing umbrellas and more harmonious with the existing super structure.

In the context of the site, and particularly in respect of long views to the Opera House and surrounds this increase is insignificant. Given the relative size of the Opera House, other neighbouring buildings and geographic features, the impact of the new shade cover is insignificant and has no detrimental impact of the visual setting of the Opera House.

Noise

The implications of the proposed development on the acoustic amenity of the surrounding area, and in particular residential units in Bennelong Apartments, has been assessed. This concludes that the proposed shade covers will not cause any increase in noise emitted from the Opera Bar.

Lighting

The proposed shade structure lighting will utilise the same lighting principle as the current lighting with light sources fixed to the membrane supports underneath the shading structures. The membrane fabric will be up lit to generate a low glare gentle ambient light. Shade surfaces provide the physical barrier to block the light reaching the surrounds, nearby properties or any of the water traffic. The light is reflected in a non-specular manner to provide sufficient diffusion and avoid light spillage, light pollution, or sharp shadows or contrast.



Ecologically Sustainable Development

The development allows ESD principles to be implemented through the incorporation of a number of features in the design and during construction including Australian best practice sustainability initiatives during construction, which include:

- New lighting will incorporate the latest LED technology to maximise energy efficiency;
- New heating units are smaller and are more efficient than existing heaters;
- The latest technology in PVDF membrane shade material will be utilised providing greater shade protection and less heat transfer.

Considerations section 79C of the EP&A Act

Section 79(C) of the EP&A Act sets out the matters to be considered by the consent authority in determining a State significant development application. Having regard to these matters it is considered that the proposed development has no significant impact on the environment of the locality of on the Sydney Opera House and is worthy of approval.

Conclusion and Recommendation

The merits and impacts of proposed State significant development have been assessed and it is concluded that the development would not give rise to any adverse heritage or environmental impacts and is supportable for the following reasons:-

- The Lower Concourse is used for food and drink premises with their associated outdoor seating areas – no change is proposed to this arrangement.
- The proposal will result in the replacement of existing umbrellas over the outdoor seating areas with new shade structures to a bespoke design uniquely suited to the Lower Concourse.
- The new improved shade cover and weather protection will provide better amenity for users of the outdoor seating areas on the Lower Concourse without diminishing the amenity of other visitors to the Sydney Opera House.

The development is consistent with Utzon's Design Principles and will improve the amenity of visitors to the Opera House in a manner that achieves an improved urban design and heritage outcome.

The development displays consistency with statutory planning controls and with the Sydney Opera House Management Plan, the Conservation Management Plan and Utzon's Design Principles.

Based on the assessment undertaken in this EIS, the proposed development should be approved.



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1. INTRODUCTION

1.1 Purpose of this Report

This Environmental Impact Statement ("EIS") has been prepared as part of a State Significant Development Application lodged pursuant to Section 78A(8A) of the *Environmental Planning and Assessment Act 1979* ("the EP&A Act") for shade cover improvements on the Lower Concourse of Sydney Opera House.

The EIS has been prepared in accordance with the requirements of Clauses 6 and 7 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 ("the EP&A Regulation"), including Secretary's Environmental Assessment Requirements dated 18 December 2015.

1.2 Overview and Objective of the Proposed Development

1.2.1 Overview

The proposal relates to land under the control of the Sydney Opera House Trust. The location of the proposed works is in the outdoor seating area on the Lower Concourse adjacent to Circular Quay. The approximate location of the works is illustrated in **Figures 1, 2, 3A and 3B**.

The proposal comprises removal of the existing umbrellas and their replacement with new purpose-built shade cover structures.

The new shade structures will have a maximum height of 3.34m with the western edge being higher than the eastern edge so as to retain and enhance views along and from the Lower Concourse. The maximum height is generally equal to the top of the solid upturn along the western edge of the Opera House Forecourt. This ensures that there will be minimal obstruction of views from the Forecourt.

The new shade structures will be equipped with the same heaters and speakers as are attached to the existing umbrellas. Each will have strip LED up-lighting similar to existing. Some will have drop-down screens to provide greater weather protection and acoustic attenuation when in place.

The colour, maximum height, shape and general configuration of the new shade structures are all designed to minimise their visual impact, and their impact on views.

Architectural plans are provided in **Appendix 1** and an architectural design statement is provided in **Appendix 2**.

1.2.2 Objective

As part of the ongoing commitment to improve facilities at the Sydney Opera House, it is proposed to replace the existing shade cover and weather protection umbrellas in the outdoor seating areas of the Opera Bar and Opera Kitchen with larger, more functional and aesthetically integrated shade and weather protective structures.

Photomontage of Proposed Shade Structures



Source: Humphrey & Edwards Architects

1.3 Approvals Framework

1.3.1 Federal

The Sydney Opera House was included on the National Heritage List on 12 July 2005 and inscribed on the World Heritage List on 28 June 2007.

The National and World Heritage listings nominate the same area and include the part of the site in which the proposed works are located (see **Figure 4**).

The Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 applies to World Heritage listed sites where they are significantly affected by proposed works. (That is not the case with this proposal – see Section 4.3.1 for further discussion).

1.3.2 State

Part 2, Clause 7 of SEPP (Major Development) 2005 refers to Schedule 3 which describes State Significant Sites. Part 1 of Schedule 3 identifies Sydney Opera House as a State Significant Site.

The provisions of Schedule 3 relating to the carrying out of development on a State Significant Site have effect. These provisions, however, solely relate to exempt development. The proposed shade cover improvements are not covered by any of the exempt development categories.

The Opera House is also designated as a State Significant Development Site under SEPP (State and Regional Development) 2011 (“the SRD SEPP”).

Pursuant to Clause 8 in Part 2 of the SRD SEPP, and to Item 1 in Schedule 2, all development identified as being within the Sydney Opera House site on the SSD map is State Significant Development (“SSD”). An extract from the SSD map is provided in **Figure 5**.

1.3.3 Requirement for an EIS

Section 78A(8A) of the EP&A Act requires that a DA for SSD is to be accompanied by an Environmental Impact Statement (“EIS”). Therefore, as the development is nominated as SSD, an EIS is required to be prepared to accompany the SSD DA.

1.3.4 Secretary’s Environmental Assessment Requirements

Secretary’s Environmental Assessment Requirements (“SEAR’s”) for the EIS were issued on 18 December 2015 (see **Appendix 3**).

