



DESIGN 5

A R C H I T E C T S

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SYDNEY OPERA HOUSE

CONCERT HALL PROJECTS

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 suite of upgrades to the Sydney Opera House Concert Hall, including Front-of-House and Back-of-House areas, referred to in this application as the **Concert Hall Renewal Project**.

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 SEARS REQUIREMENT

The requirements for this Heritage Impact Statement (HIS) are stated in Schedule 2 of the Secretary's Environmental Assessment Requirements (SEARS) for Application No. SSD 7665, as modified and issued 20 December 2016. They are as follows:

The application must include a Heritage Impact Statement (HIS) prepared by a qualified Heritage Consultant. The HIS must address any impact to the heritage significance of the Sydney Opera House and its setting, including impacts to the world heritage buffer zone and/or Aboriginal, historic or archaeological significance.

- *The HIS must include details of the building works and alterations to significant building fabric, structural members, services and spaces associated with the proposal. The impacts to the significant fabric and structure are to be clearly identified.*
- *The HIS must provide a detailed assessment of each of the key proposed elements, and implications of BCA compliance and construction issues.*
- *The HIS must consider current and known future access requirements under the Building Code of Australia and the Disability Discrimination Act 1992 and assess the heritage impact of these requirements. Details of the minimal BCA and accessibility work to achieve regulatory compliance shall be provided.*
- *The HIS must discuss options that have been considered and assessed in order to demonstrate*

that the proposed works present the best option with minimal heritage impacts.

- The HIS must assess the proposal against the requirements of the following documents:
 - NSW Heritage Manual;
 - Matters of National Environmental Significance Significant Impact Guidelines 1.1;
 - Management Plan for the Sydney Opera House;
 - Conservation Management Plan Sydney Opera House: A Revised Plan for the Conservation of the Sydney Opera House and its Site (3rd Edition);
 - Draft Conservation Management Plan (4th Edition)
 - Utzon Design Principles;
 - Sydney Opera House Accessibility Masterplan 2015; and
 - Relevant Council EPLs.
- The HIS must demonstrate that the proposed works present the best option with the least heritage impacts.

3.0 BASIS OF ASSESSMENT

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, Conservation Management Plan*, by Alan Croker. Fourth Edition, Final Draft, SOHT, June 2015 (referred to below as CMP 4th edition)
- *Sydney Opera House, Utzon Design Principles*, SOHT May 2002 (referred to below as the UDP 2002)
- *National Construction Code*, ACBC, 2016.

The *Management Plan for the Sydney Opera House* (prepared in 2005 as part of the bilateral agreement negotiations) references the CMP and the Utzon Design Principles and provides a framework for protection of the World and National Heritage values of the Sydney Opera House site. It 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.

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

3.1 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 Manual, specifically the NSW Heritage Office guideline *Statements of Heritage Impact* (revised 2002), including consideration of alternative options and their impact.

3.2 Naming of spaces

The naming of some of the projects proposed in this application differs from the conventional naming for their affected spaces, or the names used in the Utzon Design Principles (UDP) and the Conservation Management Plan (CMP 3rd edition). These project names are working titles only and do not imply a re-naming of these spaces. The correlation of these titles / names are as follows:

<i>project / working title / name</i>	<i>conventional name</i>
Under the steps	Vehicle Concourse
Entry Foyer	Box Office Foyer
Joan Sutherland Theatre	Opera Theatre (UDP & CMP 3rd edition)

3.3 Documents reviewed

Sydney Opera House Concert Hall Renewal Project

The following documents prepared by ARM Architecture:

Sydney Concert Hall Renewal Project – Development Application (cover sheet dated March 2017)

Drawings - 49-BR-ARM01, 100% Design Development, Revision 18 (cover sheet dated 24 February 2017)

4.0 BRIEF DESCRIPTION OF PROPOSAL

Broadly, the Concert Hall Renewal Project proposes function and acoustic upgrades for the Concert Hall, including accessibility upgrades to both Front-of-House and Back-of-House areas identified in the Accessibility Masterplan 2015.

Concert Hall Accessibility

This project proposes a series of upgrades to improve accessibility of the Concert Hall as follows:

- Refurbishment of Lift 1 to provide access from the Front-of-House Box Office on Level 1 to Level 2 southern foyer;
- On-grade access from the Level 2 southern foyer to Level 2 Concert Hall northern foyer via a new passageway, requiring alteration to the eastern foyer stairs and relocation of existing back-of-house services;
- Provision of wheelchair access to the Concert Hall circle, side boxes and the various levels of the northern foyer through the installation of two new lifts at the eastern and western ends of the northern foyer (Lifts 29 and 30);
- Increased number of available wheelchair positions within the Concert Hall – up to 34 at the front of the stalls, and to the rear of the lower circle and boxes A, B, C, U, V, and W);
- Introduction of two new accessible toilet facilities at Level 3 in the northern foyer, adjacent to existing toilet facilities; and
- Additional handrails to the centre of the eastern and western foyer stairs, and replacement of existing handrails in the Concert Hall to meet code compliance.

Back-of-House Accessibility

- Improved mobility access to the Main Rehearsal Room (wheelchair hoist) and ramp to the Orchestra Assembly room;
- Upgrading of three Performer Dressing rooms (58, 75, and 76) at Level 1 for access and sanitary facilities; and
- Introduction of two new accessible toilet facilities at Level 1 adjacent to the existing male and female performer amenities and dressing room 59/66.

Acoustic Design

This project proposes a number of measures to improve the acoustic performance for both amplified and unamplified sound within the Concert Hall as follows:

- Removal of the existing acrylic over stage reflectors (doughnuts);
- Provision of a new array of adjustable overstage reflectors;
- New adjustable side wall reflectors;
- New ceiling reflectors;
- New stage floor;
- New operable/retractable acoustic absorbent drapes above the stage, to the stage-surround walls, box fronts and rear walls, and the rear wall of the auditorium;
- New profiled timber panelling to the box fronts, rear of the side boxes, and rear walls of the stalls and upper circle for improved acoustic diffusion;
- New profiled timber panelling to the stage surround to improve acoustic response to the musicians on stage;
- Implementation of Displacement Air Conditioning within the Concert Hall to provide quieter background acoustic levels and improved thermal comfort to both the audience and musicians on stage.

Concert Hall Stage and Back Stage

This project includes a number of modifications to the stage and back stages areas of the Concert Hall, to improve functionality and enable accommodation of a wider range of performance modes than is presently available, including:

- Automated and adjustable stage risers to accommodate a variety of orchestral performance configurations;
- New forestage riser with two rows of seating (rather than the existing three), thereby increasing the number of seats at stalls level if the forestage is raised;
- New lowered stage height to improve sight lines from the stalls, create better intimacy between performers and audience, and enable level access from back-of-house areas (in conjunction with adjustment of floor levels to backstage areas);
- Part removable and part automatic stair access from stage to choir stalls;
- Provide under stage storage for the retractable forestage seating and rigging equipment;
- Enlarge the prompt and off-prompt wings including the provision of additional downstage wing entries and requiring the realignment of the walls to the Eastern and Western side foyers and reconfiguration of the stalls level entry doors (Level 2); and
- Creation of two new musician rehearsal rooms at Level 2 (associated with the relocation of existing plant).

Concert Hall Technical Upgrade

This project proposes a series of upgrades to accommodate a wider range of acoustic and amplified music performances, including:

- Expansion and consolidation of the available winching capacity within a dedicated winch room above the Concert Hall stage and ceiling, requiring relocation of the existing Plant Room 21;
- Reconfiguration and strengthening of the ceiling structure to support the winch room and technical grid, accommodate an increase in the flying capacity and the flexibility of the rigging configurations;
- Modification and expansion of the theatre technical zone above the Concert Hall ceiling to allow for improved and safer access and control of the technical equipment;
- Provision of new winches, theatre equipment and control systems; and
- New penetrations in the existing ceiling to accommodate an increased number of rigging lines for the flying of acoustic and theatrical elements over the stage.

Displacement Air Conditioning

- Installation of a displacement air system with air being fed from below the floor and return air from within the ceiling. This system also has benefits in reducing the background noise level and improvement of the acoustic performance of the space. Building works include reconfiguration of the ductwork in the ceiling and under

floor spaces, installation of supply air outlets in the floor and infilling of the existing cannon port openings. This system also improves the smoke exhaust capacity in line with enhanced fire engineering performance criteria.

Seat Refurbishment

- Refurbishment of the existing seats, including plywood seat elements, cushion foam and fabric, to ensure compliance with statutory fire regulations and to improve acoustic performance.

5.0 THE ISSUES & CONSIDERATION OF ALTERNATIVES

As legislation in regard to accessibility becomes stronger, it is essential that high profile performance venues such as Sydney Opera House demonstrate leadership in addressing accessibility and inclusivity. If such leadership is not taken, the Opera House risks losing its status as a world renowned performing arts centre and become less attractive to performers, patrons and visitors.

There are significant challenges in meeting this objective and in 2013, on the 40th anniversary of the opening of the Opera House, it was announced that there would be period of renewal where the place and its venues would be upgraded and enhanced to better address current standards and expectations within the framework of the Conservation Management Plan and Utzon Design Principles. The Opera House would once again become a leader at the cutting edge of innovation – a centre pursuing and presenting excellence in the performing arts.

Much of the theatre machinery, while state of the art in 1973, was now outdated by significant advances in digital technology and functional efficiency, and required major overhaul or replacement if the Opera House was to maintain its leading performing arts status. A project addressing this particular issue is the subject of a separate DA and has been assessed for its heritage impacts as part of that DA submission.

A number of renewal projects were identified and a major review of accessibility was commenced. This culminated in the SOH Accessibility Master Plan 2015.

All of the accessibility projects have been developed from a suite of preferred options in this master plan. In its development, a range of potential solutions were explored, the preferred option selected on the basis of its minimised impact and optimal functionality. Many of these potential solutions were again examined and tested as part of the concept design process for the present projects.

Utzon's original design addressed accessibility issues by keeping the central passage at broadwalk level as a public space. This allowed front-of-house public access to the suite of lifts to various foyer levels, and then via a level passage or tunnel at Level 3 in each side foyer to link southern and northern foyer areas. There was no passage at Level 2. When the Opera House opened in 1973, the central passage was the principal loading and servicing area and not available to the public, and because of the widened auditoria resulting from the revised program, the side passages were blocked over. This present project provides for a side passage on Level 2 to the Concert Hall eastern side foyer. This passageway then allows accessible seating to be provided in a limited range of seating positions within the Concert Hall, rather than only at the front of the stalls.

With all of the upgrades included in this DA, there was a rigorous process of review amongst user groups, consultants, the Opera House's heritage architect, Eminent Architects Panel and Conservation Council at schematic, concept design and design development stages.

6.0 HERITAGE LISTINGS & STATUTORY FRAMEWORK

6.01 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)

6.02 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.

7.0 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

Many components of the Concert Hall Renewal Project will greatly improve access to the Concert Hall side of the Opera House to a wider section of society – particularly those with reduced mobility, many of whom will never have experienced some of these spaces before.

