



## DESIGN 5

A R C H I T E C T S

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### SYDNEY OPERA HOUSE

### JOAN SUTHERLAND THEATRE THEATRE MACHINERY PROJECT

### Heritage Impact Statement

#### 1.0 BACKGROUND & PURPOSE OF REPORT

Design 5 - Architects has been engaged by the Sydney Opera House Trust (SOHT) to prepare an assessment of the Heritage Impact of a proposed major upgrade of the stage and theatre machinery in the Joan Sutherland Theatre (JST), referred to in this application as the Theatre Machinery Project (TMP).

The project comprises the replacement of end-of-life theatre machinery and associated equipment, elimination of high-risk safety hazards and related structural works. A more detail description is given below in Section 3 of this report.

The report has been prepared by Alan Croker (director) of Design 5.

#### 2.0 BASIS OF ASSESSMENT

In accordance with the Secretary's Environmental Assessment Requirements (SEARS) for Application No. SSD 7639, issued 2 June 2016, this Heritage Impact Statement (HIS) assesses the proposal against the following documents:

- *Matters of National Environmental Significance – Significant Impact Guidelines 1.1*, EPBC Act 1999, Department of the Environment 2013;
- *Sydney Opera House, A Revised Plan for the Conservation of the Sydney Opera House and its Site*, by James Semple Kerr. Third Edition, SOHT, 2003 (referred to below as the CMP 3rd edition)
- *Sydney Opera House, Utzon Design Principles*, SOHT May 2002 (referred to below as the UDP 2002)

Assessment of the TMP against the *Sydney Opera House Accessibility Master Plan* is addressed in the EIS accompanying this application.

## 2.1 Methodology

This Heritage Impact Statement has been prepared in accordance with the principles and processes of the *Australia ICOMOS Burra Charter 2013*. The preparation of this Heritage Impact Statement also follows the process and model recommended in the NSW Heritage Office guideline *Statements of Heritage Impact* (revised 2002), including consideration of alternative options and their impact.

## 2.2 Documents reviewed

The following documents prepared by Scott Carver:

### Drawings

- 49-OT-SC019-EA000[A] – Cover Sheet
- 49-OT-SC019-EA011[A] – Demo Plan – Basement 1 +01
- 49-OT-SC019-EA012[A] – Demo Plan – Ground +12 +3600
- 49-OT-SC019-EA013[A] – Demo Plan – Ground Mezzanine +21 +6400
- 49-OT-SC019-EA014[A] – Demo Plan – Level 1 +30 +9140
- 49-OT-SC019-EA015[A] – Demo Plan – Level 2 +42 +12800
- 49-OT-SC019-EA016[A] – Demo Plan – Level 3 +51 +15540
- 49-OT-SC019-EA017[A] – Demo Plan – Level 4 +61 +18590
- 49-OT-SC019-EA018[A] – Demo Plan – Level 5 +70 +21340
- 49-OT-SC019-EA019[A] – Demo Plan – Level 5A +79 +24000
- 49-OT-SC019-EA020[A] – Demo Plan – Level 6 +85 +25910
- 49-OT-SC019-EA021[A] – Demo Plan – Level 6A +93 +28300
- 49-OT-SC019-EA022[A] – Demo Plan – Level 7 +100 +30480
- 49-OT-SC019-EA023[A] – Demo Plan – Level 7A +109 +33400
- 49-OT-SC019-EA024[A] – Demo Plan – Level 8 +115 +35050
- 49-OT-SC019-EA111[A] – Plan – Basement 1 +01
- 49-OT-SC019-EA112[A] – Plan – Ground +12 +3600
- 49-OT-SC019-EA113[A] – Plan – Ground Mezzanine +21 +6400
- 49-OT-SC019-EA114[A] – Plan – Level 1 +30 +9140
- 49-OT-SC019-EA115[A] – Plan – Level 2 +42 +12800
- 49-OT-SC019-EA116[A] – Plan – Level 3 +51 +15540
- 49-OT-SC019-EA117[A] – Plan – Level 4 +61 +18590
- 49-OT-SC019-EA118[A] – Plan – Level 5 + 70 +21340
- 49-OT-SC019-EA119[A] – Plan – Level 5A +79 +24000
- 49-OT-SC019-EA120[A] – Plan – Level 6 +85 +25910
- 49-OT-SC019-EA121[A] – Plan – Level 6A +93 +28300
- 49-OT-SC019-EA122[A] – Plan – Level 7 +100 +30480
- 49-OT-SC019-EA123[A] – Plan – Level 7A +109 +33400
- 49-OT-SC019-EA124[A] – Plan – Level 8 +115 +35050
- 49-OT-SC019-EA125[A] – Plan – Level 8A
- 49-OT-SC019-EA126[A] – Plan – Level
- 49-OT-SC019-EA200[A] – Overall Cross Section
- 49-OT-SC019-EA201[A] – Overall Longitudinal Section
- 49-OT-SC019-EA202[A] – Overall Longitudinal Section – New Works

### 3.0 BRIEF DESCRIPTION OF PROPOSAL

The Scope of Works for the Joan Sutherland Theatre – Theatre Machinery Project (TMP) is summarised below. It includes the replacement of end-of-life equipment, elimination of high-risk safety hazards and related structural and builder’s work.

- Renewing the overhead Theatre Machinery system, including new powered winches, flying battens and hanging wires, mitigating a number of serious safety risks and increasing the payload capacity of the system;
- Removing manual counterweight lines and replacing with power flying sets;
- Providing a new control system with line of sight operating positions on the fly galleries and on stage;
- Upgrading and Modifying the Rear Lifts with new safety features to enable “man-riding”;
- Replacing the Portal Lighting Bridge with a light-weight design that can be lowered to the stage floor for rigging;
- Installing a mechanised filler system for the Orchestra Pit Lift;
- Clearing the over-stage grid to create a safe working space and the replacing the floor with suitable decking and load-carrying beams to suspend chain hoists and point hoist diverter pulleys;
- Positioning of hoists around the sides of the existing grid, leaving the central over-stage area clear for safe rigging;
- Modifying lighting frame hoists to operate with counterweighted windlasses;
- Installing special hoists to safely allow the rigging of curved upstage cyclorama bars required by the Australian Ballet;
- Auditorium Rigging, including lighting bars, winches and chain hoists;
- New winch system for existing surtitle screen;
- Replacing end-of-life lighting dimmers and cabling;
- Space reconciliation beneath the stage and in the revolve area, removing redundant machinery to provide potentially useable space.