The various requirements and where they are addressed/provided in this EIS are set out in the following table:-

Environmental Assessment Requirements	EIS Reference
General requirements: EIS to address requirements of EP&A Act 1979 and Clauses 6 and 7 of Schedule 2 of the EP&A Regulation 2000. EIS to include an environmental risk assessment. EIS to include a QS report.	Throughout Section 6.8 Appendix 8
Key issues: 1. Environmental Planning Instruments, Policies and Guidelines. 2. Heritage - National and World Heritage Matters - State Heritage Matters 3. Urban Design and Visual Impacts. 4. Noise. 5. Lighting. 6. ESD. 7. Consultation.	1. Section 4 2. Section 6.1 3. Sections 6.2 and 6.3 4. Section 6.4 5. Section 6.5 6. Section 3.10 7. Section 5
Plans and documents Plans and architectural drawings required under Schedule 1 of EP&A Regulation 2000: 1. Site survey. 2. Locality/Context Plan. 3. Drawings at Scale.	Appendix 1 Appendix 1 Appendix 1

2. SITE

2.1 General Location and Description

The site comprises the promontory on the eastern side of Circular Quay known as Bennelong Point (see **Figures 1, 2, 3A and 3B**). It contains the Sydney Opera House and its associated forecourt area and concourses.

The site has the legal description of Lot 5 in DP 775888 and Lot 4 in DP 787933.

Sydney Opera House comprises 3 iconic structures designed with its characteristic 'shell roofs' on Bennelong Point, those being, from largest to smallest:-

- the Concert Hall on the western side of Bennelong Point;
- the Joan Sutherland Theatre on the eastern side; and
- the Bennelong Restaurant, to the south of the two main venues (see **Figure 3A**).

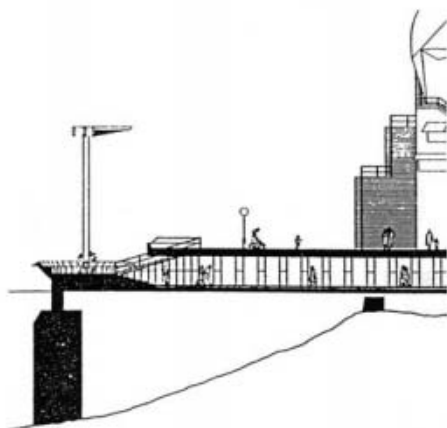
To the south of the above three structures are the Monumental Steps and the southern forecourt. Vehicular access to the site is primarily via an access road located on the western side of the southern forecourt, which leads to a covered area under the Monumental Steps.

2.2 Outdoor Seating Area on Lower Concourse

The proposed shade cover improvements are located on the outdoor seating area on the Lower Concourse in the area to the south-west of the Opera House adjacent to the eastern side of Circular Quay.

The Opera House was constructed between 1957 and 1973 generally to the design of Jørn Utzon. The Lower Concourse level was part of a bicentennial (1988) renovation of the Opera House. This program of works involved various repairs, alterations and additions to the Opera House and was completed in 1997.

Concourse Details from 1988 Plans



40. Section through the lower forecourt showing the 1988 'sea wall' profile and floodlight pylon. Plan by NSW Public Works and Hall, Bowe & Webber Pty Ltd, 1986.

Source: Sydney Opera House: A Revised Plan for the Conservation of the Sydney Opera House and its Site" (3rd edition 2003).

The Lower Concourse is below and to the western side of the Opera House forecourt and includes an undercroft primarily containing food and drink premises with their associated outdoor seating areas located between the undercroft and the sea wall.

Photographs of the Lower Concourse level (showing the existing umbrellas) are provided below.

Photograph 1 – Existing Lower Concourse: View to the South



Source: Site Visit 10 November 2015

Photograph 2 – Existing Lower Concourse: View to the North



2.3 Context

The Opera House occupies a promontory so to its east, north and west are, respectively the waters of Farm Cove, Sydney Harbour, and Sydney Cove. To the south are the Royal Botanic Gardens (elevated above the sandstone cliff face, shown as the Tarpeian Wall) and further south, Government House.

To the south west of the Opera House are the mixed use buildings (predominantly apartments above ground and first floor shops, and food and drink premises) of East Circular Quay. These buildings incorporate a Colonnade, which adjoins the paved, wide, pedestrian footway which runs around each side of Circular Quay, parts of which are used for outdoor seating associated with adjacent cafes and restaurants.

The mixed use building closest to the Opera House is known as Bennelong Apartments at the northern end of Macquarie Street and East Circular Quay. A roundabout at the northern end of Macquarie Street provides vehicular access to the Opera House southern forecourt and to the underground Opera House car park.

The Lower Concourse runs along the western side of the site and is accessed by stairs and escalators at its northern end and southern end, and by stairs at its mid-point. It provides pedestrian access to the underground Opera House Car Park and contains amenities and services to visitors to the Opera House and Bennelong Point including the Opera Bar, Opera Kitchen and the Opera House Visitor and Interpretation Centre. Outdoor seating areas associated with the Opera Bar and Opera Kitchen occupy the western, generally wider, part of the Lower Concourse.

The external areas of the Lower Concourse comprise large granite pavers and mushroom shape support columns with the undercroft supporting walls clad in granite. Walls to Opera Bar include floor to ceiling glazing.

The Conservation Plan¹ provides the following description of the Lower Concourse:

The creation of an uncluttered, granite-paved, forecourt and an “invisible” covered pedestrian approach to the Opera House through a shopping concourse was a major bicentennial enhancement of the setting of the building. It eliminated the existing bitumen-paved car park and pedestrian covered way from the immediate approach to the building and also provided access to the underground car park when it was completed in 1993.

The considerable extent and irregular shape of the forecourt determined the choice of granite setts, or cobbles, laid in a fan pattern between strips of granite with a sawn finish which were in turn parallel to and designed “to respond to the powerful horizontal element of the [podium] steps” (Hall, SOH, 65). The granite was South Australian: Siena for the setts and Calca for the slabs. Both were supplied by Monier and laid by Melocco (ibid, 64). The same materials were used on the lower forecourt except that the setts were confined to the sea wall promenade and the concourse itself was laid with slabs of solid granite.

The Opera House attracts around 8.2 million visitors each year.

¹ James Semple Kerr, *Sydney Opera House: A Plan for the Conservation of the Sydney Opera House and its Site*, 2003, p. 58

3. THE PROPOSAL

3.1 Overview and Objective

The proposal is to replace the existing shade cover and weather protection umbrellas in the outdoor seating areas on the Opera House Lower Concourse with new purpose-built improved shade cover structures. The objective is to provide more functional and aesthetically integrated shade and weather protective structures.

The new shade structures will have a maximum height of 3.34m with the western edge being higher than the eastern edge so as to retain and enhance views along and from the Lower Concourse. The maximum height is generally equal to the top of the solid upturn along the western edge of the Opera House Forecourt. This ensures that there will be minimal obstruction of views from the Forecourt.