The proposed acoustic enhancements and modifications, stage upgrades, eastern passageway and lift connections between the various foyer and auditorium levels will have a substantial impact on affected spaces and their fabric, however the functional benefits will be substantial and the impacts will not adversely affect the OUV that underpin its World

Heritage Listing.

It will be very important that the details throughout this project are resolved to a consistent language and very high quality and comply with the Utzon Design Principles and the CMP. This is being reviewed during the detail design development stage by means of regular 'design consistency' workshops, attended by the SOH heritage architect and members of the Eminent Architects Panel.

The Concert Hall renewal project will enhance the patron experience and performance and operational capability of the Sydney Opera House to continue to host and celebrate world standard performance art. In this respect this proposal will help sustain the iconic international standing of this Opera House – a key part of its OUV.

In conclusion, it is considered that with fine and detailed resolution during the design development stage, and then excellence in execution, all in accordance with the Utzon Design Principles and the CMP, the proposed works in this application will have significant but ultimately positive impacts and thus not threaten or diminish the Outstanding Universal Values that enshrine it on the World Heritage List.

8.0 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 works in this current application.

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 Concert Hall renewal project, particularly the acoustic enhancements and modifications, stage upgrades, eastern passageway and lift connections between the various foyer and auditorium levels, will have substantial impacts on significant spaces and their fabric, however the functional benefits will be substantial and will greatly improve the visitor and patron experience.

It will be very important that the details throughout this project are resolved to a consistent language and very high quality and comply with the Utzon Design Principles and the CMP. This is being reviewed during the detail design development stage by means of regular 'design consistency' workshops, attended by the SOH heritage architect and members of the Eminent Architects Panel.

The Concert Hall renewal project will enhance the patron experience and performance and operational capability of the Sydney Opera House to continue to host and celebrate world standard performance art. In this respect this proposal will help sustain the iconic international standing of this Opera House.

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.

8.1 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 this suite of projects. 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:

- "The Sydney Opera House represents a masterpiece of modern architectural design, engineering and construction technology in Australia."
- "The challenges involved in executing the design inspired innovative developments in technologies, construction engineering and building methods in Australia, creating the building's distinctive form, fabric and structural systems."
- "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 Concert Hall renewal project 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 and accessibility.

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:

- “With its distinctive sail-like concrete shell roofs standing boldly upon a massive granite-faced platform, located prominently on the Sydney Harbour foreshore, the Sydney Opera House is the most widely recognised building in Australia, and one of the most definitive national architectural icons of the twentieth century. It is also a rare example of a national cultural centre that has gained widespread recognition and respect as a performing arts venue.”

Comment

The Concert Hall renewal project will not have any adverse impacts on these values and will likely enhance the Opera House’s recognition and respect as a performing arts centre accessible to all.

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:

- “With its distinctive sail-like concrete shell roofs standing boldly upon a massive granite-faced platform, located prominently on the Sydney Harbour foreshore, the Sydney Opera House is the most widely recognised building in Australia, and one of the most definitive national architectural icons of the twentieth century.”
- “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.”
- “...the majestic quality of the soaring internal spaces including the folded concrete beams throughout the building, and the reinforced radial cranked beams in the northern foyers. These are complemented by the vast coloured glass panels in the main foyers of the Concert Hall and Opera Theatre wings, through which the harbour and city views reinforce the building’s magnificent setting.
- The distinctive interiors including the foyers surrounding the major auditoria, the Reception Hall (now the Utzon Room), the Box Office foyer, and the Bennelong Restaurant designed by Utzon and Peter Hall, enhance the relationship between the interior and exterior of the building.”

Comment

The Concert Hall renewal project will have a very high impact on a total of four radial cranked beams in the Concert Hall northern foyer at both its eastern and western ends, and the podium steps within the Eastern side foyer; but only minimal visual impact on the side and northern foyers of the Opera House. The experience of these significant spaces should be enhanced by these works, and be accessible to a wider public than before, now including

those with limited mobility.

The proposed upgrades within the Concert Hall auditorium, including for the stage and acoustic performance will result in some adverse impacts on the significant character of the Concert Hall auditorium, however the overall impacts with regard to acoustic performance, functionality and accessibility will be positive.

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 'hybrid' interior spaces of the Sydney Opera House reflect the creative genius of both Utzon and Todd, Hall and Littlemore, who completed the building and interior finishes after Utzon's departure. The major public spaces with outside views, for example were designed by Utzon (and completed by Peter Hall) to be finished in natural materials, textures and colours similar to those on the exterior of the building in order to bring the outside inside (Kerr 2003, 69)."
- "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 Concert Hall renewal project will generally retain and respect these values.

While acknowledging there will be some negative impacts in regard to introduction of Lifts 29 and 30 and the consequent cutting of a total of four of the significant cranked beams in the Concert Hall northern foyer, and the diminished width of the stairs in the Concert Hall eastern side foyer resulting from the new passageway on Level 2, the overall impacts to accessibility will be positive. Utzon's original concepts will be strengthened and made accessible to a broader public than before, and Peter Hall's contributions will be retained and respected in back-of-house areas.

It is important to note that Utzon's original concept and indeed the structure of the Podium, included a passage in the side foyers on Level 3 in a similar location. Utzon also proposed lifts in the Northern Foyer in the Strategic Building Plan, 2001. Therefore, this current proposal closely accords with Utzon's intent.

The acoustic upgrades to the Concert Hall auditorium will have high impacts on a limited amount of significant fabric and on key views towards the grand organ and adjacent areas of the faceted ceiling. There will be some impact on the character of the original Hall interior, however this is considered acceptable given the potentially high positive impact in the overall acoustic performance and functionality of the Concert Hall. The acoustic interventions on the sidewalls have been specifically designed to be adjustable so as to be hidden from view when not in use. Generally the proposed interventions reference Hall's

palette of materials and colours of white birch, brush box veneer or signature magenta colour. The curved shape and profile of the suspended 'petal' ceiling reflectors have been resolved to provide optimal acoustic performance while retaining partial views to the Grand Organ, and can be rotated or flown upwards depending on the acoustic needs of the performance type.

Resolution of theatrical equipment, including lighting bars, lighting pods, and speakers need resolution during the Tender Documentation phase to minimise the cumulative impacts of this technical equipment.

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), and the place's role as a focal point for community events. The Sydney Opera House is a mecca for both Australian and international visitors to Sydney, attracting over 100 million visitors since the opening in 1973."

Comment

The Concert Hall renewal project should strengthen the Sydney Opera House's role as a cultural icon accessible to all, and potentially enhance its ability to attract both national and international visitors and performers.

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 Concert Hall renewal project will not have any adverse impacts on these values.

8.2 Summary assessment of heritage impact on National Heritage values

While acknowledging there will be some negative impacts to significant fabric and spaces arising from the Concert Hall Renewal project in regard to introduction of Lifts 29 and 30 and the consequent cutting of four of the significant cranked beams in the Northern foyer, the cutting and diminished width of the stairs in the Eastern side foyer resulting from the new passageway at Level 2, and the acoustic upgrades within the Concert Hall auditorium, the overall impact of this project will be positive.

The improved functionality and accessibility of the Concert Hall, will potentially enhance the reputation and ability of the Sydney Opera House to attract national and international visitors, patrons and performers.

9.0 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 proposed suite of projects in this application on the State Heritage values of the Sydney Opera House.

9.1 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 suite of proposed projects in this application. 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

The CH renewal project will potentially enhance the ability of the Sydney Opera House to attract national and internationally recognised performers with its improved functionality, acoustic performance and accessibility.

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:

- "Its public spaces and promenades have a majestic quality endowed by powerful structural forms and enhanced by vistas to the harbour and the city."
- "Its aesthetic quality is largely attributed to the 1957 prizewinning design by Jørn Utzon."
- "Its aesthetic quality was also enhanced by the high quality completion work by Hall, Todd & Littlemore, by the technical support given throughout by the internationally renowned engineering firm of Ove Arup & partners, and finally by M.R. Hornibrook, the contractor of stages two and three (Kerr, 2003, 32)."
- "Widely recognised as a masterpiece of twentieth century architecture, the Sydney Opera House combines an expressive freedom of form with the precise technology of the machine age."

Comment

The Concert Hall Renewal Project will generally retain and respect these values.

While acknowledging there will be high negative impacts on fabric in regard to the introduction of Lifts 29 and 30 and the consequent cutting of a total of four of the significant cranked beams in the Concert Hall Northern Foyer, and the diminished width of the stairs in the CH eastern side foyer resulting from the new passageway on Level 2, the overall impacts with regard to accessibility of the Concert Hall for a broader section of the public will be positive. The soaring majestic quality of the fan roof shell, pedestals and ribs remain unaffected.

The proposed acoustic treatments within the Concert Hall for both amplified and non-amplified performances, including the over stage, side wall and ceiling reflectors, box front

and perimeter wall treatment and retractable acoustic drapes will result in high impacts to Hall's original interior of the Concert Hall, however the overall impacts in terms of acoustic performance should be positive. Changes to existing seating for improved acoustic performance, and to enable sections to be removable to accommodate wheelchair seating, should have minimal impact on their character, material and configuration.

The automated platforms of the tiered stage will not have a negative impact and changes below the stage to accommodate the automation of these risers will not impact on significant fabric or spaces. This work is considered a positive change and will improve sightlines from the auditorium and the functionality of the stage.

Alterations to the Back-of-House performers' areas, including dressing rooms, toilets, rehearsal and assembly rooms, to improve access and functionality will generally have minimal heritage impact. Additional refinement during the Tender Documentation phase is required to ensure that the design incorporates/ reinstates Hall's palette of materials for back-of-house areas. While the enlargement of the prompt and opposite-prompt side wings will require reconfiguration of the walls to the Eastern and Western side foyers and entry doors to the stalls, these changes continue Hall's geometry and palette of materials, and are considered acceptable.

Utzon's original design concepts will be strengthened and made accessible to a broader public than before, and Peter Hall's contributions will be retained and respected in the Concert Hall auditorium, foyer and back-of-house areas.

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."
- "In offering this remarkable accessibility to a broad public, Sydney Opera House can be seen to be fulfilling Cahill's hope that it would be "a monument to democratic nationhood"."

Comment

The CH renewal project should strengthen the reputation of Sydney Opera House as a world-class performing arts centre enhancing Australia's cultural vitality.

The accessibility projects in particular will make the Concert Hall and its foyers more accessible to a broader public, and potentially strengthen its ability to fulfil Cahill's hopes.

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 are 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:

- "It is an exceptional landscape (and seascape) monument because of its quality as a sculpture in the round, both day and night, and because of the appropriateness of its design to its setting and the picturesque quality of the setting."

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."
- "It is outstanding because of its innovative design appropriate both to its entertainment functions and to its harbour-side setting, and because of the esteem in which it is held in Australia and internationally."
- "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 improved functionality and accessibility of both public and back-of-house areas, particularly in relation to the Concert Hall, will potentially enhance the reputation and ability of the Sydney Opera House to attract great artists and performers from all over the world.