### 4.0 THE ISSUES & CONSIDERATION OF ALTERNATIVES

It is widely known that the JST orchestra pit, auditorium acoustic and sightlines do not achieve the performance requirements expected of a theatre of this standing, however what is not as well known is that the theatre machinery now falls short of current standards and expectations (both operation and safety). Almost all the machinery dates from the original Wagner Biro installation and is now near the end of its operable life.

In its present (substantially original) configuration the machinery and grid layout do not meet current operational and safety standards. Since its installation, technology has changed dramatically with electronic equipment and controls enabling a more flexible and safer operation with smaller machinery. The over stage area in particular is very cramped and the current arrangement of machinery makes it cumbersome and in some cases unsafe to operate efficiently.

This is also the case with the main stage lifts which are slow, have no protection barriers and must be cordoned off during operation. The replacement of these lifts would allow safer, faster and more efficient set-up times and greatly improve flexibility for production design and sequencing.

#### 4.1 Continue to maintain and use existing machinery and configurations

Alternatives to the wholesale replacement of this machinery have been carried out in the past, with machinery serviced, maintained, adjusted, handrails added and other modifications made wherever this was possible. However these options are now almost

exhausted and the whole system and arrangement of machinery requires major reconfiguration if the JST is to continue to function as a state-of-the-art performance venue for large scale works. This continued function is essential to the ongoing viability and also significance of the Opera House.

#### **4.2 Retain samples of existing machinery in situ**

Ideally some of the original machinery, once decommissioned, could be kept in situ, however the tight space constraints make this very difficult and would only reduce the operational efficiency of the new installation. In addition the grid needs to be rebuilt and strengthened, and additional access and fire escape provisions installed. Leaving the machinery in place is therefore not an option.

#### **4.3 Archive representative samples of existing machinery**

It is proposed that surveys be carried out to identify representative pieces of significant machinery that may be archived, but the remainder of it will be disposed of. The scale of this machinery is such that archiving of large pieces or large numbers of machines may be difficult, but this can be determined once the full survey is completed. This is the preferred option.

### **5.0 HERITAGE LISTINGS & STATUTORY FRAMEWORK**

#### **5.01 Listings**

The Sydney Opera House is listed on the following statutory registers:

- World Heritage List (UNESCO) 2007
- National Heritage List (Australian Government) 2005
- State Heritage Register (NSW Government) 2003
- Sydney Local Environmental Plan 2005 (City of Sydney Council)

The Sydney Opera House is listed on the following non-statutory heritage registers:

- National Register of Significant 20th Century Buildings (Australian Institute of Architects)
- National Trust of Australia (NSW) register
- Register of the National Estate (archived list with the Australian Heritage Council)

#### **5.02 Statutory framework**

The statutory framework for approvals for the Opera House is presently as follows:

Commonwealth: *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

- Part 3, Division 1, identifies Commonwealth requirements relating to World Heritage properties and National Heritage places.
- Approval must be obtained from the Commonwealth Minister for the Environment for actions that are likely to have a significant impact on matters of national environmental significance (including National and World Heritage sites) under the EPBC Act.
- The Sydney Opera House site was subject to a bilateral agreement between the Australian Government and the State of New South Wales made in 2005 pursuant to Section 45 of the EPBC Act however this expired in 2010. Under the terms of that agreement (Clause 8.1), an action taken at the Sydney Opera House site would not require the approval of the Commonwealth Minister for the Environment, Heritage and the Arts where:

*the taking of the action has been approved by the State of New South Wales or an agency of New South Wales in accordance with the Management Plan for the Sydney Opera House ...*

State (Planning): *Environmental Planning and Assessment Act 1979 (EP&A Act)* and *State Environmental Planning Policy (State and Regional Development) 2011*

- All development on land identified as being within the Sydney Opera House site is designated as State significant development (SSD) (Schedule 2) that requires consent under the EP&A Act.
- The Minister for Planning is the consent authority for SSD.

State (Planning): *Environmental Planning and Assessment Regulation 2000 (Regulation)*

- Clause 288 of the Regulation requires the consent authority to take into consideration the *Management Plan for the Sydney Opera House* (which was prepared in 2005 as part of the bilateral agreement negotiations) in relation to development on the Sydney Opera House site. The Management Plan references the CMP and the Utzon Design Principles.
- The Management Plan provides a framework for protection of the World and National Heritage values of the Sydney Opera House site and has been endorsed by the Heritage Division, Department of Planning (formerly the NSW Heritage Office).
- The Management Plan states that approval of actions in relation to the Sydney Opera House site may only be made in accordance with the Management Plan, which defers to the CMP 3rd edition for an assessment of heritage impact of proposals.

State (Planning): *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 (REP)*

- The Opera House site falls within the Sydney Harbour Catchment area designated in the REP. It also is within the Foreshores and Waterways area and is designated as a Strategic Foreshore Site.
- The REP sets out a number of considerations that must be taken into account when submitting a DA (see clauses 13-15; Division 2 of Part 3 and Part 5 of the REP).

State (Heritage): *Heritage Act 1977*

- An approval from the Heritage Council under section 60 of the Heritage Act is required for development on the Sydney Opera House site. Where the development has been approved as SSD, the approval under section 60 of the Heritage Act cannot be refused by the Heritage Council.

## **6.0 DISCUSSION OF IMPACT ON WORLD HERITAGE VALUES OF THE SYDNEY OPERA HOUSE**

In 2007, the Sydney Opera House was inscribed on UNESCO's World Heritage List (WHL) for its Outstanding Universal Value (OUV) and as a "masterpiece of human creative genius" under criterion (i) of the Operational guidelines for the implementation of the World Heritage Convention.