The new shade structures will be equipped with the same heaters and speakers as are attached to the existing umbrellas. Each will have strip LED up-lighting similar to existing. Each will also have drop-down screens to provide greater weather protection and acoustic attenuation when in place.

The colour, maximum height, shape and general configuration of the new shade structures are all designed to minimise their visual impact, and their impact on views.

Drawings prepared by Humphrey & Edwards Architects are provided in **Appendix 1** with photomontages provided in **Appendix 6**.

The Lower Concourse is designated as a food and drink precinct within the Opera House site. The new shade cover improvements are associated with the use of this precinct and have been designed to complement and facilitate that use.

3.2 Demolition

Demolition involves removal of the existing umbrellas.

3.3 Use

The proposed shade structures will facilitate the continued but improved use of the outdoor seating areas on the Lower Concourse in association with, and ancillary to, the two food and drink premises of which they form part.

3.4 Design and Form

The design and form of the new shade structures are described in detail in the Architectural Design Statement prepared by Humphrey & Edwards, Architects and Interior Designers contained in **Appendix 2**.

The replacement shade structures are designed to be more in harmony, in terms of form, detail and materiality with the finer established context than the existing umbrellas.

The proposed shade covers are of a custom design and profile. The proposed form is dynamic and features an offset cantilever. The arrangement responds to the geometry of the paving both in plan profile, which reflects the radial paving set out and in location which bears a more considered approach to locating of the masts.

There will be fewer masts which will be fixed through the pavers and into the structural substrate slab below.

The overall design is more architecturally responsive and consistent with the design quality of the Opera House and precinct in general. The design and detailing is simplistic and restrained so as not to compete in prominence with the architecture of the Opera House.

The new structures, despite increasing the covered area, are shallower in overall depth which allows for the umbrella section to be within the depth of the forecourt parapet wall, unlike the existing umbrellas, allowing for the new structures to be less significant in the views from the Opera House Forecourt and more importantly in the long views from outside the precinct.

The underside of the structures is higher and rises from east to west retaining and improving views along and through the Lower Concourse.

The shade structures cover an area of 295 square metres at the Opera Bar (an increase in the existing covered area of 109 square metres). At the Opera Kitchen, the shade structures cover an area of 106 square metres, an increase of 34 square metres.

The height above the Lower Concourse level to the apex of the structure is 3.34 metres, a reduction in height of 160mm with the structure no higher than the western fascia of the Opera House Forecourt. The clearance of the shade cover above the outdoor dining area is 2.56 metres and 2.37 metres to the lowest point being the raised area adjacent to the sea wall (refer to Drawing DA2-525 in **Appendix 1**).

3.5 Materials and Finishes

The mast and structural steel support members will be steel painted in a colour to match Dulux Coconut Husk which has been selected to best blend the shade structures with the background structure of the concourses. Accordingly the proposal will not detract from the reflection of light off the sail forms of the Opera House itself.

The shade membrane fabric is PVDF (polyvinyl difluoride) also coloured to closely match Dulux Coconut Husk. In accordance with the Utzon Design Principles the shade cover fabric will be non-reflective and in a natural tone sympathetic to the Opera House's palette of materials and colours. Detail and material finish will be of a high standard commensurate with that expected of a World Heritage listed site.

3.6 Heating

Radiant electric heating panels will be fixed to the underside of the structural framing similar to the present shade covers. The new heating panels will employ newer technology and will be less obtrusive, smaller in dimension for the same performance and more efficient.

3.7 Lighting

3.7.1 Proposed Lighting

The proposed shade structure lighting has been designed by Steensen Varming and will utilise the same lighting principle as the current lighting (**Appendix 4**). The light sources that will be fixed to the membrane supports underneath the shading structures. No lighting elements are to be installed in the existing heritage fabric, and are contained within the shading elements.

The membrane fabric will be up lit to generate a low glare gentle ambient light.

3.7.2 Measures to Mitigate Light Spill

Luminous openings of the lights are to face the shade surfaces, in order to prevent glare or uncontrolled light spill. Shading surfaces provide the physical barrier to block the light

reaching the surrounds, nearby properties or impacting on any of the water traffic. Light is reflected in a non-specular manner to provide sufficient diffusion and avoid light spillage, light pollution, or sharp shadows or contrast.

3.8 Noise Control/Attenuation

Speakers are to be installed as per existing arrangements on the masts of the shade structures. There will be 4 speakers per mast angled to direct noise to the patrons and away from the direction of the nearest residences.

The new shade covers will cover a larger area than the current umbrellas which will assist in noise attenuation. The sound system is fitted with RMS limiters and roll down acoustic screens will be suspended from the new shade structures to provide further acoustic attenuation at the southern end of the stage area.

3.9 Ecologically Sustainable Development

The EP&A Act adopts the definition of Ecologically Sustainable Development (ESD) found in the Protection of the Environment Administration Act 1991 which requires the effective integration of economic and environmental considerations in decision-making processes.

The development allows ESD principles to be implemented through the incorporation of a number of features in the design and during construction including Australian best practice sustainability initiatives during construction, which include:

- New lighting will incorporate the latest LED technology to maximise energy efficiency;
- New heating units are smaller and is more efficient than existing heaters;
- The latest technology in PVDF membrane shade material will be utilised providing greater efficiencies in shade and heat transfer.

It is considered that the precautionary and inter-generational equity principles have been applied in the design through the assessment of the environmental impacts of the proposal, as detailed in this EIS.

3.10 Heritage Considerations

The works comprise relatively minor and removable elements which, because of their careful and well-considered design, their location on the Lower Concourse, and taking into account the umbrellas they will replace, will not diminish the significant and permanent fabric of the Opera House, its forecourt and Lower Concourse and podium steps.

However, the location of the Lower Concourse in the foreground of views of the Opera House from the southern pedestrian approaches off the northern end of East Circular Quay and from West Circular Quay (significant view corridors) have required a high level of attention to detail in the design of the new shade structures. Their colour, shape, maximum height, and general configuration are a response to their sensitive location in this view corridor. As is evident from the photomontages in **Appendix 6**, showing the appearance of the new shade structures when seen from the south, no significant impacts will arise on the setting of the Opera House.

A detailed consideration of the heritage impacts of the proposal, including its impacts on the setting of the Opera House, is provided in the HIS provided in **Appendix 5**.