9.2 Summary assessment of heritage impact on State Heritage values

There will be some negative impacts on significant fabric in regard to introduction of Lifts 29 and 30 and the consequent cutting of three of the significant cranked beams in the Concert Hall Northern foyer, and the diminished width of the stairs in the CH Eastern side foyer resulting from the new passage / tunnel on Level 2, however the overall impact of these projects will be positive.

Similarly, while there will be negative impacts to the significant fabric and character of Hall's original Concert Hall auditorium arising from the proposed acoustic treatment, the overall benefits to acoustic performance and functionality are considered positive. The major visual impact arises from the suspended over-stage reflectors that will interrupt the grand organ and visually divide the space. Testing of full size prototypes will be necessary to determine the extent of these impacts and allow refinement to minimise them.

The improved functionality and accessibility of both public and back-of-house areas of the Concert Hall, will potentially enhance the reputation and ability of the Sydney Opera House to attract national and international visitors, patrons and performers.

The assessment of heritage impact on individual spaces and fabric is discussed in the section below (compliance with CMP 3rd edition).

10.0 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 suite of projects in the following order:

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

10.1 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 proposed suite of projects. Taking each of them separately, the following comments are made:

- *the high quality completion of the work by Hall, Todd and Littlemore,*

Comment:

The materials and finishes proposed maintain the high quality and standards set by the of Hall, Todd and Littlemore work.

- *the majestic quality of its public spaces contained by powerful structural forms;*

Comment:

The public spaces affected by this suite of projects include the following:

- Concert Hall auditorium,
- CH northern foyer,
- CH eastern side foyer
- CH western side foyer,
- East Caves
- West Caves

Each of these spaces retains its majestic quality and the powerful structural forms that define it.

The proposed works within the Concert Hall will have high fabric and visual impacts, however overall there should be positive benefits to acoustic performance, functionality and accessibility to the auditorium. The proposal has sought to retain and respect the majestic qualities of the Concert Hall through the application of Hall's palette of materials and details and the careful detailing of new insertions to be adjustable and removable when not in use.

While acknowledging that the proposed insertion of the eastern passageway within the eastern side foyer will have high fabric impacts on the stepped podium the form of the soaring fan pedestals and ribs and the majestic quality of the space remain unaffected. Similarly, while the insertion of Lifts 29 and 30 will have high fabric impacts on the cranked beams of the northern foyer and east and west caves, and the broad sweep of stairs within the northern foyer, careful detailing and adoption of Utzon and Hall's palette of materials will lessen their overall impact on the aesthetic qualities of these spaces. The proposed works within the east and west caves strengthen their connection as extensions of the northern foyer.

- *the evidence of its fabric in expressing its place in twentieth century architecture (not excluding the troubled history of its construction);*

Comment:

Wherever possible, the proposed Concert Hall renewal project aims to retain and expose the evidence of evolution and manufacture of its fabric. The presence and character of this fabric has informed the design approach to renewal, and will be enhanced by indirect lighting.

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

Comment:

The proposed Concert Hall renewal project will improve the acoustic performance, functionality and accessibility of the Concert Hall auditorium and its associated foyers and back-of-house technical and performers' spaces.

These will potentially have a positive impact on the function and status of Sydney Opera House 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.

The Concert Hall renewal project will ensure the Opera House is available and accessible to a much broader public. This in turn should enhance its reputation at both a national and international level and *its power to attract artists, patrons and visitors on a national and international level.*

10.2 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
- Podium exterior
- Original concept of sequential experiences on arrival, entry and circulation
- Foyers surrounding the major auditoria
- Concert Hall
- Performers' and staff areas
- Lavatories, locker rooms and dressing rooms
- Lighting, control and projection rooms
- 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

10.2.1 The form, fabric and structural systems of the Opera House

The proposed works and their impacts are noted below.

The proposed works associated with accessibility within the Concert Hall foyers include:

- Construction of new eastern passageway at Level 2 to provide level access between the southern and northern foyers – steps and structure to be altered. Minimal impact on significant structure. High impact on form and fabric visible in public spaces, but with substantial accessibility benefits.

- Construction of new Lifts 29 and 30 – two cranked beams at each side of the northern foyer to be cut to accommodate lift shafts, and the glass walls at Level 3 to be altered and extended to enclose the lifts. Very high impacts on form, fabric and structure in affected areas, but with substantial accessibility benefits.
- Reconfiguration of auditorium side walls associated with the expansion of prompt and opposite prompt wings, provision of automated stepped stage platforms and new accessible entryways – moderate impact to the character of the eastern and western side foyers but with substantial improvements to functionality and accessibility.
- Additional structural works on Level 2 below the choir stalls is required due to the enlargement of the stage and realignment of the rear wall – no impact on significant fabric, structure or spaces.
- Additional floor structure associated with the support and automation of the stepped stage platforms. No impact on significant structure. Minimal impacts to significant fabric and spaces.
- Additional strengthening works to support new catwalks above the Concert Hall ceiling crown for the expanded technical zone and new wing platforms for the winch room – No impact on significant structure, form and fabric.
- Structural support for new plant within the void between the shells and Concert Hall ceiling crown – No impact on significant structure, form and fabric.

Those structural components that will be altered as part of these projects have been assessed and rectification works designed by Arup engineers.

Element	Significance	Potential impact of proposal	Comment
The form, fabric and structural systems of the Opera House, including	A	High	A number of structural elements and fabric adjacent to the Concert Hall will be altered – particularly in eastern side and northern foyer spaces.
roof shells with pedestals, ribs, boxed beams, warped surfaces, tile lids and lightning conductors	a	low	Junction of glass wall to fan pedestal at Level 4 (both sides) relocated further into foyer, but still aligning with rib crease. Otherwise not affected.
bronze louvre walls infilling shell ends	a	none	Not affected by proposal
podium clad and paved with monumental precast granite	a	Moderate – neutral	Some paving within the east side and northern foyers of the Concert Hall will be altered or removed. The west façade of the podium will be affected with a single new hooded opening for a new vent.
folded beams throughout the building	a	none	Not affected by proposal
reinforced radial cranked beams in northern foyers	a	High – negative	2 beams on each side and each level of Concert Hall northern foyer will be cut to allow new Lift 29 & Lift 30.
glass walls and supporting structures	b	Moderate – neutral	Glass wall and supporting structure on both east and west sides of Concert Hall northern foyer will have moderate alterations for new Lift 29 and Lift 30.
surface treatment of exterior pedestal feet	int	none	Not affected by proposal

10.2.2 Podium exterior

The proposed works that affect the podium exterior are located on the western side of the Concert Hall.

A single new hooded opening is proposed on the western elevation of the podium. Its details and configuration will match the existing adjacent hooded opening such that it will not diminish the visual solidity of the podium.

The steps in the Concert Hall eastern side foyer and within the northern foyer read as a continuation of the full width stepped surface profile of the podium. These will be interrupted by the new eastern passageway and Lifts 29 and 30 in the northern foyer.

Element	Significance	Potential impact of proposal	Comment
Podium exterior	A	Moderate – neutral	Single new hooded opening over ventilation grille on west side of podium
solid character of side walls with precast granite slabs of monumental size, including hoods to openings	a	none	New hooded opening on western side will maintain visual solidity of podium. It is virtually identical to an existing original feature adjacent and on the eastern side of the podium.
use of large scale precast granite slabs for paving and steps	a	none	Scale and material are maintained in alterations
uninterrupted sweep of steps from bottom to top and from side to side	a	Medium – negative	Monumental steps are not affected by proposal.
open character bronze railing on podium edge and at the extremities of the steps	a	none	Not affected by proposal
access steps and balconies on the northern walls of the podium	a	none	Not affected by proposal
bronze vehicle doors to the central passage and Bennelong dock	b	none	Not affected by proposal
existing pedestrian entries off the western broadwalk	b	none	Not affected by proposal
design of picket additions to fence at the northern lip of the podium	int	none	Not affected by proposal
design of radial palisade fencing introduced where the northern ends of the podium decks meet the [external] steps	int	none	Not affected by proposal
large black sign pylon with strong silhouette and comic hammer head (security camera) on landing of monumental steps	int	none	Not affected by proposal

10.2.3 Original concept of sequential experiences on arrival, entry and circulation

The proposed works will substantially improve the accessibility of this sequence of spaces to a wider public, particularly those with mobility issues. This is a very positive impact.

The alterations required to achieve this result in negative impacts, particularly visual impacts on the broad unbroken sweep of stairs in the eastern side foyer and at each end of the northern foyer of the Concert Hall, and also each end of the impressive sweep of unpainted off-form cranked concrete beams that dominate the lower levels in the northern foyer.

To mitigate these impacts, the eastern passageway at Level 2 has been carefully sited to retain the legibility of the side foyer staircase as an extension of the external stepped podium. The simplicity of the incision, its details and the use of Utzon and Hall's original palette of materials lessen the visual impacts on the significant character and experience of the eastern side foyer. While there are both high visual and physical impacts arising from this work, these are considered acceptable when balanced against the substantial improvement in accessibility achieved.

It is important to note Utzon's original proposal for a passage at Level 3 on each side foyer to connect to the Northern Foyer. The structure for these passages exists beneath the precast steps. Hall tried to retain these passageways, however they were covered over by completion in 1973.

Lifts 29 and 30 have been located as far as possible towards the outer eastern and western edges of the northern foyer to minimise their visual impact on the cranked beams within the limits of the height plane of the glass wall above. These impacts are considered acceptable when balanced against the substantial improvement in accessibility achieved.

Element	Significance	Potential impact of proposal	Comment
Original concept of sequential experiences on arrival, entry and circulation	A	High – positive	Sequence of spaces is not affected. Accessibility to this sequence of experiences considerably improved
Forecourt, podium steps, podium deck, box office foyer, stairways, level 30 foyers, auditoria	a	High – positive	Sequence of spaces is not affected. Accessibility to this sequence of experiences considerably improved
Vehicle concourse, stairways to box office foyer, box office foyer, stairways, level 30 foyers, auditoria	a	High – positive	Sequence of spaces is not affected. Accessibility to this sequence of experiences considerably improved

10.2.4 Foyers surrounding the major auditoria

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

Works are located within the northern, western and eastern foyers. Works are twofold:

- To improve accessibility of the Concert Hall by providing new Lifts 29 and 30 within the northern foyer, creating the eastern passageway connecting the southern and northern foyers at Level 2, and providing new accessible auditorium entries within the eastern and western side foyers at Level 2.
- To improve the functionality of the stage by enlarging the prompt and opposite prompt wings into the eastern and western side foyers.

There are major accessibility and functionality benefits with these works, however there are a number of impacts, some of them negative. These impacts can be summarised as follows:

- Eastern side foyer and passageway – the existing stepped podium is cut through to create a new passageway at Level 2. Although the work will result in high visual and physical impacts on this exceptionally significant space, it is consistent with Utzon's

original design intent to provide access to the northern foyer. The material language of the passageway incorporates the Utzon and Hall palette of detail and materials and does not attempt to compete with or distract from the significant character, form and details of this significant space. Overall these works will result in high impacts, however the general quality and character of space is retained and respected. The soaring fan pedestals and ribs remain unaffected.