The Sydney Opera House was inscribed on the WHL for the following values:

### ***Outstanding Universal Values***

*The Sydney Opera House constitutes a masterpiece of 20th century architecture. Its significance is based on its unparalleled design and construction; its exceptional engineering achievements and technological innovation and its position as a world-famous icon of architecture. It is a daring and visionary experiment that has had an enduring influence on the emergent architecture of the late 20th century. Utzon's original design concept and his unique approach to building gave impetus to a collective creativity of architects, engineers and builders. Ove Arup's engineering achievements helped make Utzon's vision a reality. The*

*design represents an extraordinary interpretation and response to the setting in Sydney Harbour. The Sydney Opera House is also of outstanding universal value for its achievements in structural engineering and building technology. The building is a great artistic monument and an icon, accessible to society at large.*

**Criterion (i)**

*The Sydney Opera House is a great architectural work of the 20th century. It represents multiple strands of creativity, both in architectural form and structural design, a great urban sculpture carefully set in a remarkable waterscape and a world famous iconic building.*

**Comment**

The proposed works will remove equipment and technology that was considered state-of-the-art at the time of its installation. Although possibly not ‘ground-breaking’ at that time, it was the best and most advanced available. The statement of Outstanding Universal Value’s reference to ‘exceptional engineering and technological innovation’ refers primarily to the main structure of the building and how it was resolved and finished, and not the stage machinery.

This project will enhance the performance and operational capability of the Sydney Opera House to continue to host world standard performance art, and in this respect will help sustain the iconic international standing of this venue – a key part of its OUV.

In conclusion, it is considered that the proposed TMP will not have a significant impact and thus not threaten or diminish the Outstanding Universal Values that enshrine it on the World Heritage List.

**7.0 DISCUSSION OF IMPACT ON NATIONAL HERITAGE VALUES OF THE SYDNEY OPERA HOUSE**

The following is the Summary Statement of Significance of the National Heritage values of the Sydney Opera House. *Emphasis added* on aspects of significance relevant to the assessment of heritage impact of the TMP.

*The Sydney Opera House, constructed between 1957 and 1973, is a masterpiece of modern architectural design, engineering and construction technology in Australia. It exhibits the creative genius of its designer, the Danish architect Jørn Utzon and the contributions to its successful completion by the engineering firm Ove Arup and Partners, the building contractors M.R. Hornibrook, and the architects Hall, Todd and Littlemore. It is an exceptional creative and technical achievement in the national history of building design and construction in Australia.*

*Since its completion the Sydney Opera House has attracted world wide acclaim for its distinctive design, enhanced by its prominent location on Bennelong Point within a superb harbour setting. With its soaring white roof shells set above a massive podium, the Sydney Opera House is a monumental urban sculpture, internationally acclaimed as an architectural icon of the twentieth century. Its many national and international awards reflect its pivotal place in the national story of creative and technical achievement in Australia. The challenges involved in executing Utzon’s design inspired innovative technical and creative solutions that were groundbreaking in the history of architectural design and building construction in Australia, particularly the roof shells that were based on the geometry of the sphere and demonstrated the extraordinary creative potential of the assembly of prefabricated, repeated components.*

*The interior spaces also reflect the creative genius of Utzon and his successors, Todd, Hall and Littlemore, who completed the building after Utzon's departure from the project in 1966.*

*The Sydney Opera House is the most widely recognised building in Australia, and is cherished as a national icon and world-class performing arts centre. It represents an enduring symbol of modern Sydney and Australia, both nationally and internationally, reflecting changing social attitudes towards Australian cultural life in the decades after World War II. The Sydney Opera House has played a seminal role in the development of Australia's performing arts, enhancing the cultural vitality of the nation. It continually attracts nationally and internationally acclaimed performers, and is a mecca for visitors from around Australia and overseas.*

*The peninsula on which the Sydney Opera House now stands has a special association with Bennelong, an Aboriginal man who became a prominent and influential figure in the early colony and played a significant role in mediating interactions between Aboriginal people and early settlers.*

## **Comment**

The National Heritage values of the Sydney Opera House are primarily related to Jørn Utzon's outstanding design of the building and the venue being a cherished performing arts centre. See the more detailed listed values of the place under each of the individual National Heritage criterion below. Design 5's assessment of heritage impact is summarised at the end of that section.

### **7.1 National Heritage criteria**

The Sydney Opera House is registered on the National Heritage List for meeting its listing criteria A, B, E, F, G and H.

The values of the Sydney Opera House that meet the National Heritage criteria are set out in full in Appendix C of the Management Plan for the Sydney Opera House (August 2005) and also in the listing of the Sydney Opera House on the National Heritage List, available at <http://www.deh.gov.au/cgi-bin/ahdb/search.pl>

The extracts from the National Heritage values, under each of the criterion below, summarise and draw attention to the aspects of significance that are relevant to the assessment of heritage impact of the Theatre Machinery Project. Design 5's assessment of heritage impact is summarised at the end of this section.

#### **NHL Criterion A Events, Processes**

*The place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history.*

Relevant key values from National Heritage values:

- "a seminal role in Australia's performing arts history, enhancing the cultural vitality of the nation and continuously attracting nationally and internationally recognised performers from around the world"

## **Comment**

The TMP will not have any adverse impacts on these values and will potentially enhance the ability of the Sydney Opera House to attract national and internationally recognised performers with its improved functionality.

### **NHL Criterion B      Rarity**

*The place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history.*

Relevant key values from National Heritage values:

- "a rare example of a national cultural centre that has gained widespread recognition and respect as a performing arts venue"

### **Comment**

The TMP will not have any adverse impacts on these values and will potentially enhance the ability of the Sydney Opera House to attract national and internationally recognised performers with its improved functionality.

### **NHL Criterion E      Aesthetic characteristics**

*The place has outstanding heritage value to the nation because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.*

Relevant key values from National Heritage values:

- "The building's ability to emotionally move people and invoke a strong aesthetic response is enhanced by **the experience of approaching, entering and moving around the building** and surrounds."

### **Comment**

The TMP is confined to the backstage (non public) areas of the Opera House and will have no impact on the aesthetically significant Front-of-House spaces.