3.11 Analysis of Feasible Alternatives to the Proposed Development

Clause 7(1)(c) in Schedule 2 of the EP&A Regulation 2000 requires that an EIS must include inter alia:-

“(c) on analysis of any feasibly alterations to carry out the development, activity or infrastructure, having regard to its objective including the consequences of not carrying out the development, activity of infrastructure, having regard to its objectives, including the consequences of not carrying out the development, activity or infrastructure”

As part of the development of the proposed shade cover improvement design a number of potential alternative solutions were explored in order to determine the most integrated strategy with the least aesthetic impact that met the intended performance criteria.

Impact on views to, from and across the structures were all considered as was the need to develop a dynamic yet restrained form of reasonable structural efficiency.

Options considered included other fixed structures of various shapes and proportions and also fold up “umbrella” style structures.

3.12 Mitigative Measures

Measures proposed to mitigate any adverse effects of the proposed development on the environment are as follows:-

- integrating the design of the shade cover structures into the design of the Lower Concourse including the circular orientation of paving, the height of the forecourt parapet and the sweep of the Lower Concourse;
- the selection of colours that integrate with the colours of the Opera House Forecourt and Lower Concourse elements including the granite setts, the granite walls and outdoor furniture and fittings;
- unobtrusive up lighting.

4. LEGISLATIVE FRAMEWORK

4.1 Environmental Planning and Assessment Act, 1979

The EP&A Act establishes the assessment framework for SSD and identifies the Minister for Planning as the consent authority (pursuant to Section 89D of the Act). Section 78A (8A) of the EP&A Act requires that a DA for SSD is to be accompanied by an EIS prepared by or on behalf of the Applicant in the form prescribed by the regulations.

Development under the EP&A Act is to have regard to the objects of the EP&A Act, as set out in section 5 of the Act. The proposed development is considered to be consistent with the objects of the Act in that it will promote the orderly and economic use of the site in a manner that respects the visual and heritage qualities of the site.

4.2 State Environmental Planning Policies

4.2.1 State Environmental Planning Policy (Major Development) 2005

Schedule 3 of this SEPP lists the State Significant Sites and sets out clauses relevant to each site. The Opera House is listed in Part 1 of Schedule 3 as a State Significant Site.

Division 2 in Part 1 of Schedule 3 of the SEPP lists different types of exempt development on the Opera House site. The proposed shade structures are not exempt, therefore they comprise State Significant Development.

4.2.2 State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State and Regional Development) 2011 (the SRD SEPP) declares certain development of a particular class or description to be State Significant Development ("SSD").

Clause 8 of the SRD SEPP states:

"8 Declaration of State significant development: section 89C

(1) Development is declared to be State significant development for the purposes of the Act if:

(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and

(b) the development is specified in Schedule 1 or 2.

(2) If a single proposed development the subject of one development application comprises development that is only partly State significant development declared under subclause (1), the remainder of the development is also declared to be State significant development (except so much of the remainder of the development as the Director-General determines is not sufficiently related to the State significant development).

(3) This clause does not apply to development that was the subject of a certificate in force under clause 6C of State Environmental Planning Policy (Major Development) 2005 immediately before the commencement of this Policy.

Note. *Development does not require consent under Part 4 of the Act merely because it is declared to be State significant development under this clause.*

Any such development that, under an environmental planning instrument, is permitted without consent may be an activity subject to Part 5 of the Act or State significant infrastructure subject to Part 5.1 of the Act. Any such development that is permitted without consent may become State significant development requiring consent if it is part of a single proposed development that includes other development that is State significant development requiring consent (see section 89E (4) of the Act and subclause (2))."

Schedule 2 identifies the Opera House as follows:-

"1 Sydney Opera House

All development on land identified as being within the Sydney Opera House Site on the State Significant Development Sites Map."

An extract from the State Significant Development Sites Map is provided in **Figure 5**.

Regardless as to the scale or value of the development, if development consent is required for development on the Opera House site that is not exempt, it is State Significant Development.

4.2.3 State Environmental Planning Policy No. 55 (Remediation of Land)

State Environmental Planning Policy No. 55 (Remediation of Land) ("SEPP 55") aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspects of the environment by specifying certain considerations to be had in determining development applications in general, by requiring that remediation work meets certain standards.

As no excavation is proposed SEPP 55 is not relevant to the assessment of the application.

4.3 Other Legislation

4.3.1 Commonwealth Environment Protection and Biodiversity Conservation Act, 1999

Works that significantly affect the significance of World Heritage sites require approval under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

The works proposed involve no major works or alteration to significant fabric of the Opera House and are minor in terms of their scale and intent. It is considered that the works do not require a separate approval under this Act. This Act does, however, require an assessment of any works in respect to their impacts on the fabric, setting, significance and cultural function of the World Heritage Listed Property. As required by the relevant "Matters of National Environmental Significance Significant Impact Guidelines" the proposal will be referred to the Minister for the Environment (Commonwealth) in this regard.

4.3.2 Heritage Act (NSW) 1977

Although an SSD approval means that separate approval is not required under the Heritage Act 1977, the Management Plan for Sydney Opera House (see Section 4.4.1 below) requires a Section 60 approval to be obtained.

4.3.3 Environmental Planning and Assessment Regulation, 2000

Section 288 of the Regulation provides for the following specific provisions in respect to the Opera House:-

"288 Special provision relating to Sydney Opera House

- (1) *To the extent that any development that is to be carried out at the Sydney Opera House is development to which Part 4 of the Act applies, the provisions of the Management Plan for the Sydney Opera House are prescribed for the purposes of section 79C (1) (a) (iv) of the Act as a matter that must be taken into consideration by the consent authority in determining a development application in respect of that development.*
- (2) *To the extent that any development that is to be carried out at the Sydney Opera House is a project to which Part 3A of the Act applies, the Secretary's report under section 75I of the Act in relation to the project must include:*
 - (a) *the provisions of the Management Plan for the Sydney Opera House that are relevant to the carrying out of the development, and*
 - (b) *advice as to the extent to which the project is consistent with the objectives of that Management Plan.*

Note. Section 75J (2) of the Act requires the Minister to consider the Secretary's report (and the reports, advice and recommendations contained in it) when deciding whether or not to approve the carrying out of a project.

- (3) *In this clause:*

Management Plan for the Sydney Opera House means the management plan that relates to Sydney Opera House that has been approved by the Minister administering the Sydney Opera House Trust Act 1961 and published in the Gazette.

Sydney Opera House means the land identified on Map 1 to Schedule 3 to State Environmental Planning Policy (Major Development) 2005."

These provisions in effect require the provisions of the Management Plan for the Sydney Opera House to be taken into consideration as part of the consideration of any DA for State Significant Development on the site – see Section 4.4.1 of this EIS.

4.3.4 Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 ("SREP 2005") applies to the site as it is within the Sydney Harbour Catchment Area designated in this SREP.