- Eastern and western side foyers – the proposed introduction of the automated stepped stage platforms requires the circulation space within the side wings (prompt and opposite prompt) to be enlarged. This requirement, in conjunction with the new accessible theatre entries, require modifications to the public entry to the front stalls and associated brush box panelling in the side foyers. The changed configuration respects the geometry and set out of Hall and follows existing detailing and materials. Overall the works will result in moderate impacts as the overall width of the foyer is reduced, however the quality and character of space is retained and respected.
- Northern foyer – introduction of new glass Lifts 29 and 30, requiring cutting of 2 unpainted and exposed radial cranked concrete beams each, slicing through the podium stairs, insertion of new concrete lift shafts clad in bronze between Levels 2 to 3A, and alterations to the glass wall structure and partial infill of the indented glass wall to enclose the glass lift shaft at Level 4. Of these impacts, the most significant is the cutting of the beams and slicing through the stairs. The beams are a significant and powerful structural expression in this space, however the placement of the lifts has been carefully considered to minimise its physical impact and visual interruption of these beams within the limits imposed by the curved roof shell ribs and sloping glass plane of the ceiling above. Given their glass enclosure above the pavement level of Level 4, the proposed lifts will not penetrate the broad plane of glass when seen from the outside and their presence should be largely concealed from the north. While the cuts in to each side of the broad sweep of stairs between Levels 3a and 4 within the northern foyer will have major impact on significant fabric, their splayed form retains the visual “flow” of the stairs when viewed from the north. The solidity of the lift shafts will result in some minor impacts to the views out from Level 3 (Mural level), however these are offset by the improved accessibility to the Concert Hall. Details of the modifications to beams should retain and respect the line of the primary crank points.

It is essential that the expression of the cuts through the stairs and beams is carefully resolved and detailed not to distract from or diminish the quality and character of these elements or the space. The sense of horizontal continuity of the stairs beyond the glass walls is an essential part of these stairs and is to be retained as much as possible.

Element	Significance	Potential impact of proposal	Comment
Foyers surrounding the major auditoria [Concert Hall side only]	A	high	
Upper termination of folded beams forming canopies to stairs from Box Office to southern foyers	a	none	Not affected by proposed works
Cathedral character of space under soaring rib vaults	a	low – positive	Opportunity to reduce visual intrusion of services into upper reaches of the side foyer spaces
Unpainted off-form concrete vaults with fan shaped pedestals	a	Low – neutral	Junction of glass wall to fan pedestal at Level 4 (both sides) relocated further into foyer, but still aligning with rib crease. No other impacts.
precast granite paving	a	High – negative impact on	Granite steps in east side foyer cut for new tunnel.

		fabric	East and west ends of broad north foyer granite landing and steps cut for lift and associated access.
unpainted off form concrete radial cranked beams in the northern foyers	a	high – negative	2 beams to be cut at each level on east and west side to accommodate Lift 29 and Lift 30. The line of crank locations should be retained and respected in the modifications.
stairs from Box Office foyer to southern foyers	a	none	Not affected by proposed works
glass wall system with steel mullions and bronze fittings and a non-reflecting zone	b	Medium – neutral	Modifications required at east and west ends of northern foyer to accommodate Lift 29 and Lift 30.
Olsen's and Jagamara's murals in the northern foyers	b	none	Not affected by proposed works
square section bronze rails at base of glass walls (1973)	b	low	Minor modifications required where intersected by new lifts & landings.
bronze and black leather bench seats (1973)	c	none	Not affected by proposed works
small circular bronze based tables (1973)	c	none	Not affected by proposed works
circular bar counter and lighting tree (1973)	c	none	Not affected by proposed works
bust of Eugene Goosens	c	none	Not affected by proposed works
black leather lounges in northern foyers	c	none	Not affected by proposed works
mobile bar	d	none	Not affected by proposed works
colour-coded box signs (1973)	d	low	Some affected by proposed works, but red and green colour to be retained (TBC)
brush box cladding to auditoria carcase (form and vertical extent)	d	moderate – neutral	Minor modifications to east and west side foyers where wings to stage are extended and doors revised
foyer light fittings	d	low	Some affected by proposed works but existing system generally retained (TBC)
program seller's booth	d	none	Not affected by proposed works
circular drink tables with terrazzo base	d	none	Not affected by proposed works
relationship of major auditoria carcasses above brush box walls to interior of the roof shells	int	high – positive	Opportunity to reduce visual intrusion of services into upper reaches of the foyer spaces
relationship of carpets to northern foyers	int	none	Carpets retained on lower levels
bronze rails in side foyers, after 1973	int	high – positive	To be revised as part of site wide handrail review
ad hoc supplementary lighting	int	none	Upgraded infrastructure needed
advertising banners for sponsors	int	none	Not part of this project
debris and fixings remaining from past activities	int	high – positive	To be cleaned up – at least for now
carpet-clad additions in northern foyers to provide storage	int	high – positive	To be removed
carpet cladding to columns	int	high – positive	Carpet to be removed

10.2.5 Concert Hall

This proposed works in the Concert Hall auditorium include the following:

Stage Risers and Access

- Replacement of the existing stage with automated semi-circular arena style platforms to address acoustic problems arising from the orchestra being able to hear itself. These have been successfully tested by the orchestra with a full size mock-up, and were found to not result in a negative impact on the character of the Concert Hall. The use of **laminated** brush box flooring for the new stage platforms retains and respects Hall's palette of materials. The proposed changes to accommodate the automation of these risers will not impact on the significant fabric or character of the Concert Hall.
- Modifications to the existing stage access including the provision of additional doors and enlargement of the prompt and opposite-prompt areas on either side of the stage will require realignment of the box fronts. These works will have high physical impacts through the loss of recent (2011) fabric, however are considered acceptable, as they will not greatly alter the character of the Concert Hall. These works also have flow on impacts on the alignment of the auditorium walls within the eastern and western side foyers – moderate impact but considered acceptable.
- The replacement of the stairs to the choir stalls is required due to the automation of the stage. New steps are to be partially automated, partly moveable, to provide flexibility of use as required. Their construction reflects the existing palette of materials (**brush box** and bronze) and will have minimal impact on the character of the interior.

Treatment to Box Fronts, Perimeter Wall and Stage Surround

- Replacement of the existing brush box timber surface of the box fronts (2011), rear wall of the side boxes (1973), rear walls of the stalls and upper circle (1973), and side walls (2011) and rear wall (1973) of the stage with new profiled surface to provide better and more diffused reflection to the orchestra and audience. This modification affects original fabric, however the new panelling respects the original materiality of the auditorium – high impact but with overall positive acoustic benefits. The visual impacts of these insertions are to be tested with full size prototypes.

Stage Reflectors and Automated Acoustic Drapes

For non-amplified (acoustic performance) the propose arrangement includes:

- Removal of the existing array of acrylic 'clouds' and replacement with a radial array of 'petal' shaped reflector panels. While the proposed arrangement of reflectors is denser than the existing arrangement, the proposed petals retain partial views to the grand organ, the focal point of the Concert Hall. These units were also mocked up for acoustic tests. High visual impacts however positive acoustic impact.
- Installation of retractable sidewall horizontal reflector panels projecting from the vertical planes of the ceiling. Moderate impact but considered acceptable given that these panels respect the existing configuration and materiality of the white birch veneer plywood panels within the auditorium and contribute to improved acoustic performance of the Concert Hall. The proposed array has been tested acoustically with prototypes and found to provide a substantial improvement for both performance and audience. These panels are considered acceptable provided they meet the following conditions:
 - there is minimal visual interruption of existing white birch plywood;
 - panels should be fully retractable when not required; and
 - when retracted, the panels should finish flush with the existing plywood.
- Installation of suspended flat timber reflector panels with zig-zag surface pattern at the upper corners on each side of the Concert Hall. These panels are considered acceptable in principle, however a full size prototype should be tested to assist in detail resolution.

For amplified performance the proposed arrangement includes:

- Automated acoustic drapes to the stage surround, box fronts, side and rear walls and suspended from the ceiling, reflecting the geometry of the existing crown element. The

amplified performance type typically requires a more 'theatrical' approach to the presentation of the stage, and views to the grand organ are not considered important for this performance type. The proposed patterning and magenta colour of the drapes are an extension of this dramatic effect. While the automated drapes will have high visual impacts on the significant character of the Hall interior these are generally considered acceptable on the basis of the following:

- the drapes are fully retractable and the machinery for their automation is fully concealed and silent;
- the location of the drapes respects the geometry of the interior;
- the indirect lighting of wall and ceiling panels around the perimeter of the hall is retained; and
- all drapes are to be fully retracted and out-of-sight when not in use.

Lighting and Speaker Arrays

- Replacement of the existing with new independent lighting beams and speaker arrays suspended from the ceiling for use for both amplified and non-amplified performances. These have the potential to clutter the space and detract from views to the grand organ as well as the auditorium itself. During non-amplified (acoustic) performances, the number of lighting beams required is minimal, however they still have the potential to clutter the space. The existing arrangement of lighting bars and speakers has grown in an adhoc manner, such that views to the grand organ are already compromised and the void above the stage appears cluttered. Their replacement with new, while having high visual impacts, will enable rationalisation and coordination of the system to future proof it against such adhoc additions. The cumulative impacts of the lighting, speaker and acoustic reflector proposals should be tested in situ with full size mock-ups.

'Canon port' openings

- The 'canon port' openings are no longer required due to the proposed change to displacement air-conditioning, and are proposed to be infilled with white birch veneer. This is a positive impact in that it removes a level of visual 'clutter', however there is potential for many of these existing openings to continue to be used for stage lighting. This may be a better alternative to the introduction of lighting bars within the space.

Seating

- Modification to a number of rows of seating (4 rows to the front stalls, 1 row at the rear of the lower concourse and the rear row of each of the six circle boxes) to provide removable accessible wheelchair platforms, associated guard rails and companion positions. The magenta upholstered white birch plywood seating itself will be retained with modified supports and fixings to enable rapid changeover in response to bookings. This work also requires modification to the stair access and front wall of the upper circle and also demolition of the rear wall to the 6 circle boxes. Although this work modifies the original Hall interior, it retains and respects the original geometry and will not detract from the significant character of the Concert Hall. Moderate but acceptable impact.
- Modification of the front two rows of seating within the stalls associated with the automation and enlargement of the stage. The existing seating will be retained with modified supports and fixings to enable rapid changeover in response to bookings. Moderate but acceptable impact.
- Re-cushioning and re-upholstery of all of the magenta upholstered white birch plywood seats. This work retains the existing form, details, materials, colour and finish of the Concert Hall seating. Moderate but acceptable impact. The white birch plywood seat shells should only be replaced if they are beyond repair.

These works will considerably enhance the acoustic quality and functionality of the Concert Hall, thereby making it more attractive for a wide range of performances types. The project should strengthen the reputation of Sydney Opera House as a world-class performing arts centre enhancing Australia's cultural vitality.