### **NHL Criterion F      Creative or technical achievement**

*The place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period.*

Relevant key values from National Heritage values:

- "the creation of sensory experiences to bring pleasure to the building's users, particularly the experience of approaching, mounting the grand staircase to the podium, passing through the low ribbed box office, up to the foyers flanking the auditoria with their harbour views, **and the climax of the performance itself.** 'Both ideas were...reinforced by Utzon's application of counterpointing techniques using light and dark tones, soft and hard textures and richly treated warm and cool interior colours."
- The **interior spaces designed by Peter Hall, including the** major auditoria known as the Concert Hall and **Opera Theatre**, and the minor performance spaces, performers' and staff areas, and rehearsal rooms, known collectively as 'Wobbly Land' because of the **distinctive 'U' shaped timber panelling, demonstrate the distinctive design solutions that made the Opera House a functioning performing arts centre in the 1970s, and reflect the prevailing aesthetic values, building standards, and financial constraints of the day.**"

### **Comment**

The TMP is confined to the backstage (non public) areas of the Opera House. The project will have no impact on the significant interior spaces, including those that are part of Utzon's approach and arrival sequence. The TMP will not have any adverse impacts on these values.

### **NHL Criterion G Social value**

*The place has outstanding heritage value to the nation because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.*

Relevant key values from National Heritage values:

- "building's role as a cultural icon is also derived from the numerous performances conducted there (100,000 since 1973)"

### **Comment**

The TMP will not have any adverse impacts on these values and will enhance the ability of the Sydney Opera House to stage world class performances with improved operation, functionality and safety.

### **NHL Criterion H Significant people**

*The place has outstanding heritage value to the nation because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history.*

Relevant key values from National Heritage values:

- "The Sydney Opera House is directly associated with Jørn Utzon"
- "The peninsula on which the Sydney Opera House now stands has a special association with Bennelong"

### **Comment**

The TMP will not have any adverse impacts on these values.

## **7.2 Summary assessment of heritage impact on National Heritage values**

In summary, the Theatre Machinery Project will not have a negative impact on the National Heritage values of the Sydney Opera House, but will retain and enhance those values by improving the functionality of the Sydney Opera House as a premier performing arts centre of international and national repute.

## **8.0 DISCUSSION OF IMPACT ON STATE HERITAGE VALUES OF THE SYDNEY OPERA HOUSE**

The following is the Statement of Significance of the State Heritage values of the Sydney Opera House. *Emphasis added* on aspects of significance relevant to the assessment of heritage impact of this project.

*The Sydney Opera House is of State significance as a twentieth century architectural masterpiece sited on a prominent peninsular in Sydney Harbour. In association with the Sydney Harbour Bridge it has become an internationally recognised symbol of Sydney and Australia, which is also widely admired by local citizens. Designed for the NSW Government by renowned Danish architect Jørn Utzon between 1957 and 1966, and completed in 1973 by Hall, Todd and Littlemore, the building has exceptional aesthetic significance because of its quality as a monumental sculpture in the round, both day and night, and because of the appropriateness of its design to its picturesque setting. Its public spaces and promenades have a majestic quality, endowed by powerful structural forms and enhanced by vistas to the harbour and the city. An icon of modern architecture, the Sydney Opera House uses the precise technology of the machine age to express organic form. It has scientific and technical significance for the ways in which its construction continually pushed engineering and building technologies to the limit. It also has significance for the extensive associations of the*

*site with many famous people and important themes in Australian history. Abutting the site of the first settlement of Europeans in Australia at Sydney Cove, the Sydney Opera House stands on Bennelong Point, Aboriginal land which was named after a Wangal Aboriginal man and which is of significance in the history of the entanglements and interactions between Aboriginal and non-Aboriginal cultures in Australia. Other historic themes associated with the site include the arrival of the First Fleet in Sydney Cove, scientific investigation, defence, picturesque planning, marine and urban transport and most recently, cultural showcasing. Since its official opening by the Queen in 1973, the Sydney Opera House has been the scene of many notable achievements in the performing arts and has associations with many nationally and internationally renowned artistic performers. The Sydney Opera House provides an outstanding visual, cultural and tourist focal point for Sydney and Australia.*

## **Comment**

The CMP 3rd edition was developed in preparation for the listing of the Sydney Opera House on the NSW State Heritage Register (SHR), on 3 December 2003. The CMP draft 4th edition has retained and further developed the methodology and policies in the 3rd edition, however it has not yet been formally adopted. Hence, the CMP 3rd edition is used as the basis for discussion and assessment of the heritage impact of the Theatre Machinery Project on the State Heritage values of the Sydney Opera House.

### **8.1 State Heritage Register criteria**

The Sydney Opera House is listed on the SHR for meeting all its listing criteria (a)-(g). The values of the Sydney Opera House that meet the SHR criteria are set out in full in the NSW Heritage Database, available online at: <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5054880>

The extracts from the SHR values, under each of the criterion below, summarise and draw attention to those aspects of significance that are relevant to the assessment of heritage impact of the Theatre Machinery Project. Design 5's assessment of heritage impact is summarised at the end of this section.

#### **SHR criterion a) Historical significance**

*An item is important in the course, or pattern, of NSW's cultural or natural history.*

Relevant key values from SHR values:

- none relevant

## **Comment**

There are no significant historical values from the SHR listing that are impacted by this proposal.

#### **SHR criterion b) Associative significance**

*An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history.*

Relevant key values from SHR values:

- "its success as a performing arts centre has been described as 'spectacular' partly because of the building's 'ability to attract great artists from all over the world'"

## **Comment**

By improving the functionality of the Sydney Opera House, the TMP will potentially enhance the ability of this performing arts centre to attract internationally recognised 'great artists'.

**SHR criterion c) Aesthetic significance**

*An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW.*

Relevant key values from SHR values:

- none relevant

**Comment**

There are no significant aesthetic values from the SHR listing that are impacted by this proposal.

**SHR criterion d) Social significance**

*An item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons.*

Relevant key values from SHR values:

- “as a **world-class performing arts centre**, the Sydney Opera House has enhanced the cultural vitality of the nation”

**Comment**

The proposal will improve the functionality and accessibility of the Joan Sutherland Theatre and thus will potentially have a positive impact on its status as a world-class performing arts centre.

**SHR criterion e) Research potential**

*An item has potential to yield information that will contribute to an understanding of NSW’s cultural or natural history.*

Relevant key values from SHR values:

- none relevant

**Comment**

There is no significant research potential values identified from the SHR listing that are impacted by this proposal.