The site is within the Foreshores Area identified in the Foreshores and Waterways Area Map in the SREP (see **Figure 6A**) but being above the mean high water mark is unzoned on the SREP zoning map (see **Figure 6B**). Only the "Man O' War" steps in Farm Cove are identified as a heritage item in the SREP (see **Figure 6C**). The site is however designated as a Strategic Foreshore Site on "Sheet 1 – City Foreshores Area" of the set of Strategic Foreshore Sites maps in the SREP (see **Figure 6D**). As shown of **Figure 6E**, the SREP includes a "**Sydney Opera House Buffer Zone map**". Clauses 58A-58C apply to the "Buffer Zone" and intend to protect the visual integrity of the Opera House. As the area in which the works to which this EIS relates are within the Opera House site, Clauses 58A-58C are not relevant to the proposal.

The SREP contains the following provisions that are relevant to the assessment of this proposal, those being:-

1. Division 2: Matters for Consideration;
2. Part 5: Heritage Provisions; and
3. Division 3A: Sydney Opera House.

These provisions primarily and relevantly concern:-

- the visual impacts of the shade structures when viewed from the foreshore and from the Harbour and the impact on the visual, aesthetic and cultural qualities of Sydney Harbour; and
- the impacts on the heritage significance of the Sydney Opera House and of the Harbour.

4.3.5 Sydney Harbour Foreshore and Waterways Area Development Control Plan 2005

Although Clause 11 of the SRD SEPP provides that DCP provisions do not apply to applications for State Significant Development, the SEAR's specifically include the "Foreshores and Waterways DCP" as a relevant matter for consideration.

The site is identified as a "landmark" site on the DCP map (see **Figure 7**).

4.3.6 Sydney Local Environmental Plan 2012 and Sydney Development Control Plan 2012

As shown on **Figure 8A**, the site is zoned B8 Metropolitan Centre in Sydney Local Environmental Plan 2012 ("the LEP").

The land use table for the B8 Metropolitan Centre zone is as follows:-

"1 Objectives of zone

- *To recognise and provide for the pre-eminent role of business, office, retail, entertainment and tourist premises in Australia's participation in the global economy.*
- *To provide opportunities for an intensity of land uses commensurate with Sydney's global status.*
- *To permit a diversity of compatible land uses characteristic of Sydney's global status and that serve the workforce, visitors and wider community.*
- *To encourage the use of alternatives to private motor vehicles, such as public transport, walking or cycling.*
- *To promote uses with active street frontages on main streets and on streets in which buildings are used primarily (at street level) for the purposes of retail premises.*

2 Permitted without consent

Nil

3 Permitted with consent

Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Information and education facilities; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Tourist and visitor accommodation; Any other development not specified in item 2 or 4

4 Prohibited

Nil"

All types of development and all land uses are permissible with consent in the B8 Metropolitan Centre zone.

The site is identified as a Heritage Item in the LEP (see **Figure 8C**). The listing is as follows:-

Locality	Item name	Address	Property description	Significance	Item no
Sydney	Sydney Opera House including forecourt, seawall, platforms and interiors	Circular Quay East	Lot 5, DP 775888; Lot 4, DP 787933	World	I1712*

The provisions of Sydney Development Control Plan 2012 (“the DCP”) also apply to the site, however, pursuant to Clause 11 of the SRD SEPP, DCP provisions do not apply to applications for State Significant Development.

Illustrative figures containing extracts from the LEP and DCP maps which are applicable to the site are provided in **Figures 8A to 9B**.

The LEP contains height and FSR controls. However, no specific height or FSR controls apply to the site.

The site is identified as being affected by “Acid Sulphate Soils Class 1” on the Acid Sulphate Soils map in the LEP (see **Figure 8D**). However the development would not disturb any soils and no excavation is required.

The site forms part of the “Central Sydney” locality on the LEP’s “Locality as Site Identification Map” (see **Figure 8E**). The proposed development is totally appropriate in this locality.

The site is also identified as being within “Area B” on the LEP “Land Use and Transport Integration MAP” (see **Figure 8F**) and within “Category E” on the LEP’s “Public Transport Accessibility Level” map (see **Figure 8G**). The development has no implications for transport.

Design excellence provisions apply in the City of Sydney (clause 6.21 of the LEP). The proposed development displays design excellence in that:

- the site is suitable for the proposed development;
- the development enhances to current use of the Lower Concourse;
- the development responds appropriately to the heritage and streetscape constraints;
- the bulk, massing and modulation of the structures are appropriate in the context and having regard to views to the Opera House;
- the development has no significant environmental impacts, such overshadowing and solar access, visual and acoustic privacy, noise, wind and reflectivity;
- principles of ecologically sustainable development and respected;
- consideration has been given to pedestrian, cycle, vehicular and service access and circulation requirements, including the permeability of any pedestrian network;
- the development results in an improvement to the public domain;
- the development achieves an appropriate interfaces at ground level between the building and the public domain.

In relation to foreshore access Clause 7.11 of the LEP requires the consent authority to consider whether and to what extent the development would encourage the following:

- (a) *continuous public access to and along the foreshore through or adjacent to the proposed development,*
- (b) *public access to link with existing or proposed open space,*

- (c) public access to be secured by appropriate covenants, agreements or other instruments registered on the title to land,*
- (d) public access to be located above mean high water mark,*
- (e) the reinforcing of the foreshore character and respect for existing environmental conditions*

The development retains current foreshore access consistent with the design intent of the Opera House and existing public access.

Consideration has been given to the provisions of the DCP to the extent relevant to this application. These provisions are adequately addressed in the assessment forming part of this EIS.

4.4 Site Specific Documents and Policies

4.4.1 Management Plan for the Sydney Opera House

The Management Plan for the Sydney Opera House was prepared by the Sydney Opera House Trust and the NSW Government in 2005 and it has a formal policy status given the requirements of the Regulation.

The Management Plan is a process-orientated document that does not contain specific regulatory requirements for specific parts of the Opera House such as the Lower Concourse. Rather, it describes the regulatory requirements affecting development and activities for the Opera House site. It also requires a Section 60 approval under the NSW Heritage Act, 1977 to be obtained for works requiring approval.

Importantly the Management Plans has various appendices that provide for more detailed companion documents that must also be considered as part of any proposed SSD for the site. Those documents are:-

- **Appendix A:** "Sydney Opera House: A Revised Plan for the Conservation of the Sydney Opera House and its Site" (3rd edition 2003). This document provides an understanding of the place and its history. It also assesses the significance of the place, and provides conservation policies based on the identified heritage values of the Sydney Opera House. This is the Conservation Management Plan for the site.
- **Appendix B:** Utzon Design Principles (2002). This document provides statements and design principles from the architect of the Sydney Opera House, Jørn Utzon, for best practice to guide the future management and development of the Sydney Opera House.
- **Appendix C:** Statement of the National Heritage values of the Sydney Opera House.