Element	Significance	Potential impact of proposal	Comment
Concert Hall	A	High	
Entire uninterrupted space and form of hall	a	High –	Visual impact of new acoustic reflectors to be tested with full size mock-ups. Organ will be partially masked by these reflectors. Suspended reflectors and lighting will visually intrude and potentially ‘divide’ the space. The degree of impact will not be fully understood until on site testing of full size mock-ups with the proposed colour and finish has been undertaken. Impact is considered justifiable given acoustic benefits.
Moulded white birch veneer ply ceiling with lighting, air conditioning and acoustic housings	a	High – but positive acoustic impact	There are a number of moving and fixed parts proposed however, in summary, these retain and respect the white birch ceiling.
Laminated brush box walling, doors, floors and stage	a	High – but positive acoustic impact	The proposed profiled panelling respects the existing brush box wall finish.
Bronze fittings	a	Moderate – positive	Minor modifications to lighting fixtures. Replacement of bronze handrails to achieve compliance as part of site-wide upgrade. (DETAILS REQUIRED)
Character and quality as a concert hall	a	High – but positive acoustic impact	The character as a Concert Hall is retained provided that the infrastructure for amplified performance is withdrawn/removed from site for non-amplified performances.
Organ pipes and case	a	High – but acceptable	Physically not affected, but will be partially obscured by new acoustic reflectors
Seating of white birch and cerise upholstery	a	moderate	All seating re-cushioned and re-upholstered. Fixings modified where required for wheelchair positions. Impacts on configuration visually evident only when accessible seating implemented as per demand and bookings
Acoustic reflector rings (‘doughnuts’ or ‘clouds’)	b	high	Completely removed and replaced with opaque reflectors
Bells associated with the organ (Whitechapel Foundry, UK)	b	none	Not affected
Existing backstage space	d	High – positive	Reconfiguration improves functionality and accessibility.
Steel structure supporting ceiling	d	Low	Substantially retained but with minor modifications.
Microphones and counterweights suspended from ceiling on cables	int	High – positive	Ongoing management issue.

Nest of speakers suspended above stage	int	Moderate – neutral	Existing arrays are considered intrusive and are to be replaced/supplemented by additional speakers. Further resolution required to minimise impacts.
Lighting battens and banks of lights	int	Moderate – potentially positive	Further resolution required to minimise impacts. Potential to create visual clutter.

10.2.6 Performers' and staff areas

Alterations are proposed to provide improved and accessible performers' facilities. These works include:

- Conversion of the existing multi media suites on Level +21 to two Rehearsal rooms and small store (ceiling and wall treatment TBC);
- Modifications to the existing Orchestra Assembly room on Level 1 including new structure, raised floor height to enable level access to the modified stage, new accessible ramp and reconfigured office;
- New stairs and platform lift to the Ballet (Main) Rehearsal room on Level 1 to provide equitable access;
- Refurbishment of the existing Office and Training room on Level 1 arising from the insertion of new lift pits for Lifts 29 and 30;
- Enlargement of the prompt and opposite-prompt wings on Level 2 including raising of the floor to be level with the default stage level, and provision of new doors to the stage and the Anteroom; and
- Subdivision of the existing Anteroom on Level 2 to create a smaller Anteroom and new Rack room, raising of floor level and modifications to existing stairs.

In affected areas, it will be important to continue the Hall design regime with simple finishes. The drawings and finishes schedule provided suggest this is the intent, however some refinement is required.

Element	Significance	Potential impact of proposal	Comment
Performers' and staff areas	B-C	low	Main dressing rooms and staff areas remain unaffected.
Character of white painted off-form concrete with services concealed by moulded white birch panels (wobblies) in front of wall and/or below ceiling – the latter with lighting strips and sprinklers set between them. Smaller spaces may be treated with unmoulded white birch veneer to selected surfaces.	b	low	Affected areas should incorporate Hall's palette of materials, including off form concrete and timber veneer acoustic wall and ceiling panelling to the Rehearsal rooms.
Performers' assembly area under the Concert Hall	C-D		
white birch fitout to locker rooms and WCs	c		Affected areas should reinstate/incorporate Hall's palette of materials including timber veneer.
assembly area fitout	d		

10.2.7 Lavatories, locker rooms and dressing rooms

- Refurbishment of 3 dressing rooms on Level 1 to provide accessible lavatory facilities;
- Provision of two unisex accessible lavatories for performers on Level 1;
- Reconfiguration of the existing Locker room and adjacent Store on Level 1 to provide a new Locker room and Rack room.

The Peter Hall design regime should be extended into new and reconfigured spaces and facilities in accordance with the CMP.

Most of the original lavatories with their Peter Hall fitout remain unaffected by the proposed works. Two new unisex accessible lavatories are to be located within the reconfigured lobbies adjacent to the existing performers' lavatories. Finishes should reflect Hall's palette of materials and be consistent with those proposed for the Joan Sutherland Theatre. Minimal impact.

Three of the original performers' dressing rooms, each with associated bathroom, are affected to provide accessible facilities. New makeup desks to match existing detail, however should be finished in accordance with Hall's palette of materials. Minimal impact.

Check whether original lockers are extant.

The replacement of extant original white birch lockers with new items will have high impact through the loss of original furniture. Any existing, original lockers should be retained and repaired to working condition in accordance with the CMP 3rd edition. If required, new lockers should be finished in accordance with Hall's design regime.

Element	Significance	Potential impact of proposal	Comment
Lavatories, locker rooms and dressing rooms	C-D	low	Three original performers' dressing rooms, each with associated bathroom are affected.
all 1973 joinery, fittings, fixtures and furniture	b	TBC – loss of original furniture & fittings	Limited potential to reuse existing finishes and fittings of lavatories due to changes in wall configuration and provision of accessible fixtures. New tiled wall and floor finishes continue Hall's palette of materials.
metal towel dispenser units design	int	low	Main bathroom areas are not affected. New towel dispenser units will be installed in affected areas.

10.2.8 Lighting control and projection rooms

Existing control rooms will have minor upgrades as part of exempted works and are not included in this application. Significant fabric remains unaffected.

ABC and Sound control rooms on Level 3 are proposed to be converted to theatre equipment Rack rooms, requiring minor reconfiguration of walls. Minimal impact.

New equipment racks are proposed to the existing Rack and Control rooms at the rear of the Concert Hall on Level 7. All existing racks are to be retained in these rooms. Low impact.

Existing spiral stair between Levels 7A & 8 is to be replaced – low impact.

An expanded Technical zone is to be provided above the Concert Hall stage on Level 8, including replacement of existing and provision of new catwalk. The existing plantroom located directly above is to be converted in to a dedicated Winch room. All existing winches are to be replaced, thereby reducing the structural loads on the ceiling and improving access and efficiency for technicians. Repair of existing and provision of new penetrations in to the white birch ceiling should be undertaken by skilled tradespersons. Low impact.

Element	Significance	Potential impact of proposal	Comment
Lighting control and projection rooms	C-D	none	
Small spaces with walls and ceilings lined by perforated ribbed metal sheeting and fire rated insulation	c-d	Low	Upgrades of the technical zone and provision of new winch room located over the ceiling crown. Care required in the repair and reconfiguration of penetrations in the white birch ceiling.

10.2.9 Service areas

Most service areas remain unaffected by the works proposed in this application. (TBC)

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.

Existing plantrooms on Levels 2 and 3 are to be retained, with minor modifications to wall configuration and insertion of new plant equipment. A new plantroom is proposed on the western side within combined storeroom spaces. Existing plantrooms above the Concert Hall ceiling crown are to be reconfigured as a new technical zone. Minimal impact to significant fabric and spaces.

Element	Significance	Potential impact of proposal	Comment
Service areas	C-D	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.

10.3 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.

UTZON, HALL AND THE APPROACH TO CHANGE

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 works have been designed and will be documented and 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

Most of the fabric and attributes listed above remain unaffected by the proposed suite of projects in this application. Those that will be affected are:

- the supporting structural systems throughout the building;
- the visual relationship with the harbour setting from the podium – including the foyers surrounding the auditoria.

The Concert Hall renewal project to introduce a passageway in the eastern side foyer and two new lifts in the northern foyer, will require modification and partial removal of significant structural elements, particularly the cranked concrete beams and stepped podium within foyer spaces. The proposals have been designed and located to limit negative impacts, but these will still be high. The works are in accordance with Utzon’s design and execution of the podium, and his proposals for accessibility upgrade included in the Strategic Building Plan 2001. These projects were also identified in the Accessibility Masterplan and were based on an exploration of all available options, considered in relation to their relative impacts on significant fabric and values. The negative impacts are therefore considered acceptable in the light of the substantial improvement in accessibility and patron comfort.

The visual relationship between the foyers and the harbour setting will be marginally affected by the introduction of Lifts 29 and 30 in the northern foyer. These lifts will comprise a glass lift car within a fully glazed lift shaft above Level 3a (above the granite surface of the Podium) to minimise this impact. This impact is considered acceptable.

Policy 1.3 Utzon, Hall and the approach to change – treatment of hybrid ‘outside’ spaces

Hybrid spaces, such as the foyers surrounding the major auditoria and the reception hall, reflecting the work of both Utzon and Hall, may be retained, or reworked in accordance with Utzon’s concepts and principles, provided the qualifications set out in Policy 56.1 are accepted.

Comment

There are a number of hybrid 'outside' spaces affected by the proposed suite of projects in this application. They are:

- Concert Hall northern foyer
- Concert Hall eastern foyer
- Concert Hall western foyer

Proposed changes in the foyers surrounding the Concert Hall have been developed in accordance with the Utzon Design Principles, but also retain and re-work Hall's elements.

With reference to Policy 56.1, all projects have been developed with input and advice from the Opera House's heritage architect and review by the Eminent Architects Panel and Conservation Council. It is proposed that this continue through design development to construction and completion.

The proposed projects in this application comply with this policy.

.... he [Peter Hall] strove for a 'commonality of character' that enabled 'all the spaces within the Opera House to be recognisably part of the same building'. 'With the decision to use white birch veneered plywood for the Concert Hall ceiling and chair shells it seemed logical,' he said, 'for both practical and aesthetic reasons, to extend its use' to those areas where a 'higher standard of finish' was required – even to the fitout of toilets. These were to be the spaces heavily used by the 'public, artists and administration' (ibid., 187) but did not include the 'outside' spaces such as the foyers. There the predominant character had already been established by Utzon's concrete structure. (CMP pp 45-46)

The need for commonality and a limited palette of materials extended to the full range of details, but it was the white birch veneer in its various forms that made a major contribution to the unity of the performers' and staff spaces within the podium. Hall therefore appealed to future generations to ensure that change was not considered in isolation but that the parts should continue to be related to the whole and 'produce the feeling, despite its size and diversity of its functions, that it is one building'. He finished his appeal with the pithy advice: 'Isolated detail changes are enough to undermine that quality' (Hall. 1990, 199–200). (CMP p46)

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

In any adaptation or 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 to the Concert Hall auditorium aim to retain and reflect Hall's original design intent and palette of materials. While there will be high impacts to the significant fabric and character of the auditorium arising from the proposed acoustic treatments, there are significant benefits with regard to improved acoustic performance of the Concert Hall. Similarly the proposed changes to the back-of-house areas and stage will have significant benefits to the functionality of the auditorium, and potentially enhance the Concert Hall's reputation and ability to attract national and international performers.