**SHR criterion f) Rarity**

*An item possesses uncommon, rare or endangered aspects of NSW’s cultural or natural history.*

Relevant key values from SHR values:

- none relevant

**Comment**

There are no significant rarity values from the SHR listing that are impacted by this proposal.

**SHR criterion g) Representativeness**

*An item is important in demonstrating the principal characteristics of a class of NSW’s cultural or natural places; or cultural or natural environments.*

Relevant key values from SHR values:

- “an internationally recognised building representative of major performance arts centres”
- “its success as a performing arts centre has been described as ‘spectacular’ partly because of the building’s ‘ability to attract great artists from all over the world’”

## Comment

The proposed TMP will improve the functionality of the Joan Sutherland Theatre, the second largest venue in the Opera House, and thus will potentially have a positive impact on its function and status as an internationally recognised performing arts centre.

By improving the functionality of the Sydney Opera House, this proposal will potentially enhance its ability to attract great artists from all over the world.

## 8.2 Summary assessment of heritage impact on State Heritage values

In summary, the proposed Theatre Machinery Project will have no negative impact on the State Heritage values of the Sydney Opera House. It will retain and enhance those values by significantly improving the backstage functionality of the Joan Sutherland Theatre, the second largest performance venue at the, and strengthening the reputation of the Sydney Opera House as a premier performing arts centre of national and international repute.

The assessment of heritage impact on all relevant significant values is discussed in the section below (compliance with CMP 3rd edition).

## 9.0 DISCUSSION OF COMPLIANCE WITH SYDNEY OPERA HOUSE CONSERVATION PLAN (CMP) 3RD EDITION

The CMP identifies and defines the significant values of the Sydney Opera House and then formulates policies framed to retain these values. The following discussion assesses the impact of the proposed Theatre Machinery Project in the Joan Sutherland Theatre in the following order:

- Significant values,
- Significant elements of the place, and
- Relevant policies.

### 9.1 Significant values – discussion of impact

The following Statement of Significance from CMP 3rd edition summarises the significant values of the place (emphasis in bold type added as it relates to this assessment):

*The Sydney Opera House is a dramatic expression of the genius of a then relatively unknown architect, Jørn Utzon (whose subsequent international fame was in part a result of the design of the building), of the high quality completion of the work by Hall, Todd and Littlemore, and of the technical support given throughout by the internationally renowned engineering firm of Ove Arup and Partners and finally by M.R. Hornibrook, the inventive contractor of stages two and three.*

*The Sydney Opera House is of exceptional significance because of:*

- *its spectacular quality as sculpture in the round both by day and night;*
- *its inspired design solution in response to its setting;*
- *the picturesque quality of the peninsula setting;*
- *the way in which its fabric reflects the contemporary philosophy of creating refined forms from machine-made components;*
- *the way in which the plastic arts, geometry and technology were drawn on to create a structure at the leading edge of endeavour;*
- *the majestic quality of its public spaces contained by powerful structural forms;*
- *the evidence of its fabric in expressing its place in twentieth century architecture (not excluding the troubled history of its construction);*

- *the seminal influence of some of its design and construction techniques;*
- *its function as a performing arts centre of world renown;*
- *its almost mythological status as a cultural icon (then and now) arising from all the above, from the high public interest in its protracted and controversial development; and from its power to attract artists, patrons and tourists on a national and international level.*

*This significance is intensified by the extensive associations of the site and its structures, including:*

*Aboriginal and European contact (Bennelong and his house); scientific investigation (Flinders and Baudin); defence (Phillip's 1788 redoubt to Greenway's Fort Macquarie, 1817–1901); Picturesque planning (Macquarie to Utzon); marine and urban transport (overseas shipping and local ferry wharves, tram terminal and depot); popular recreation; and, finally, the nation's most famous cultural icon (The Opera House) and its legions of national and international performers.*

Those values noted above in bold type are relevant to the Theatre Machinery Project in the Joan Sutherland Theatre. Taking each of them separately, the following comments are made:

- *its function as a performing arts centre of world renown;*

**Comment:**

Much of the existing machinery in the backstage areas of the Joan Sutherland Theatre does not meet current work safety and other operational standards. These issues are a substantial risk for the Opera House as its continued operation as a performing arts venue is dependant on meeting these standards.

In addition, the theatre machinery is approaching the end of its operational life and does not meet current functional expectations for a theatre of this standing. The configuration of the fly grid encumbers efficient operation and flexibility – again these are expectations of a theatre of this calibre.

Therefore in order to maintain or improve its national and international standing as a performing arts centre, it is necessary to undertake this major renewal project.

The proposed Theatre Machinery Project will improve the functionality of the Joan Sutherland Theatre, the second largest venue in the Opera House, and thus will potentially have a positive impact on its function and status as an internationally recognised performing arts centre.

- *its almost mythological status as a cultural icon (then and now) arising from all the above, from the high public interest in its protracted and controversial development; and from its power to attract artists, patrons and tourists on a national and international level.*

**Comment:**

The comments made about the previous point apply to this one as well. If the support facilities for the primary function of the building are not able to function efficiently or meet current standards and expectations, its reputation at both a national and international level will suffer and *its power to attract artists, patrons and visitors on a national and international level* will diminish.

## 9.2 Significant elements – discussion of impact

Broadly the elements and areas listed below (following the main headings in the *Schedule of levels of significance* in the CMP 3rd edition), will be potentially affected to varying degrees by the proposed works:

- The form, fabric and structural systems of the Opera House
- Foyers surrounding the major auditoria
- Opera Theatre (JST)
- Service areas

Each element is discussed below in relation to this proposal. At the end of each discussion section a table sets out the components of each element and their significance as listed in the CMP, with comments on the impact on each. The significance rankings are taken from the CMP 3rd edition and are as follows:

- A – Exceptional significance
- B – Considerable significance
- C - Some significance
- D - Little significance
- Int – intrusive element

### 9.2.1 The form, fabric and structural systems of the Opera House

The proposed works are confined to the removal and replacement of existing stage machinery behind the JST proscenium wall, strengthening or replacement of its steel support structure and modifications to some of the supporting concrete structure.