The relevant matters, arising from each of the above documents, are discussed below.

4.4.2 Sydney Opera House: Conservation Management Plan

The proposed shade structures are to be installed in the outdoor seating area on the Lower Concourse (or lower forecourt). The relevant extract from the Conservation Management Plan (CMP) concerning this area is provided below.

"The forecourt and lower forecourt

The creation of an uncluttered, granite-paved, forecourt and "invisible" covered pedestrian approach to the Opera House through a shopping concourse was a major bicentennial enhancement of the setting of the building. It eliminated the existing bitumen-paved car park and pedestrian covered way from the immediate approach to the building and also provided access to the underground car park when it was completed in 1993.

The considerable extent and irregular shape of the forecourt determined the choice of granite setts, or cobbles, laid in a fan pattern between strips of granite with a sawn finish which were in turn parallel to and designed “to respond to the powerful horizontal element of the [podium] steps” (Hall, SOH, 65). The granite was South Australian: Siena for the setts and Calca for the slabs. Both were supplied by Monier and laid by Melocco (ibid, 64). The same materials were used on the lower forecourt except that the setts were confined to the sea wall promenade and the concourse itself was laid with slabs of solid granite.

Policy 15.1 The fan pattern granite setts or cobbles and the high quality solid granite strips and paving on the forecourt and lower forecourt should be retained and conserved.

The roadway of granite setts is not wearing well. There are three reasons: first, the material on which the setts were laid was too thin to provide a firm foundation; second, some cobbles are of irregular form and small dimension and are too loosely laid to provide the mutual support necessary for a long wearing surface; and, last, the roadway is subject to relatively heavy traffic including buses and service and construction vehicles. Remedial action is needed.

Policy 15.3 Any scheme for providing facilities under the Forecourt should:

- **retain the existing level of the Forecourt;**
- **co-ordinate and minimise above ground intrusions;**
- **record the surviving nineteenth century fabric of the storm water drain before diversion;**
- **provide for paving designed to be consistent with the character of adjacent Podium and Boardwalk paving as well as accommodating changed structural requirements.”**

The proposed shade structures are consistent with the relevant policies in the CMP. A Heritage Impact Statement is provided in **Appendix 5**.

4.4.3 Utzon Design Principles

The Utzon Design Principles (“UDP”) set out the general architectural philosophy for the Opera House and of its designer Jørn Utzon. They deal with alterations and additions to the buildings, materials, colours and furniture style.

Humphrey & Edwards, architects and interior designers have provided a detailed assessment of the consistency of the proposed development with the UDP which is contained in **Appendix 2**. This assessment concludes:

The design response is the result of considerable effort to maximise the potential of the project whilst maintaining the integrity of the site and the experience of the Opera House.

The proposed works are minor in scope and insignificant in impact.

Accordingly the proposed shade structures do not compete with nor contradict Utzon’s grand vision in any way. On the contrary they provide an improved approach to the provision of shade and weather protection that is more consistent with the design standard associated with the Sydney Opera House and precinct.

This proposal is presented as a welcome and appropriate improvement.

4.4.4 Statement of the National Heritage values of the Sydney Opera House

This document describes the heritage significance of the Opera House and details its history as a structure. Its focus is construction of the main buildings on the design of Jørn Utzon that took place between 1957 and 1973. It does not directly reference the Lower Concourse. Nevertheless, the relevant provisions of this document will also be considered in the EIS.

4.5 Other Relevant Policy Documents

4.5.1 NSW 2021

NSW 2021 is a 10-year plan to guide policy and budget decision making in order to rebuild the State economy, provide quality services, renovate infrastructure, restore government accountability and strengthen the local environment and community.

The plan sets out a series of key goals to meet the intended deliverables, one of which being *Goal 27* and its intention to recognise and protect the State's most significant heritage places for the enjoyment of future generations.

By improving the use and amenity of the Sydney Opera House Lower Concourse while avoiding any alterations to the significant fabric, the proposal makes a positive contribution to the heritage nature of the site and is considered to be consistent with the overall goal of the State Plan.

4.5.2 Plan for Growing Sydney

The Plan for Growing Sydney was released in December 2014 and sets out the key strategic growth priorities for the metropolitan Sydney.

The Plan seeks to promote Sydney's Heritage, Arts and Culture through recognition of the City's 'Cultural Ribbon' and its role in the *tourism and entertainment economy, contributing to the CBD being 'Australia's pre-eminent tourist destination'*. Accordingly, a key action of the Plan is to enhance the cultural sites such as the iconic Sydney Opera House.

By improving the use and amenity of the Sydney Opera House Lower Concourse, the proposal is considered to further promote the use of the site for purposes associated with tourism and entertainment and therefore achieving the overall aims of the Plan.

4.5.3 Draft Sydney City Sub-Regional Strategy

The draft strategy acts as a broad framework for the long term development of metropolitan Sydney area, guiding both government and investment and linking local and state issues.

Key directions of the strategy includes *improving the quality of the built environment while decreasing the sub-regions ecological footprint and enhancing the subregions prominence as a diverse global cultural centre*. These directions have resulted in actions to *promote Sydney's cultural heritage while also promoting key tourist and visitor destinations*.

As mentioned previously, the proposal seeks to increase the amenity of the visitors to the Sydney Opera House Lower Concourse while ensuring that the significant heritage fabric of the premise is unaffected. For this reason, the proposal is considered to align with the direction of the strategy in enhancing and promoting part of Sydney's cultural heritage and tourist destination.

4.5.4 Sydney's Walking Future

The purpose of Sydney's Walking Future is to promote short walking trips through actions to make it more convenient, better connected and a safer means of transport. This is to be

achieved through a means of promotion, connection of infrastructure and engagement through policy and partnerships.

The document includes initiatives such as improving the Sydney Harbour foreshore connections which form part of the public realm associated with the site. The proposal responds to existing pedestrian connections along the foreshore and is considered to align with the overall objectives of the document.

4.6 List of Other Approvals

Clause 7(1)(d)(v) of the EP&A Regulation 2000 requires the analysis of a proposed development to include:-

“(v) a list of any approvals that must be obtained under any other Act or law before the development, activity of infrastructure may lawfully be carried out”

Approvals would be obtained as required under the Heritage Act 1997 and the Environmental Planning and Assessment Act 1979. These include S60 approval from the Heritage Council and construction certificates as required for the development to which this application relates.