In back-of-house performers' and service areas fitted out by Hall, it is appropriate that Hall's design regime is retained and continued in accordance with Policy 1.4, noting also 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

This proposed Concert Hall renewal project will enhance the functionality and significance of the Concert Hall as a performing arts venue and fits within the context of an overall plan to upgrade accessibility across the site in accordance with the Sydney Opera House Accessibility Master Plan. The projects have been developed and will be hopefully executed in accordance with advice as described in policy 56.1.

The proposed acoustic upgrades to the Concert Hall auditorium have been developed after extensive specialist investigation of the existing conditions and acoustic testing of full size mock-ups. While the proposed acoustic treatments will visually impact on the significant fabric and character of the original Hall interior, there will be substantial positive benefits in the overall performance and functionality of the Concert Hall. The proposed acoustic interventions have been specifically designed to be adjustable/removable so as to be generally hidden from view when not in use, and reference Hall's palette of materials and colours of white birch, brush box veneer or signature magenta colour. The curved shape and profile of the suspended 'petal' ceiling reflectors have been configured to provide optimal acoustic performance while retaining views to the Grand Organ, and can be rotated or flown higher depending on the acoustic needs of the performance type.

Resolution of theatrical equipment, including lighting bars, lighting pods, and speakers need resolution during the Tender Documentation phase to minimise the cumulative impacts of this technical equipment. While each individual component may have minimal and acceptable impact, these may all be present within the auditorium together. Therefore the cumulative impact should be tested with in-situ mock-ups as part of the Tender Documentation phase.

The proposed works to the existing white birch seating, including re-cushioning and re-upholstering, and modifications to enable select seats to be removable requiring realignment of the stair access and front wall to the upper circle, will result in moderate impact. However this is considered acceptable given the significant improvement to the acoustic performance and accessibility of the auditorium. The repair of existing white birch plywood seating shells and armrests is preferred to replacement.

The proposed automation of the stage, including its enlargement through the realignment of the rear wall will not impact the significant fabric or character of the Concert Hall auditorium. The enlargement of the prompt and opposite-prompt wing areas, while not impacting on the significant fabric of the auditorium, will have flow-on impacts to the eastern and western side foyers through the realignment of the side walls and access doors to the stalls. These changes will have moderate impact to the form and fabric of the side foyers; however these impacts are mitigated somewhat by the continuation of geometry and palette of materials of the side foyers.

EXTERIOR

Policy 6.1 Exterior – External form

The Opera House should retain unchanged its external form of roof shells, glass wall concept, podium and podium steps, forecourt and broadwalk.

Some aspects, however, were never satisfactorily resolved: the awkward conjunction of the glass

walls and the [external] steps at the northern corners of the podium; and the heavy heat load transmitted to the spaces behind the glass — particularly in the northern foyers. (CMP p 53)

Comment

The external form of the Opera House remains unaffected by the proposed projects except for two components. These are:

- Modifications to the eastern and western re-entrant sides of the Concert Hall northern foyer glass walls to enclose and protect the new Lifts 29 and 30. These modifications will remain largely out of view within the space between the projecting northern ends of the podium.
- Introduction of 1 new hooded opening in the western side of the podium for ventilation.

The impact of the changes to the form of the glass walls are relatively minor and considered acceptable.

The impact of the changes to the western side of the podium are consistent with existing openings in the podium and do not adversely affect its form or sense of solidity. These changes are considered acceptable.

Policy 9.1 Exterior – Openings in podium walls

No treatment of the podium should diminish the impressive effect of its solid side walls with their minimal horizontal fenestration nor disrupt the contrast with the ceramic clad shells and glass walls above.

Comment

The impact of the new hooded opening in the western side of the podium is consistent with the design and proportion of existing openings and do not adversely affect its sense of solidity. These changes are considered acceptable.

SEQUENCE AND ACCESS

While the exterior podium stairs were intended to remain the primary approach, the spaces through which the lower approach was effected were designed to provide a sequence of contrasting experiences in which powerful structural forms and levels of illumination played an important part. The vehicle concourse, the four stairways and the box office foyer were the first three elements in Utzon's lower sequence. The concourse was a broad, open-ended space defined to the south by the mysterious angled descent of the folded beams into the ground. From the concourse, those arriving climbed one of the four stairways which ascended in an linear incline to the box office foyer.

.... This low space with its modest level of natural and artificial light provided an intended contrast to the next experience—the extraordinary spaces of the foyers, contained only by the soaring ribs of the shells and the brush box carcase of the auditoria, and linked to the surrounding land and sea scape through non-reflective glass walls. The transition was similar to that of passing from the low dark narthex of a mediaeval cathedral to the soaring, clerestory lit, rib-vaulted space of the nave. (CMP p61)

Both approaches (via the exterior podium stairs and via the vehicle concourse and internal stairs) are important visitor experiences. Entry to the building via the former is through the range of glass doors to the box office foyer. Like the auditoria foyers with their glass walls the box office foyer was treated as an outside space and given a natural palette of materials and colours.

Policy 17.1 Designed sequence of interior public spaces

Both original arrival sequences with their different and changing experiences should be retained:

- forecourt, grand staircase, podium, box office foyer, and auditoria foyers;
- vehicle concourse, stairways, box office foyers and auditoria foyers.

This policy includes the retention of original spaces, the presentation of unobstructed and revealingly lit structural systems and the consistent use of a range of 'natural' materials, textures and colours.

Comment

The proposed works affecting Utzon's designed sequence of interior public spaces are limited to the foyers surrounding the Concert Hall auditorium.

While the proposed changes range from moderate to high impact, they retain the sequence, character and experiential qualities of the spaces as Utzon had intended.

An important aspect of these works is that they will enable people with limited mobility to access spaces they have previously been unable to fully experience. This is considered a very positive impact and is a major objective of the proposed works.

Policy 18.1 Access for people with disabilities and elderly – escalators and lifts

Any proposal to improve access between levels should not:

- *vitiate Utzon's concept for the sequence of public spaces (see pages 61 to 62 and policy 17.1);*
- *interrupt or obscure any of the original structural systems (for example, folded and radial cranked beams);*
- *result in the sub division or cramping of spaces with an assessed significance of 'considerable'(B) or 'exceptional' (A).*

Comment

The proposed works to improve accessibility to the Concert Hall will not vitiate Utzon's approach and arrival sequence. However there are a number of negative impacts that arise from these projects. These can be summarised as follows:

- Lifts 29 and 30 will interrupt the broad sweep of stairs and radial cranked beams in the Concert Hall northern foyer;
- The new passageway in the Concert Hall eastern side foyer on Level 2 will sub-divide the sweep of stairs in this foyer but should not cramp the space. It is required in order to provide level access to wheelchair positions within the upper circle and side boxes, and to the new accessible toilets in the northern foyer at Level 3.

The location and design of the new lifts, passageway and accessible toilets carefully considered potential impacts when they were first explored in the process of developing the SOH Accessibility Master Plan. As now proposed and documented, they offer the least negative impact, but it is still essential that all details and configurations be refined and tested with full size mock-ups to ensure and confirm the best outcome as part of the detail development and documentation process before works proceed.

It is important to note that button tactile indicators are considered potentially intrusive and not supported for use on the Opera House site. Any proposal for tactile indicators must be tested and approved by the SOHT heritage architect, Conservation Council and Eminent Architects Panel.

An important aspect of the changes proposed in these projects is that they will enable people with limited mobility to access spaces they have previously been unable to fully experience. This is considered a very positive impact and is a major objective of the proposed works.

LIGHTING

Policy 22.1 Interior lighting – hybrid 'outside' spaces

Lighting in the hybrid 'outside' spaces within the building should:

- *retain the sequence of contrasting effects as an arriving patron passes through the building;*

- reveal the architectural character and atmosphere of the spaces: for example, the structure of the pedestals and spreading ribs, and the considerable height and cathedral atmosphere of the rib vaults; also to emphasise the character of the beams in both south and north ends of the building;
- maintain reflection-free views of the harbour from the foyers;
- render the colour of natural materials as accurately as possible;
- achieve reasonable levels of visual acuity for specific functions without compromising the above requirements and without the inappropriate location of equipment and conduits.

Policy 22.2 Interior lighting – adapted spaces

Where relatively modest adaptations of spaces are involved the original lighting design regime should be retained and, where necessary, unobtrusively adjusted or supplemented.

Policy 22.3 Interior lighting – redesigned spaces

In any major redesign of spaces in which architectural character is important, the emphasis should be on concealed or unobtrusive light sources that reveal or reinforce that character, in addition to illumination for the safe and effective function of the space.

Policy 22.5 Interior lighting – safety

Any safety issues should be addressed without disrupting the requirements in the policies above.

Comment

Lighting is an essential part the Concert Hall renewal project. The proposed works include:

- Refurbishment of the aisle lighting located in the stair risers within the Concert Hall auditorium;
- Renewal of the perimeter pelmet lighting within the auditorium;
- Replacement of the existing downlights within the timber panelling at Level 3 of the CH northern foyer;
- New linear lighting within the eastern passageway and above the doors to Lifts 29 and 30;
- Replacement of existing downlights with new surface mounted LED downlight;
- New wall recessed luminaires to the lift cutout and ‘caves’;
- Upgrading of existing downlights within the Concert Hall auditorium with new LED luminaires with improved optics for wider light distribution and uniformity;
- New surface mounted linear continuous LED uplights behind the grand organ (**Check**);
- Spotlights mounted within the concealed cavity of the cannon ports within the Concert Hall auditorium (**Check**);
- New wall mounted LED uplights to highlight the cranked beams within the ‘caves’ on Level 2; and
- New recessed directional LED wall washer to the CH northern foyer;

The proposed lighting refurbishment aims to achieve the following:

- Retain the deliberately different lighting levels to emphasise the character of each space in Utzon’s arrival sequence;
- Refine the indirect lighting system in handrails as part of a future site wide upgrade of handrail systems;
- Continue indirect lighting regimes and systems into new or refurbished spaces, consistent with similar spaces.

The proposed lighting works are considered appropriate and are supported.

CHARACTER AND TREATMENT OF INTERNAL SPACES

Policy 23.1 Character and treatment of internal spaces – “Wobbly Land” – performers’ and staff areas

Spaces fitted out with wobbly regimes should retain the characteristics and quality of that regime.

**Policy 23.2 Character and treatment of internal spaces – “Wobbly Land”
– performers’ and staff areas – adapted spaces**

Work necessary to adapt existing wobbly spaces to new or upgraded functions should be designed:

- *to continue the original characteristics and quality of the space or to complement those characteristics;*
- *to have minimum impact on the original fabric.*

Comment

Back-of-house areas TBC

Policy 23.3 Character and treatment of internal spaces – Timber finishes used by Hall

Carefully selected matching laminated brush box should continue to be used for the repair and replacement of damaged timber and in the design of any furniture for spaces in which brush box was originally used.