Those structural components that will be altered as part of the TMP, play little or no role in the larger original structure for the podium and the shells and the latter will remain unaffected by these works.

The mechanical machinery servicing the auditorium and stage will be altered, however the bronze louvres where this machinery either draws in or expels air, will not be altered.

Element	Significance	Potential impact of proposal	Comment
<b>The form, fabric and structural systems of the Opera House, including</b>	<b>A</b>	low	None of the original podium or shell structure is altered Removed structure does not play a role in the main structural systems of the Opera House
Roof shells with pedestals, ribs, boxed beams, warped surfaces, tile lids and lightning conductors	a	none	Not affected by proposal
Bronze louvre walls infilling shell ends	a	none	Not affected by proposal

### 9.2.2 Foyers surrounding the major auditoria

These spaces are ranked as exceptionally significant and are a unique characteristic of Utzon’s design.

Works are generally contained within the existing stage envelope, except for service access routes and plant rooms between this envelope and the roof shell structure. Any changes to these will potentially reduce their visual impact as seen from public access ways and foyer spaces. Such impacts would be positive and fully supported. No works are proposed on the auditorium side of the proscenium wall.

Element	Significance	Potential impact of proposal	Comment
<b>Foyers surrounding the major auditoria</b>	<b>A</b>	low +ve	Opportunity to reduce visual intrusion of services into upper reaches of the foyer spaces
Cathedral character of space under soaring rib vaults	a	low +ve	Opportunity to reduce visual intrusion of services into upper reaches of the foyer spaces
Unpainted off-form concrete vaults with fan shaped pedestals	a	low +ve	Opportunity to improve visual presence of these from public spaces
Brush box cladding to auditoria carcass (form and vertical extent)	d	none	Not affected by proposed works
Relationship of major auditoria carcasses above brush box walls to interior of the roof shells	int	high +ve	Opportunity to reduce visual intrusion of services into upper reaches of the foyer spaces

### 9.2.3 Opera Theatre (Joan Sutherland Theatre)

The Joan Sutherland Theatre (JST), in particular the above-stage and below-stage areas are the focus of these proposed works. The original Waagner-Biro theatre machinery will be removed almost entirely and replaced with a new installation, once again by Wagner-Biro.

This project has a high impact on this important machinery installation, but must be considered against the considerable potential benefits. The functional and safety improvements offered by the project will enhance the international standing of Sydney Opera House as a world renowned performing arts venue. Without this project the JST will become increasingly difficult to use and will not comply with presently accepted work standards and practices. This will potentially damage the JST's reputation and that of the whole Opera House.

It is important to note there is a project for the complete renewal of the JST that remains unfunded. This project, referred to as the Opera Theatre Renewal Project, was designed by Jørn Utzon in collaboration with JPW after Utzon's re-engagement in 1999 and described in an unpublished document known as the 2007 Gold Book. The project involves the complete renewal of the JST auditorium and stage in its existing location but with a lowered floor to achieve the optimum volume within the auditorium and extended stage and wing space. This present proposal to renew the theatre machinery in the TMP will not prevent the larger renewal project should it be funded in the future. The above-stage works included in the TMP would be able to remain and be incorporated into this larger project. The below-stage works would require some adjustment but would not be redundant.

Element	Significance	Potential impact of proposal	Comment
<b>Opera Theatre (JST)</b>	<b>C</b>	high	Impacts restricted to stage machinery area with no impacts in the auditorium
Seating of white birch and red upholstery	b	none	Not affected by proposed works
Entire uninterrupted space on the auditorium side of the proscenium	b	none	Not affected by proposed works
Form of ceiling and walls and original housings for services	b	none	Not affected by proposed works

Unpainted precast concrete surfaces of circle balustrade and box fronts	b	none	Not affected by proposed works
Floors of laminated brush box	b	none	Not affected by proposed works
Proscenium configuration	b	none	Not affected by proposed works
Waagner-Biro designed and installed stage machinery including revolve and elevator platforms	b	high	Major impact on existing installation. This must be considered against the potential benefits to the long term viability of retaining this venue as a state-of-the-art performance space.
Coburn's <i>Curtain of the Sun</i> (removed)	b	medium	Ability to re-hang and operate this significant curtain in its original location is retained.
Sur-title screen	d	none	Not affected by proposed works
Stage, backstage and storage space	d	high	Major impact on above-stage and below-stage areas, but will result in more efficient use of available space.

### 9.2.4 Service areas

The TMP involves work and removal / replacement of machinery in a number of service areas associated with the above-stage and below-stage of the JST. The impact of the project will be high but these works should improve the use and amenity of these areas.

These service areas were originally fitted out in accordance with Peter Hall's back-of-house regime of white or unpainted and unlined walls, floors and ceilings, with exposed carefully arranged colour coded services and conduits. Door finishes, numbering and hardware were consistent. It is very important that Hall's original design regime is retained and extended into any new or altered spaces.

Element	Significance	Potential impact of proposal	Comment
<b>Service areas</b>	<b>C-D</b>	low	
Character of white painted off-form concrete walling with applied colour-coded services;	b	low	Most areas remain unaffected. In affected areas, it will be important to continue the Hall design regime of simple finishes.
Individual spaces so treated (including plant rooms, workshops, service corridors, vehicle access areas, storage and below-stage areas).	c-d	low	Most areas remain unaffected. In affected areas, it will be important to continue the Hall design regime of simple finishes.

### 9.3 Compliance with CMP policies

It is clear from the Statement of Significance in the CMP that the Sydney Opera House derives its significance primarily from its form (design structure and construction), function and setting. These three components are interdependent and as each of them is crucial to this significance then each must be maintained to the highest level. These are discussed below within the framework of relevant policies from the CMP 3rd edition.

**Policy 1.1 Utzon, Hall and the approach to change – Utzon’s principles**

*All work on the Sydney Opera House should be carried out within the framework of Jørn Utzon’s design principles as endorsed in 2002.*

**Comment**

The proposed TMP has been designed and will be carried out within the framework of Utzon’s Design Principles.