5. CONSULTATION

The SEARs requires an appropriate level of consultation with Sydney City Council State government agencies, service providers community groups and affected landowners. Sydney Opera House Trust undertakes regular consultation with a range of stakeholders in relation to ongoing development at the Sydney Opera House.

Sydney Opera House has presented the proposal to representatives of the Bennelong Apartments Residents Group.

The NSW Office of Environment and Heritage is represented on the Sydney Opera House Conservation Council who have viewed the proposal and have made no comment. Consultation appropriate to the nature of the development has been undertaken.

In accordance with section 89F of the EP&A Act, the SSD application and accompanying information will be made publicly available in accordance with the Regulations.

6. ENVIRONMENTAL ASSESSMENT

6.1 Heritage impacts

The proposal is the subject of the HIS prepared by Weir Phillips Heritage and contained in **Appendix 5**. This statement concludes:

This heritage impact statement has considered the likely impacts of proposed new shelters on the Lower Concourse of the Sydney Opera House on the significance of the site and on nearby heritage items/conservation areas. The proposed works will considerably improve amenity not only for people attending performances within the Opera House but also for people enjoying its unique location. The proposed works support one of the most important functions of the Lower Concourse: to provide sheltered access in wet weather, a characteristic of the Lower Concourse ranked 'B' by the Conservation Plan.

The proposed works are consistent with the Conservation Plan for the Site, the Management Plan for the site and Utzon's design principles. The impact is minimal and acceptable because the shelters have been carefully designed to be recessive against the granite podium of the Opera House and the original, principal, approaches to the Opera House. The shelters are designed to lie below the height of the Forecourt, within the base wall. Significant view corridors to and from the Opera House are thus retained. The underside of the shelters is raised into the same zone, thereby maintaining views along and out of the Lower Concourse. The primacy of, and relationship between, the solid granite podium below and the tiled white shells above, is retained. There will be no impact on the ability to understand the building's architectural and technological significance and no impact upon the way in which it reads as a free standing sculptural element within its harbour setting.

The proposed works will not block view corridors to/from nearby heritage items/conservation areas and will have no impact on the character of the setting of nearby heritage items/conservation areas because they are minor and visually recessive. The Opera House will continue to read as an outstanding sculptural element within the general setting of these items/areas.

Under the EPBC Act 1999, works to a World Heritage Site or site listed on the National Heritage List will require approval from the minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance. A significant impact is defined by the Matters of National Environmental Significance Significant Impact Guidelines 1:1 as:

'A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts. You should consider all of these factors when determining whether an action is likely to have a significant impact on matters of national environmental significance.'

The proposed works are minor and do not give rise to a significant impact as it is defined by the Matters of National Environmental Significance Significant Impact Guidelines 1:1. It is considered that works do not require a separate approval under this Act. This Act does, however, require that the likely impacts be assessed. This statement fulfils this requirement.

Although a SSD approval means that separate approval is not required under the Heritage Act 1977 (Environmental Planning and Assessment Act 1979, s. 89J), the Management Plan for Sydney Opera House requires that Section 60 Approval be obtained.

6.2 Urban Design Impacts

The new shade structures will be purpose-built, better shaped to suit the configuration of the outdoor seating area and their colour will complement their immediate context. This will be an improvement on the existing umbrellas and will improve the overall design cohesion of the outdoor seating area on the Lower Concourse level.

The maximum height of the new shade structures (3.34m) is slightly less than the maximum height of the existing umbrellas. As is evident from the photo-montages in **Appendix 6**, the new shade structures will have a high quality design and appearance which will enhance the Lower Concourse.

6.3 View Impacts

The Lower Concourse is located below the main pedestrian approach to the Opera House and its forecourt. Significant views to and from the Opera House, Circular Quay, the Harbour Bridge, the northern shore of the Harbour and Harbour in general will not be adversely affected by the proposed new shade structures.

The configuration of the new shade structures and their limited height above the Lower Concourse ensures that they will not interrupt water views available from the upper concourse. This is evident from the photo-montages in **Appendix 6** which provides a detailed assessment of the visual impact of the proposal from key public vantage points to the Sydney Opera House and surrounds. Humphrey & Edwards provide the following assessment of visual impact:

Whilst it is acknowledged that the proposed shade cover represents an increase in covered area of approximately 55%, the overall height is about the same and the north-south dimension increases minimally.

Accordingly in the context of the site, and particularly in respect of long views to the Opera House and surrounds this increase is insignificant. This is evidenced by the montages in Appendix 6.

It is clear that due to the relative size of the Opera House, other neighbouring buildings and geographic features that the impact of the new shade cover is insignificant and has no detrimental impact of the visual setting of the Opera House.

The proposed form reflects the horizontality of the concourse and forecourt in general. It is designed such that the form of the new structure will have no detrimental impact on views from to or from the Opera House and surrounding precinct.

The new shade structure references the established geometry of the existing concourse including the radial grid but is an otherwise independent structure. Accordingly that new structure does not interfere with the form and continuity of curvature of the existing concourses.

The visual connection between the forecourt and lower concourse will not be obscured. In fact despite the increase in size the new forms are expected to appear to be simpler, less distracting than the existing umbrellas in more harmonious with the existing super structure.

6.4 Noise Impacts

The Acoustic Group has assessed the implications of the proposed development on the acoustic amenity of the surrounding area and in particular residential units in Bennelong Apartments (**Appendix 7**). This analysis concludes that the proposed shade covers will not cause any increase in noise emitted from the Opera Bar.

6.5 Lighting Impacts

The proposed shade structure lighting will utilise the same lighting principle as the current lighting with light sources fixed to the membrane supports underneath the shading structures. The membrane fabric will be up lit to generate a low glare gentle ambient light. Shade surfaces provide the physical barrier to block the light reaching the surrounds, nearby properties or any of the water traffic. The light is reflected in a non-specular manner to provide sufficient diffusion and avoid light spillage, light pollution, or sharp shadows or contrast. The lighting is described in the lighting design statement prepared by Steensen Varming (**Appendix 4**).

6.6 Construction Impacts

Replacement of the existing umbrellas with the improved shade cover structures which are proposed will be able to be carried out with minimal impacts on the public's use of the Lower Concourse.

Access to the Opera House will be uninterrupted by the required minor construction activity associated with installation of the new shade structures.

6.7 Amenity Impacts

The new shade structures are intended to provide improved shade cover and weather protection generally with a view to providing better amenity to users of the outdoor seating areas without diminishing the amenity of other visitors to the Opera House precinct.

6.8 Social and Economic Impacts

The development would have positive social and economic impacts through the provision of improved amenity for visitors to the Sydney Opera House in a manner that enhances the appearance of the Lower Concourse through improved shade structure design.