Policy 23.4 Character and treatment of internal spaces – Timber finishes used by Hall

Similarly treated white birch veneer should continue to be used for the repair and replacement of damaged elements and the Sydney Opera House Trust should actively encourage plans for the long-term supply of the timber.

Policy 23.5 Character and treatment of internal spaces – Timber finishes used by Hall

All removed white birch veneered elements should be safely stored and catalogued for future reuse.

Policy 23.6 Character and treatment of internal spaces – Timber finishes used by Hall

Should supplies of white birch fail, consideration may be given to the use of a timber veneer with similar characteristics and finished surface treatment which on casual inspection is indistinguishable from the original veneer.

Comment

Documents describing the proposed Concert Hall renewal project confirm the continued use of laminated brush box or white birch for affected areas, including to the various acoustic treatments within the Concert Hall auditorium, including laminated brush box to the box fronts, walls and stage surrounds, and white birch plywood to the retractable side wall reflectors. It is essential that the new work respects and matches the existing in colour, grain quality, finish and sheen.

Check back-of-house areas – lockers and rehearsal rooms

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.

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

TBC

Policy 25.1 Character and treatment of internal spaces – New areas

In accord with policy 1.6 (additional on-site facilities), entirely new spaces may be created by excavation. Where the new spaces are to have a visual or significant sequential relationship with existing Hall designed spaces they should be fitted out to the corresponding design regime. Where no such relationship exists, the new spaces may be fitted out in a contemporary idiom appropriate to the proposed use.

Comment

To be completed

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 DA documentation suggests the quality and character of spaces affected by the proposed Concert Hall renewal project will be retained, however it is important that refinement and consistency of details be continued during the design development and documentation phases.

SPACES ABOVE PODIUM LEVELS – CONCERT HALL

The following extract, including policies, from the CMP 3rd edition is relevant here:

The Concert Hall is a space of exceptional significance and the levels of significance of its various elements and qualities are set out on page 37. When they came to design the intended space both Utzon and Hall were faced with two major problems:

- the need to provide the required seating capacity in a reasonably comfortable configuration within the space under the existing shells; and
- the difficulty of achieving an acceptable acoustic balance in what was to be a multipurpose theatre.

Hall's solution (effectively forced on him by the Australian Broadcasting Commission's requirements) was to abandon the proscenium arch configuration and associated backstage space and equipment, and to transfer opera to the intended Drama Theatre. Instead he proposed to design a concert hall with relevant acoustic properties and to extend the seating round the orchestra. His recommendation was accepted by cabinet in 1967. It was the largest of the many upheavals in the design history of the Sydney Opera House.

On completion the general consensus was that the acoustics of the Concert Hall for its intended purpose ranged from good to excellent. Minor adjustments have been made over subsequent years to reduce perceived shortcomings for both concert and other uses but (except for recent speaker clusters) these have had little permanent visual impact on the space. Improvements to the orchestra platform have been similarly modest in impact.

Following comments on auditorium and on-stage acoustics made by the conductor, Edo de Waart, and members of the Sydney Symphony Orchestra in 1996, three reports were prepared: Kirkegaard (March 1996), Muller (May 1996) and Knowland (late 1996). A further review was carried out by Arup Acoustics in 1998. Issues included the ease with which musicians could hear other sectors of the orchestra, and the balance, intensity and quality of sound conveyed to the audience. The level of background noise was also questioned.

While acoustic issues are outside the scope of this report they can affect heritage value in two ways:

first, the more excellent the acoustics the more functionally and technically significant the space; second, attempts at improvement have a potential to cause needless damage to the very real character of the space—particularly if there is uncertainty on appropriate remedial action. The way it is done is therefore very important.

In accord therefore with policy 1.4 (Hall's interiors) and 1.5 (major internal works) there are two policy options. The first relatively modest approach covers adaptations and functional improvements that do not adversely affect the visual character of Hall's interior and seek to bring the Concert Hall to a level of excellence for a chosen priority use.

Policy 27.1 Spaces above podium levels – Concert Hall

Acoustic improvements of the Concert Hall should:

- *retain the character of Hall's design regime;*
- *be based on adequately resourced expert advice and on an agreed priority use of the space as well as acoustic objectives.*

Should the objectives in policy 27.1 above prove unattainable, the major works policy (1.5) may be invoked. It would be expensive and involve the architectural as well as acoustic redesign of the hall. Two requirements for such a redevelopment should be emphasised: the need for adequate resources to carry the work through to a successful aesthetic as well as acoustic conclusion and a full realisation of the consequences for associated spaces, facilities, services and access systems.

Whatever way the Concert Hall is treated, the general management policy from the 1993 interim plan remains appropriate.

Policy 27.2 Spaces above podium levels – Concert Hall

Management practices should ensure that new installations:

- *do not reduce the acoustic quality of the space as a concert hall;*
- *do not leave the fabric of the hall with a progressively increasing collection of unrepaired drilled holes, fixing points and minor alterations to the ultimate detriment of both its visual and acoustic quality;*
- *do expose to view only the minimum necessary pendant winch cabling at any one time;*
- *are contained in the least bulky housings possible so as to reduce and, finally, avoid visual intrusion into the auditorium space.*

The suspension of a nest of speakers above the stage is clearly an intrusion of the type mentioned above. Apart from its bulk, it cuts across the view of the organ from the rear of the Concert Hall. The long-term objective should therefore be to harness technical advances to find an alternative solution or to reduce bulk substantially. In the meantime consideration should be given to the practicability of removing the speakers when not in use.

A performers' assembly area immediately under the Concert Hall was completed in 1999. The work did not affect the Hall space (see page 81).

The foyers surrounding the major auditoria are a vital part of Utzon's concept for the place. Hall's completion of the glass walls and auditoria carcasses created a hybrid space and as such should be treated under policy 1.3. This means that retaining the existing situation and reworking in terms of Utzon's principles are both acceptable heritage options.

Comment

The above extract confirms the need to address acoustic issues in the Concert Hall. The proposal in this application is firmly based on considerable research and testing of potential solutions by world-renowned acoustic experts. The proposed interventions are more extensive than what may be considered ideal, however they do respect Peter Hall's interiors, retain its character and are consistent with Policies 27.1 and 27.2.

SPACES ABOVE THE PODIUM – FOYERS SURROUNDING THE MAJOR AUDITORIA

Policy 28.1 Foyers surrounding the major auditoria

Whatever action is taken, the foyers should be treated as 'outside' spaces and 'natural' materials, textures and colours used.

Policy 28.2 Foyers surrounding the major auditoria – unimpaired and uncluttered

Surrounding views from the foyers should remain unimpaired by intrusions or reflections and the foyers should be maintained in an uncluttered state.

Comment

The foyers surrounding the Concert Hall will retain and continue to use the 'natural' palette of materials and colours in the proposed changes. The proposed new lifts 29 and 30, are proposed to be fully glazed at Level 4 to assist transparency and minimise visual impacts and intrusions in the affected spaces.

CARE OF THE FABRIC

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 Concert Hall renewal project involves the removal or alteration of significant fabric. In determining the nature and configuration of each aspect of each project, considerable regard was made for the significance of the fabric affected and the potential impacts on the space concerned.

Alternative options have been explored and tested, often to check that the preferred option in the SOH Accessibility Master Plan was in fact the most appropriate.

These projects are part of a broader program of renewal, a major objective of which is to upgrade the accessibility of facilities and venues across the Opera House site.

Policy 39.1 Care of the fabric – Treatment of intrusive items

Items identified as intrusive in this conservation plan should be removed.

Comment

Some items, such as the lighting bars, lighting pods or speakers in the Concert Hall, are tolerable because they are only present for particular events or performances but any such features should be designed to minimise intrusiveness.

Resolution of theatrical equipment, including acoustic curtains, lighting bars, lighting pods, and speakers is continuing during the Tender Documentation phase to minimise the cumulative impacts of this technical equipment.

Policy 41.1 Care of the fabric – Treatment of unpainted precast and off-form concrete

Interior and exterior surfaces of unpainted concrete ribs, pedestals and beams should remain unpainted and their details unobscured.

Comment

The Concert Hall renewal project retains unpainted concrete as unpainted and exposed.

MANAGING THE PROCESS OF CHANGE

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.

Policy 49.3 Managing the process of change – Use, approach and review

Proposed changes of use to any part of the building should only be considered in the context of a co-ordinated plan for the whole building and priorities established to determine which functions must be kept on site and which may be located elsewhere.

Comment

The Concert Hall renewal project supports and strengthens the primary use of the site as a performing arts centre. It improves accessibility to its public spaces, the Concert Hall itself, and to performers' spaces beneath the CH within the podium.

Policy 50.1 Managing the process of change – compatibility

Uses are unacceptable if they require alterations, additions and facilities that:

- *vitate the original concept of the designers of those elements of the place that are assessed as being of exceptional significance;*
- *degrade the character and quality of fabric, spaces and relationships;*
- *are likely to cause excessive wear and tear, or disfigurement, to significant fabric.*

Comment

The changes proposed this project have some negative impacts, however they do not endanger or diminish the original concepts of either Utzon or Hall for the affected spaces, or the Opera House generally. Nor do they degrade the character and quality of fabric, spaces and relationships for the affected areas.

Where negative impacts do occur, the disfigurement of significant fabric is mitigated by careful consideration of details, junctions and linings. These require further refinement and if necessary, prototyping, in the next stages of design development.

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 Concert Hall renewal project involves the removal or alteration of significant fabric. In determining the nature and configuration of each part of each project, considerable regard has been made for the significance of the fabric affected, the potential impacts on the space concerned, and the role of the particular project in supporting the broader significance of the place.

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 thus far relating to the suite of projects in this application 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 throughout 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 suite of projects proposed in this application involve some major changes that will have a high impact on significant fabric and spaces. These impacts have been assessed in this Heritage Impact Statement and this will accompany an application for approval from the relevant consent authorities.

10.4 Conclusion re CMP compliance

The suite of projects proposed in this application will affect a number of very significant parts of the Sydney Opera House. The impacts are described in detail above but are summarised here.

Spaces and elements identified as having exceptional or considerable significance that will be affected by these works are:

- To be completed

11.0 DISCUSSION OF COMPLIANCE WITH THE 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 suite of projects in this application, particularly those that are part of the technical upgrade of performance spaces, respond to this same principle.

Heavy and light

"The difference in character of the two components forming the building, the massive and imposing base, and the light and graceful shells on top of it..." (UDP page 70)

Solidity of base is important

"If you open the sides of the base to create day-light... then suddenly the base becomes an office building, and that will reduce drastically the dramatic expression of the Opera House." (UDP page 50)

Comment

The importance of the visual solidity of the podium is clearly articulated in the first quote and a warning about introducing more openings in the second quote. The scale, proportion, configuration and detail of the proposed new openings in the east wall of the podium have been guided by these principles.

