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Dear Karl

RE: Response to Exhibition of Sydney Opera House (SOH) Building Renewal Program – Concert Hall Upgrade and new Creative Learning Centre (SSD 8663)

I refer to your correspondence received on 29 October 2018 inviting the Heritage Council of NSW to provide comments on the Environmental Impact Statement (EIS) for this component of the SOH Building Renewal project:

Concert Hall

- Acoustic upgrades including reflectors, speakers and wall fabric;
- Accessibility upgrades to front and back of house including provision of new lifts and passageway through stairs surrounding the Hall;
- Functional upgrades including to mechanical and back of stage area.

Creative Learning Centre

- Re-purposing of existing office space within the north-western corner of the SOH to a Creative Learning Centre

Our response is provided in the report provided at Attachment A. Part 1 of the report provides the comments and recommendations of the Heritage Council of NSW on the assessment of the project's impacts on the SOH State heritage values, as discussed and resolved at its meeting on 6 February 2019. Part 2 of the report provides the Heritage Division's assessment of the National Matters of Environmental Significance for World and National heritage values in accordance with the *Environment Protection Biodiversity and Conservation Act 1999*, as requested by DPE.

Should you have any queries, please contact David Nix, Senior Heritage Officer, at the Heritage Division on (02) 9895 6523 or at david.nix@environment.nsw.gov.au.

Yours sincerely

Pauline McKenzie
Heritage Division Office of Environment and Heritage
As Delegate of the Heritage Council of NSW
20 February 2019

ATTACHMENT A: SYDNEY OPERA HOUSE BUILDING RENEWAL PROGRAM

CONCERT HALL & CREATIVE LEARNING CENTRE HERITAGE ASSESSMENT

1.0 INTRODUCTION

- 1.1 The Sydney Opera House (SOH) submitted a State Significant Development Application (SSD) for 'The Concert Hall and Creative Learning Centre' which is the next stage of its Building Renewal Program. This SSD application requires the Heritage Council of NSW assessment of the project's impacts on the SOH State heritage values. The Council's assessment, including comments and advice on recommendations of conditions, is provided in Part 1 of this report.
- 1.2 The Commonwealth Department of Environment and Energy (DEE) has determined that these works are a controlled action under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). As instructed by the Department of Planning and Environment (DPE), and in addition to the Heritage Council's SSD response assessing works against the State values, an assessment considering the following relevant National Matters of Environmental Significance has been undertaken by the Heritage Division on behalf of DPE.
- World heritage values (sections 12 and 12A of the EPBC Act)
 - National heritage values (sections 15B and 15C of the EPBC Act)
- The Heritage Division's assessment of World and National heritage values is provided in Part 2 of this report.

PART 1 – HERITAGE COUNCIL OF NSW ASSESSMENT, COMMENTS AND RECOMMENDATIONS

2.0 ASSESSMENT PROCESS

- 2.1 In 2003, the SOH was included on the State Heritage Register SHR No. 01685. The Statement of Significance states:

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 Jorn 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 SOH 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 SOH 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 SOH has been the scene of many notable achievements in the performing arts and has associations with many nationally and internationally renowned artistic performers. The SOH provides an outstanding visual, cultural and tourist focal point for Sydney and Australia.