6.9 Environmental Risk Assessment

The SEARs requires and environmental risk assessment of the proposed development. This assessment is outlined in the following table:-

Potential Risk	Causes	Consequences	Safeguards
Noise	Construction activity drilling and cutting for structural support fixings,	disturbance to visitors, performers and residents in nearby building	managed by long established construction work practices on site including restriction of noisy work hours
Lighting	illumination of outdoor area	disturbance to visitors and nearby residents and impact on views to the Opera House	managed by orientation of lights and luminescence to achieve indirect and subtle lighting for

			Opera Bar patrons in a manner that minimises light spill
Wind	high winds	damage to shade structures	design of shade structures to expected wind conditions
Dust	construction activity	disturbance to visitors	efficient construction methods as required by construction work practices
Disruption to pedestrian circulation	construction activity	disturbance to visitors	managed by long established construction work practices on site including protection of pedestrian areas
Adverse impacts on heritage significance	construction of shade structures	damage to heritage fabric and significance	careful design detail, environment assessment and implementation of construction techniques that respect significant fabric

7. SECTION 79C ASSESSMENT

7.1 Overview

Pursuant to Section 89H of the Act, Section 79C applies to SSD Applications. The relevant provisions of Section 79C are set out below, along with cross-references to the sections of the EIS where the relevant provisions are respectively addressed.

7.2 Statutory Planning Requirements

Section 79C(1)(i)-(v) states:-

“(1) Matters for consideration—general

In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

(a) the provisions of:

- (i) any environmental planning instrument, and*
- (ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and*
- (iii) any development control plan, and*
- (iiia) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and*
- (iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), and*
- (v) any coastal zone management plan (within the meaning of the Coastal Protection Act 1979),*

that apply to the land to which the development application relates”

In relation to Section 79C(1)(a)(i), relevant environmental planning instruments are addressed in Section 4 of this EIS.

In relation to Section 79C(1)(a)(ii) there are no proposed instruments (as defined) that are relevant to the proposed development.

In relation to Section 79C(1)(a)(iii), Clause 11 of the SRD SEPP specifically provides that DCP provisions do not apply to applications for SSD. Nevertheless, the SEAR's (see **Appendix 3**) require the EIS to address the relevant statutory provisions contained in the “Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 and Foreshores and Waterways Area DCP”. The relevant provisions of the DCP are addressed in Section 4 of this EIS.

In relation to Section 79C(1)(a)(iiia) no planning agreement is proposed.

In relation to Section 97C(1)(a)(iv) there are no relevant prescribed matters in the regulations other than Clause 288, as detailed in Section 4 of this EIS.

In relation to Section 79C(1)(a)(v) no coastal zone management plan applies to the site.

7.3 Likely Impacts on the Environment

Section 79C(1)(b) requires consideration of:-

“(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality”

The proposal will have no impacts on the natural environment, as it relates only to added amenity for visitors through the replacement of shade structures with a more appropriate design on part of the Lower Concourse. Impacts on the built environment and social and economic impacts are considered in Section 6 of this EIS.

7.4 Suitability of the Site for the Development

Section 79C(1)(c) requires consideration of:-

“(c) the suitability of the site for the development”

The “site” is the Opera House and its associated lands, and the proposal applies to a limited part of the site on the Lower Concourse. This part of the Lower Concourse is primarily used for purposes associated with food and drink premises and its continued use (and enhancement) for this purpose is well-suited to the site as a whole. The site is therefore suitable for the proposed development.

7.5 Any Submissions

Section 79C(1)(d) requires consideration of:-

“(d) any submissions made in accordance with this Act or the regulations”

Any submissions received during the notification/exhibition of the SSD and this related EIS will need to be considered by the Department in its assessment and determination of the application.

7.6 Public Interest

Section 79C(1)(e) requires consideration of:-

“(e) the public interest”

The public interest is best satisfied by quality development which meets a perceived need in general compliance with the relevant controls, policies and guidelines applying to the land to which the application relates. In this regard the proposal is in the public interest.

8. Reasons justifying the carrying out of the Proposed Development

Clause 7(1)(f) of the EP&A Regulation 2000 requires an EIS to include:-

“(f) reasons justifying the carrying out of the development, activity or infrastructure in the manner proposed, having regard to biophysical, economic and social considerations including the principles of ecologically sustainable development set out in sub-clause (4)”

Sub-clause 4 sets out the principles of ecologically sustainable development as follows:-

- (4) *The principles of ecologically sustainable development are as follows:*
- (a) *the **precautionary principle** namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by;*
 - (i) *careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
 - (ii) *an assessment of the risk-weighted consequences of various options,*
 - (b) ***inter-generational equity**, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*
 - (c) ***conservation of biological diversity and ecological integrity**, namely, that conservation of biological diversity and ecological integrity should be fundamental consideration,*
 - (d) ***improved valuation, pricing and incentive mechanisms**, namely, that environmental factors should be included in the valuation of assets and services, such as:*
 - (iii) *polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
 - (iv) *the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
 - (v) *environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits of minimise costs to develop their own solutions and responses to environmental problems.”*

The principles of ecologically sustainable development are discussed in Section 3 of this EIS. Biophysical, economic and social considerations are discussed in Sections 6 and 7 of this EIS.

9. CONCLUSION

The merits and impacts of proposed State significant development have been assessed and it is concluded that the development would not give rise to any adverse heritage or environmental impacts and is supportable for the following reasons:-

- The Lower Concourse is used for food and drink premises with their associated outdoor seating areas – no change is proposed to this arrangement.
- The proposal will result in the replacement of existing umbrellas over the outdoor seating areas with new shade structures to a bespoke design uniquely suited to the Lower Concourse.
- The new improved shade cover and weather protection generally will provide better amenity for users of the outdoor seating areas on the Lower Concourse without diminishing the amenity of other visitors to the Opera House precinct.

It is concluded that Utzon's Design Principles will continue to be achieved. The development will improve the amenity of visitors to the Opera House in a manner that achieves an improved urban design outcome.

The development displays consistency with statutory planning controls and with the Sydney Opera House Management Plan, the Conservation Management Plan and Utzon's Design Principles.

Based on the assessment undertaken in this EIS, the proposed development should be approved.



FIGURES



APPENDICES



APPENDIX 1

Architectural Drawings



APPENDIX 2

Architectural Design Statement



APPENDIX 3

Secretary's Environmental Assessment Requirements



APPENDIX 4

Lighting Statement



APPENDIX 5

Heritage Impact Statement



APPENDIX 6

Visual Impact Assessment



APPENDIX 7

Acoustic Report



APPENDIX 8

Quantity Surveyor's Certificate