Beautiful experience oriented in the harbour

"...People have a beautiful experience entering and walking up the stairs and entering the auditoria, while they are all the time oriented in the beautiful harbour and have the views of the spectacular Sydney Harbour setting." (UDP page 59)

Being in another world

"This feeling of moving upwards was a determining factor in the shaping of the large platform."

"The patrons will receive on their way to the theatre halls an impression of restful and dignified surroundings with a generous spacious layout." (UDP page 59)

Feeling detached from the city

"During intermission you remain around the auditorium and can retain the feeling of being in another world."

"After the performance the bars and lounges will present for the patrons a second opportunity to enjoy these views and will underline their feeling of being detached from the city in a world of its own." (UDP page 60)

Spans expressed by ribs and folds

"This resulted in a building where all spans are clearly expressed by ribs and folds." (UDP page 78)

Comment

These quotes describe Utzon's intended character for the foyer spaces leading to and surrounding the major auditoria.

This character in the Concert Hall side and northern foyers is retained and respected in the proposed works within these spaces.

The proposed tunnel on Level 2 of the CH eastern side foyer intrudes on the width of the stair, however the dignity of surroundings and sense of ascent is retained. It is important to note that this tunnel is very close to the location of a tunnel originally proposed by Utzon and built, albeit located on one level above, and closed over due to the program changes after his departure in 1966.

Cultural symbol

"The conception and the design of the Sydney Opera House is based on... the desire to create a building which will form a home for those activities essential to the cultural life of a big city." (UDP page 62)

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

Presentation of the performing arts is at the very heart of this building, as is the pursuit of excellence. The proposed projects in this application, particularly the accessibility projects, will allow the Opera House to pursue both these objectives and be available to a wider section of the community than it has before.

Disabled access

"For patrons unable to walk, there will be provided special elevators to take them direct to the auditorium level in the vicinity of the seating."

"A total of ten lifts will service the Opera House, each lift being carefully located for a specific purpose. Lift No.1 with landings at the 12', 30' and 42' levels has a primary function of transporting disabled persons from ground floor level to the auditorium level. (Major Hall)."

"Lift No.2 in the stage area (Minor Hall) has the primary function of carrying a total of 16 disabled persons from ground level to auditorium level with one intermediate stop." (UDP) page 69)

Comment

These Utzon quotes from 1959, describe the intended access to the auditoria for patrons with mobility issues. The change in program after his departure and the decision to close the Central Passage to the public, meant this would no longer be a front-of-house approach. The works proposed in this application are intended to address this problem for the Concert Hall and its associated foyers. These works will result in some negative impacts to significant fabric and spaces, however their location and configuration have been carefully designed to minimise these impacts. Further detail resolution should minimise them even further.

The Concert Hall 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 is not extended to those with impaired mobility, the place will be diminished and Sydney Opera House will potentially lose its

international status as a performing arts venue.

By undertaking these projects, the Opera House will demonstrate excellence, responsibility and generosity to those patrons and performers that have previously been excluded because of their impaired mobility. This responsibility and generosity was originally intended and proposed by Utzon himself.

Concrete and ply

"The walls will show the concrete as it was constructed, contrasting with the moulded plywood panels which form the components of the furniture and fixings."

"The cubicles themselves for coats and toilets are made of moulded plywood panels in contrast to the impression of severity left by the structure." (UDP page 71)

Comment

These quotes refer primarily to the character of back-of-house spaces within the podium and are from Utzon's 1959 description of his intended fitout. It is now clear that Peter Hall followed Utzon's ideas and principles in his fitout of these spaces.

The DA documentation for the proposed works in these areas demonstrates the intention to retain and respect these ideas in altered and new work. It is important that detailed resolution and documentation of these projects are carefully coordinated and resolved to a consistent language and high quality, and comply with these Utzon Design Principles and the CMP.

12.0 COMPLIANCE WITH SYDNEY LOCAL ENVIRONMENT PLAN 2012 (SYDNEY LEP 2012)

The Sydney Opera House is listed as a Heritage Item on Schedule 5 of the Sydney LEP 2012 (Item 11712). The listing includes "forecourt, seawall, platform and interiors." Before granting consent, an assessment of the impact of any proposed development is required via a 'heritage management document'. A conservation management plan is also required. (Clauses 5.10 (5) and (6) of the LEP 2012)

Section 10 of this Heritage Impact Statement assesses the proposed suite of projects in this application against the CMP 3rd edition. This accords with the heritage conservation requirements in the LEP 2012.

13.0 CONCLUSION

The Concert Hall renewal project will have significant benefits for the acoustic performance, functionality and accessibility of the Concert Hall. Many aspects of the project will greatly improve access to the CH side of the Opera House to a wider section of society – particularly those with reduced mobility, many of whom will never have experienced some of these spaces before. This is considered a very positive impact and is a major objective of the proposed works.

The impacts of the CH renewal project on the Opera House are described in detail above in this report and are summarised here with reference to the CMP 3rd edition.

Spaces and elements identified as having exceptional or considerable significance that will be affected by these works are:

- External western wall of the podium – insertion of 1 additional hooded vent opening – high but acceptable impact that should be largely unnoticed.

- CH Northern foyer – insertion of new Lifts 29 and 30 requiring the cutting of 2 of the cranked beams at both the east and west sides – high to very high impacts to form, fabric and structure, however with substantial accessibility benefits and limited visual impact on exceptionally, locally significant spaces.
- CH Northern foyer – insertion of new Lifts 29 and 30 requiring modifications to the glass walls and supporting structure at Level 4 - moderate impacts to form, fabric and structure, but with substantial accessibility benefits.
- CH Eastern side foyer – insertion of a new passageway at Level 2 requiring modification to steps and structure – minimal impact to significant structure, however high impacts to form, fabric and character, resulting in substantial and positive accessibility impacts.
- CH Eastern and Western side foyers – reconfiguration of the sidewalls of the auditorium, including relocation of entry doors to the stalls associated with the enlargement of the prompt and opposite prompt wings – moderate impact to the character of these side foyers but with substantial improvements to functionality and accessibility for the stage.
- CH auditorium and grand organ– replacement of the existing array of acrylic ‘clouds’ with new ‘petal’ reflectors – high visual impacts to the character of the auditorium, particular views to the grand organ which will be partially masked, however positive acoustic benefits for both musicians and audience.
- Concert Hall auditorium - retractable acoustic drapes – high visual impacts to the auditorium and grand organ, however as these are only required for amplified performance, they are generally considered acceptable provided drapes are fully retractable and the machinery for automation is fully concealed and silent, and the location of the drapes reflects the geometry of the interior.
- CH auditorium – new retractable sidewall reflector panels – moderate impact however positive acoustic benefits for both musicians and performers.
- CH auditorium - new brush box panels to box fronts, auditorium perimeter walls and stage surround – high fabric and visual impacts on auditorium character however positive acoustic impact. As the overall ‘geometric’ character and height datum of Hall’s design are respected, these potentially negative impacts are considered acceptable, however should be tested by insitu prototypes.
- CH seating – modifications to some seating to enable it to be removable, all seats to be re-cushioned and reupholstered – moderate but acceptable impact on seating and positive impact on accessibility.
- CH stage risers – negligible impact on significant fabric or character of the Concert Hall.
- CH stairs to choir loft – minimal impact on the character of the interior.
- CH auditorium – lighting and speaker upgrade – while the replacement of the existing intrusive lighting and speaker arrays is potentially positive, further refinement is required to ensure the replacement items do not visually clutter the space. The cumulative impacts of the lighting, speaker and acoustic reflectors should be tested in situ with full sized mock-ups.
- Bronze fittings – replacement of existing and installation of new bronze handrails to the auditorium and foyers – moderate impact, however respects and maintains use of existing palette of materials.
- CH performers’ and staff areas – some refinement is required to ensure that the affected areas incorporate Hall’s palette of materials.
- CH back-of-house lavatories, locker rooms and dressing rooms – alterations in limited areas to provide accessible dressing room and performer facilities – extent of loss of original fabric to be confirmed – new finishes should incorporate Hall’s palette of materials.

Spaces and elements identified as having some or little significance that will be affected by these works are:

- Eastern and western side foyers, brush box cladding – minor modifications where

the stage wings are extended and entry doors revised – moderate impacts to fabric however substantial improvements to functionality and accessibility for the stage.

- CH foyer light fittings – low impacts however the system will be generally retained.
- CH foyer box signs – low impact however the red and green colour is to be retained.
- CH backstage area – reconfiguration of the backstage areas – high impacts to original fabric however with substantial improvements to functionality and accessibility.
- Steel structural support for CH ceiling – substantially retained however minor modifications required for additional strengthening – low impact
- CH lighting control and projection rooms – upgrading of the technical zone and provision on new winch room located over the ceiling crown – low impact although care is required in the repair and reconfiguration of penetrations in to the white birch ceiling.
- Service areas beneath the CH – most areas remain unaffected, however in affected areas it will be important to continue the Hall design regime of simple finishes.

It will be very important that all details throughout this project are carefully coordinated and resolved to a consistent language and very high quality, and comply with the Utzon Design Principles and the CMP. These are being reviewed during the detail design development stage by means of regular 'design consistency' workshops, attended by the SOH heritage architect and members of the Eminent Architects Panel and Conservation Council. All details should be finalised with their approval.

These include:

- the expression and treatment of cuts through the stepped podium surface, stairs and beams in the side and northern foyers
- visual impact of new 'petal' acoustic reflectors, lighting and speaker arrays and brush box acoustic panels, to be tested in situ with full size mock-ups.
- detail resolution of the retractable sidewall horizontal reflector panels to ensure minimal visual interruption to the existing white birch plywood;
- detail resolution of the acoustic drapes including their colour and patterning, location to respect the geometry of the interior, and to ensure they are fully retractable and operated by concealed machinery;
- detail expression of materials and finishes;
- resolution of back-of-house finishes to reflect Hall's original palette of materials;
- detail resolution of lifts;
- resolution of handrail, balustrade and guardrail details;
- consistent application of these details across the site.

It should be noted that as documented, the suite of proposed projects are generally consistent with the Utzon Design Principles, and the intent of the policies in the CMP.

The design of each aspect carefully considers the potential impacts when they were first explored in the process of compiling the SOH Accessibility Master Plan. As now proposed and documented they offer the least negative impact, but it is still essential that all details and configurations be refined and tested with full size mock-ups to ensure and confirm the best outcome as part of the detail development and documentation process before works proceed.

In conclusion it is our assessment of the Concert Hall Renewal Project in this proposal, that the negative impacts on fabric and spaces at the Opera House identified in this assessment should not threaten or diminish the outstanding universal values that underpin its World Heritage Listing.

These impacts are high on the fabric of the Concert Hall Auditorium and foyer spaces, but should not substantially affect the Opera House's national or state heritage values. However, because these impacts affect spaces and fabric of exceptional / considerable significance, it is our recommendation that a referral to the Commonwealth Government under the EPBC Act should be made.

This project will enhance the patron experience, and performance and operational capability of the Sydney Opera House to continue to host and celebrate world standard performance art. In this respect this proposal will help sustain the iconic international standing of this Opera House.

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Design 5 – Architects

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