- 2.2 On 6 February 2019, the Heritage Council of NSW, discussed and resolved the following assessment of the project's impacts on the SOH State heritage values. The Council also endorsed comments and recommendations at this meeting.
- 2.3 The State heritage values have been listed below. The values that will be impacted by the proposed works have also been identified.
 - **Historical** significance as a modern architectural masterpiece, recognised internationally as a symbol of Sydney and Australia, and created throughout many years of creative and financial controversy
 - **Associative** significance for its many associations with people prominent in NSW's history (impacted)
 - **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 setting and the picturesque quality of the setting (impacted)
 - **Social** significance as an internationally recognised symbol of Sydney
 - **Research** potential as an internationally recognised icon of modern architecture
 - **Rarity** as a twentieth century architectural masterpiece
 - **Representativeness** for being an internationally recognised building representative of major performance arts centres
- 2.4 This assessment has been divided into four sections
 - Concert Hall Accessibility works (Section 3.0)
 - Acoustic Upgrades (Section 4.0)
 - Functional Upgrades (Section 5.0)
 - Creative Learning Centre (Section 6.0)
- 2.5 The key issues include:
 - Visual and physical impacts to significant spaces;
 - Physical impacts to significant fabric; and,
 - Alteration of historical access arrangements and usage of areas.
- 2.6 The basis for the assessment is informed by the endorsed conservation management plan (CMP) policies; The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013, in particular Article 5.1 - '*Conservation of a place should identify and take into consideration all aspects of cultural and natural significance without unwarranted emphasis on any one value at the expense of others*'; and the *Sydney Opera House Concert Hall and Creative Learning Centre Renewal Projects* Heritage Impact Statement (HIS), prepared by Design 5.

3.0 CONCERT HALL ACCESSIBILITY PROJECTS

3.1 The proposed works for this component of the project will affect the significance of the SOH and impact the following State heritage values:

- Associative Significance; and,
- Aesthetic Significance.

These values are addressed within this assessment, which is also informed by the endorsed conservation management plan (CMP) policies, and the *Sydney Opera House Concert Hall and Creative Learning Centre Renewal Projects Heritage Impact Statement (HIS)*, prepared by Design 5.

Eastern Passageway connecting Southern Foyer to Northern Foyer

Applicant position

3.2 The *Sydney Opera House Concert Hall and Creative Learning Centre Renewal Projects Heritage Impact Statement (HIS)*, prepared by Design 5 and submitted with the application, states that the proposed insertion of the Level 2 passageway within the eastern side foyer will have high physical and visual impacts on the stepped podium, and the generosity of its stair width. It notes however, that the functionality of the space will be improved and will enhance accessibility to all public spaces of the SOH. It also notes that Utzon's original concept was to have passages on both sides of the two main auditoria, with lifts in the Northern Foyers to deal with access and the submission points to the structure, with these passages surviving beneath the grand stairs in the side foyers at level 3.

Heritage Council assessment

Setting, Views and vistas

Location

- 3.3 Whilst there is physical evidence of Utzon's original passageways at level 3, there is no evidence of any passageway at level 2, where the current works are proposed.
- 3.4 The new passageway entrance is proposed to be located centrally within the eastern foyer stairs. It is noted that the passageway is only proposed on one side of the Concert Hall (eastern), with no works occurring on the western side foyer stairs (apart from new handrails). The proposed location of the passageway entry has high visual impacts as it divides the distinctive broad sweep of stairs which step around the Concert Hall. It also narrows the stair access either side of the passageway and diminishes the grandeur of the space as patrons ascend around the Concert Hall.
- 3.5 However, locating the passageway centrally with the retention of stairs either side, will still allow for the staircase to be read as an extension of the external stepped podium. The proposed location of the passageway also provides an easily identified path of travel. This complies with Utzon's design principle of a *simple, easily understood tour for each member of the audience, from the entrance to his or her seat and out again*.
- 3.6 Of the options explored, the proposed location of the passageway entry is visually the most acceptable as it allows the existing configuration of the staircase to be understood, although it is a significant aesthetic impact which results in loss of intact original fabric.

Height

- 3.7 The passageway entry is limited to the one flight of stairs. The height of the passageway is restricted due to the existing structure of the stairs. This constraint

enables the full width of the top four stair risers to be retained and allows the existing stair configuration to be understood.

Spatial

- 3.8 The proposed passageway will also have an adverse impact on the spatial qualities of the side foyer by diminishing the form and generosity of the staircase width at level 2. However, the overall majestic qualities of the side foyer space dominated by the soaring concrete ribs above, will not be affected by the works.