**Policy 1.2 Utzon, Hall and the approach to change – Utzon’s concepts**

*The following fabric and attributes are essential to Utzon’s concept for the Sydney Opera House and should be retained in any future development:*

- a. the relationship between the three shell groups and the platform below;*
- b. the shell geometry and the ceramic tile cladding;*
- c. the canted alignments of the major shell groups;*
- d. the supporting structural systems throughout the building;*
- e. the visually free standing sculptural form of the building unobstructed by adjacent erections;*
- f. the open and uncluttered character of the forecourt and grand stair by which the raised podium is gained;*
- g. the visual relationship with the harbour setting from the podium – including the foyers surrounding the auditoria;*
- h. the retention of a ‘natural’ palette of materials for external fabric.*

**Comment**

All of the fabric and attributes listed above remain unaffected by the proposed TMP works.

**Policy 1.4 Utzon, Hall and the approach to change – Hall’s interiors**

*In any adaptation for modest functional improvement, interiors designed by Hall should retain or recover the character of his original design regimes with their co-ordinated detailing.*

**Comment**

The intent of the works is to respect both Utzon and Hall. This should be regularly checked throughout the detailed documentation and execution of the works.

The proposed works will generally not impact on either Utzon or Hall’s work, except for back-of-house service areas fitted out by Hall. In this respect it is appropriate that Hall’s design regime for these spaces is retained and continued in accordance with Policy 1.4, noting that Hall’s minimalist approach to these spaces followed Utzon’s intent for them.

**Policy 1.5 Utzon, Hall and the approach to change – Major works**

*Major works within the auditoria and podium are acceptable where technical advance, expert advice, design quality, adequate resources and meticulous construction can be combined to create performance and service facilities that will improve function and reinforce or enhance the significance of the Sydney Opera House, provided that:*

- the work is planned in the context of an overall plan for the place;*
- the scheme is developed in accordance with Policy 56.1 on the management of change.*

**Comment**

The Theatre Machinery Project is the first stage of a long-term project proposed in the Strategic Building Plan, for the complete renewal of the Opera Theatre. This is described in the 2007 Gold Book – a design developed by Jørn Utzon and JPW architects after Utzon’s re-engagement. The Theatre Machinery Project can be executed as a stand-alone project with minimal redundancy should the Gold Book auditorium renewal eventuate at some time in the future.

The TMP will enhance the significance of the JST as a performing arts venue and fits within the context of an overall strategic plan. The project has been developed and will be hopefully executed in accordance with advice as described in policy 56.1.

**Policy 24.1 Character and treatment of internal spaces – Service areas**

*In accordance with policy 1.4 (Hall's interiors) the general character of the service areas should be retained in any future adaptations.*

**Comment**

Fitout design for any affected service areas by Hall should be regularly checked throughout the detailed documentation and execution of the works for adherence to this policy.

**Policy 24.2 Character and treatment of internal spaces – Service areas**

*Care should be taken during alteration and upgrading of services to remove those with no likely future use and to maintain a tradition of neat and precise installation of colour coded services.*

**Comment**

The detailed resolution of services should adhere to this policy. This should be regularly checked throughout the detailed documentation and execution of the works.

**Policy 26.1 Character and treatment of internal spaces – Internal adaptation and alteration**

*In keeping with policy 1.4, changes and extensions of use, technical improvements and upgrading of access and facilities should be permitted where they can be carried out without loss of quality and character in the spaces involved.*

**Comment**

The TMP will not result in the loss of quality and character in spaces affected by the project. Adherence to policies 24.2 and 26.1 will be monitored as discussed above.

**Policy 38.1 Care of the fabric – Removal or alteration of fabric**

*Any proposal to remove or alter original and/or significant fabric should:*

- *have regard to the level of significance of the fabric and to the impact on the character and quality of the place affected;*
- *be checked to ensure there is no feasible alternative;*
- *only be considered in the context of an overall plan.*

**Comment**

The areas and elements of the Opera House affected by the proposed works will be dealt with in accordance with their relative level of significance. Refer to discussion and tables in Section 9.2 above.

The minimum option of maintenance and repair of existing machinery with only minor modifications has been the methodology applied in the past. There is no more room to continue this approach without compromising the functionality of the JST and the safety of technical support for performances. The time has arrived when these issues can only be addressed by major changes to the configuration, operation and equipment of the stage machinery. This project has been developed and documented with the possibility of future

upgrading of the auditorium and stage in accordance with the 2001 Strategic Building Plan and the unpublished 2007 Gold Book.

As discussed above, there is insufficient space to retain decommissioned equipment in situ. Key issues are operation, safety, structural and space constraints and none will allow equipment to remain in place.

It is proposed the majority of the equipment will be disposed of, with only key significant original components retained. An inventory and assessment of machinery and equipment in the JST is in preparation. This will determine if any pieces warrant archiving. The repository for removed or archived equipment has not yet been identified.

***Policy 49.1 Managing the process of change – Use, approach and review***

*The Sydney Opera House should continue its primary use as a performing arts centre and its importance as a tourist attraction should be recognised. The building and its setting should not be altered to accommodate uses that will vitiate its significance and character. The approach should be sufficiently flexible to permit the delivery of a high level of performance and provision of services.*

**Comment**

The works proposed in the TMP will enhance the primary use of the place and thus strengthen its significance. While the work involves extensive replacement of original machinery and equipment, its purpose is to improve functionality, flexibility and safety for those staging a performance. Its potentially negative impacts must therefore be balanced against the higher aim of retaining and sustaining the significant primary use of the place.

***Policy 51.1 Managing the process of change – Relating levels of significance to proposals***

*The more significant a concept, fabric, relationship, space of vista, the more should care be exercised in preparing proposals that may affect the place – the objective being to ensure that the work not reduce, and may reinforce, the identified significance.*

**Comment**

The TMP affects spaces and components of high significance. The project itself will have a high impact on the original Wagner Biro machinery but will reinforce the identified significance of the place – particularly its primary use.

***Policy 52.1 Managing the process of change – Use of the Burra Charter***

*The future conservation and development of the place should be carried out in accordance with the principles of the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (Burra Charter) as revised in 1999.*

**Comment**

All decisions relating to the TMP so far have been in accordance with Burra Charter principles and processes. This should continue to the completion of the project.

***Policy 56.1 Managing the process of change – Sequence and advice in developing proposals***

*Continuity of relevant and experienced heritage conservation advice should be provided as part of the process by which changes to the Sydney Opera House and its setting are developed and executed. The timing of this advice is important. For major projects it should be drawn upon:*

- *initially, at the concept stage;*
- *during the development and refinement, or alteration, of the proposal;*

- for a formal statement of heritage impact, or its equivalent, in response to the completed development application;
- to keep a watchful eye on work actually underway.

### **Comment**

Heritage conservation advice has been sought during the design stages for this project and this HIS assesses the completed development application. It is important that this specialist advice continue through to completion of the project to ensure the broader as well as detailed conservation objectives are achieved.

#### ***Policy 59.1 Managing the process of change – External processes***

*Changes that may have a 'significant effect' on the heritage significance of the Sydney Opera House and its site should be referred to the relevant consent authority.*

### **Comment**

The TMP will have a high impact in that the original theatre machinery for the JST will be almost entirely removed and replaced, however the project will achieve substantial benefits in improved efficiency, operability, flexibility and safety for the staging of performances within the JST. On balance, this is considered a significant positive effect on the heritage significance of the Sydney Opera House. This application for approval is therefore required because of this impact.

The CMP 3rd edition does not provide specific policies for the Opera Theatre (JST), however on page 76 Kerr notes:

One result [of Halls decision to stain the walls and ceilings matt black] has been that the architectural character of the auditorium is substantially neutralised and this, together with existing functional and acoustic problems, means that the theatre's level of significance is relatively modest. It follows that, while policies 1.4 (Hall's interiors) and 1.5 (major internal works) are both acceptable treatments, it is the major reworking in terms of Utzon's principles that can achieve the most satisfying results.

The policy options in order of preference are therefore:

- redesign of the Opera Theatre in accordance with policy 1.5 (major internal works) having regard to Utzon's design principles;
- adaptation of the Opera Theatre in accordance with policy 1.4 (Hall's interiors) in order to improve functional and acoustic performance while retaining the character of the Hall approach.

### **Comment**

This policy refers more to the auditorium, stage and orchestra pit, however replacement of the over-stage and under-stage machinery is a major project, and more than adaptation. It does not prevent the longer term plan for complete renewal of the auditorium and stage as described in the 2007 Gold Book, and in that sense could be considered a part of the major internal works project. The TMP has recognised the Utzon Design Principles and is not in conflict with them.

## **9.4 Conclusion re CMP compliance**

The proposed Theatre Machinery Project will have a major impact on the original stage machinery installation in the JST, however it is our assessment that on balance, this will not adversely impact the significant values of the Opera House. It is our assessment that this project will considerably improve the efficiency, flexibility, operability and safety for all involved in staging performances in the JST, and therefore potentially enhance the ability of the Sydney Opera House to present world class performances – a crucial aspect of its significance.

The Theatre Machinery Project is the first stage of a long-term project proposed in the 2001 Strategic Building Plan, for the complete renewal of the Opera Theatre. This is described in the unpublished 2007 Gold Book – a design developed by Jørn Utzon and JPW architects after Utzon's re-engagement. The Theatre Machinery Project can be executed as a stand-alone project but it would be further enhanced by the eventual execution of the related project for the auditorium. The design and construction of the machinery project should allow execution of the auditorium renewal with minimal alteration or impact on the work carried out in this project.

The above assessment concludes the proposed works generally comply with the CMP 3rd edition.

## 10.0 Utzon Design Principles

The *Utzon Design Principles* (UDP) provide important guidance on the intended role of particular spaces and elements and on how they should be treated in the future. Relevant quotes are provided below.

### ***Need to adjust to changing standards***

*"So what was good back in the 60's was okay then, but as people develop and as music develops, as our perception of music and place develops, our demands become higher and this development will probably in the future change a lot of features of the Opera House simply because you need to adjust to instruments, as such." (UDP page 52)*

### **Comment**

Jørn Utzon clearly did not see the technical aspects of this building as frozen in time. He foresaw that adjustments would be needed to meet audience expectations and changing standards. The Theatre Machinery Project responds to this same principle.

### ***Inspiration to artists***

*"When completed, the Sydney Opera House will serve as a home for the cultural activities of the city and will inspire artists and technicians to present to the public the highest quality performance for many years to come." (UDP page 62)*

### **Comment**

Utzon design was a direct response to the Opera House brief, as well as its remarkable site. Presentation of the performing arts is at the very heart of this building, as is the pursuit of excellence. The TMP will allow the Opera House to pursue both these objectives.

### ***Possibilities for all types of cultural performances***

*"The Sydney Opera House with its three theatre stages offers a possibility for all levels of cultural performances. There are only a few houses in the whole world which are similarly designed." (UDP page 65)*

### **Comment**

The JST plays a key role in the suite of venues housed at the Opera House. It is the venue for opera – the namesake of the building itself. If the ability of the building to house and present opera and other performance art requiring advanced stage facilities, the place will be diminished and Sydney Opera House will potentially lose its international status as a performing arts venue.

## 11.0 Conclusion

In summary, the proposed Theatre Machinery Project will involve the removal and replacement of almost all the original theatre machinery and equipment from the Joan Sutherland Theatre. This machinery is significant as being an important original part of the functioning fabric of the Opera House, but it has reached the end of its efficient operational life and is no longer able to meet current standards or functional expectations. Its replacement is therefore essential if the Sydney Opera House is to retain its status as a world renowned performing arts venue attracting performing artists from around the world.

This assessment concludes the TMP will have no negative impact on the World, National or State Heritage values of the Sydney Opera House. It concludes that the project will retain and enhance those values by significantly improving the backstage functionality of the Joan Sutherland Theatre, the second largest performance venue at the, and strengthening the reputation of the Sydney Opera House as a premier performing arts centre of national and international repute.

The TMP fits within the context of an overall strategic plan; it accords with this CMP and the UDP; it is well planned and appropriately resourced; and it has been developed in accordance with CMP policies.

The proposed Joan Sutherland Theatre – Theatre Machinery Project is supported and we recommend its approval and execution in accordance with the CMP.



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Design 5 – Architects

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