Design/ Materials

- 3.9 The proposed passageway connecting to the 'Caves' area of the Northern Foyer adopts Utzon and Hall's palette of floor materials. Precast granite paving panels will be used within the tunnel to match the existing floor surface of the Eastern Foyer, and where the tunnel fans out into the Northern Foyer, carpet is proposed to be used to match the finish in the Foyer.
- 3.10 The design introduces prefabricated bronze panel elements in a stepped configuration to clad the full length of the eastern wall of the new passage. Whilst the wall configuration reflects the brush box panel cladding of the auditorium in the side foyer above, the use of the bronze material introduces a new design aesthetic to the space. The recent passageway provided to the JST side foyer utilises concrete and timber which is more consistent with the palette of materials used throughout the SOH, and which is also more visually recessive. The extensive use of the bronze panelling in this area is not appropriate and should be reconsidered to better align with the consistent palette of materials of the SOH. The panelling should be more visually recessive.
- 3.11 It is proposed to maintain the existing concrete wall on the western side of the passageway. This wall will be hidden behind a full height dark curtain to retain access to a service room behind. The use of the curtain is acceptable as it utilises a discrete material and will allow the continued operation of the space.
- 3.12 Bronze panelling is also proposed for the western side of the passageway entry. This should be revised to match an alternative wall cladding to be chosen for the eastern wall.
- 3.13 Recessed lighting along the passageway is similar in design to the passageway in the JST eastern foyer. This is considered acceptable.

Fabric

- 3.14 The proposed works will have an adverse impact on significant form, fabric and structure in this area. The installation of the passageway requires removal of a series of precast granite plank steps and concrete structure below, which will result in a major physical intervention. The steps will be removed in whole lengths (at the expansion joints) and new precast granite steps are proposed to be installed to have finished edges at the junction of the new passageway and the staircase.
- 3.15 Any new steps installed must match the existing in both form, finish and colour. This should be determined in consultation with the nominated heritage consultant working closely with an experienced precast concrete craftsman to ensure colour and form are matching.
- 3.16 The proposed works also involve new concrete finishes. A site visit undertaken by the Heritage Division in January 2019 noted similar works in the JST Side Foyer passageway which were patchy, and the concrete colour mismatched. For some heritage places, it could be argued that the difference in colour identifies new works. However, given that the high-quality finish and detailing in the SOH are integral to its significance, new works must be matched by equal high-quality craftsmanship to ensure the new works are seamlessly integrated into the design. Therefore, any new

concrete elements proposed must match the existing in both form and finish. This should be determined in consultation with the nominated heritage consultant working closely with an experienced concrete expert to ensure seamless consistency.

Recommendations

- 3.17 The following condition is included in the HIS, *the use of bronze panelling on the southern wall in the Caves area (Level 2) should be tested and reviewed once the other walls are stripped back, by the Opera House's Conservation Council, Eminent Architects Panel and heritage architect, to determine its appropriateness (Pg104)*. However, the extensive use of bronze panelling within the passageway introduces a new design aesthetic to the space. A panelling treatment consistent with existing panelling used within the SOH should be proposed in consultation with the Heritage Council to ensure the 'natural' visually recessive palette of materials and colours is retained and respected.
- 3.18 Any new steps installed must match the existing in both form and finish. This should be determined in consultation with the nominated heritage consultant working closely with an experienced precast concrete craftsperson to ensure colour and form are matching. Removed fabric should be retained, modified and reused where possible.
- 3.19 Any new elements proposed, including concrete finishes, must match the existing in both form and finish. This should be determined in consultation with the nominated heritage consultant working closely with an experienced concrete expert to ensure seamless consistency, to the satisfaction of a Heritage Council delegate.

Relocation of existing plantroom/ Western podium façade exhaust hood

Applicant position

- 3.20 The HIS states the modification of the podium concrete structure to accommodate a new hooded opening for a new vent on the western side will have minimal impact on significant structure as it is confined to a relatively small penetration to the outer wall of the podium and will be constructed to match the configuration, materials and detail of other original hooded openings. It also notes the relocation of the existing plantroom from the eastern side of the podium to the western side will have a low impact.

Heritage Council assessment

Setting, Views and vistas

Location

- 3.21 The proposed new penetration into the western façade of the podium to provide a new external exhaust hood opening will have an adverse impact on the solidity of the exceptionally significant podium structure in one of the most highly visible areas. Whilst a number of similar hooded openings are located on the western façade, the area of the proposed opening is within a large area of uninterrupted panels. In addition, this proposed hood is a cumulative impact which will adversely affect the dominant, solid, dramatically rampart/ shear wall. The effect includes the resulting shadow as well as the hood itself.
- 3.22 It is understood that the existing hood opening adjacent is unable to be utilised for the purposes of exhaust as this is for air intake. However, it is unclear why the proposed opening is three panels wide whereas the existing opening on the eastern side is only two panels wide. In addition, it is unclear if the location of the air exhaust adjacent to the air intake vents is acceptable and whether other locations were considered.

Fabric – Physical/Visual

- 3.23 The proposed works involve the removal and replacement of three precast granite panels and penetration into the existing external concrete wall. This is a major intervention into significant fabric.
- 3.24 The relocation of the existing plantroom and the resultant demolition of several internal walls and reconfiguration of back of house spaces is acceptable.
- 3.25 The works also involve the removal and replacement of mechanical machinery/equipment. It is unclear whether the significance of this equipment has been assessed and thus the impact of removal and replacement has not been determined.

Recommendations

- 3.26 The Heritage Council does not support the design, location and size of the new mechanical exhaust hooded opening. Ventilation requirements should be reviewed to determine if alternative routes and outlets are feasible including utilisation of existing slots and hoods within the podium. This should be further reviewed in consultation with the Heritage Council to assess the appropriateness of this major intervention into the exceptionally significant podium wall.
- 3.27 Further research is required to assess the significance of the mechanical equipment and machinery prior to removal. This should be done by an appropriately qualified expert in consultation with the nominated heritage advisor. The results of this assessment should be considered by the Heritage Council prior to determination on relocation of the equipment and machinery.

Additional handrails to eastern and western foyer stairs

Applicant position

- 3.28 The HIS states that these additional handrails will have a moderate visual impact. They are a simple open element using bronze and detailed consistent with handrails around the site. The submission does however note that this handrail is not required by the code or DDA, but that with the ageing demographic of SOH patrons, it will make these stairs easier to negotiate.

Heritage Council assessment

Setting, Views and vistas

Location

- 3.29 The installation of the proposed handrail for the full length of the stairs (centrally located) will have a visual impact on the openness of the stairway as it will add additional clutter, and it will diminish the grandeur of the space as patrons ascend around the Concert Hall by dividing the volume.

Design/ Materials

- 3.30 The proposed handrails are a simple bronze rail with open balustrade. Due to the openness of the handrail, the element will have a limited visual impact on the space. A *Bronze Kit of Parts* has been developed to be implemented across all the public spaces affected by the SOH Building Renewal Projects. The handrails are consistent with this document.

Spatial

- 3.31 The proposed handrails will also have an impact on the spatial qualities of the Side Foyer by dividing the form and generosity of the staircase width. However, the overall majestic qualities of the side foyer space dominated by the soaring concrete ribs above, will not be affected by the works.

Fabric – Physical/Visual

- 3.32 The proposed works will require intervention to several existing precast granite stair treads to install the posts for the handrail. It is unclear how the posts will be installed and what impacts this will have on existing fabric. Further detail is required to understand the impact of the installation.

Recommendations

- 3.33 The provision of handrails in these locations is supported. Further information must be provided regarding the installation of the handrails and the impacts to precast granite stair treads to ensure impacts can be adequately assessed.
- 3.34 The Heritage Council has noted a diversity of handrails being installed throughout upgrade projects and therefore recommends that the original 'D' shaped profile be consistent throughout the building and supplemented where necessary with appropriate compliant handrail attachments. This should inform the consolidation of the standard kit of parts.

New lifts in Northern Foyers

Applicant position

- 3.35 The HIS states that the lifts are based on original Utzon concepts to address accessibility in these spaces. It acknowledges that the insertion of lifts will have high impacts on the broad sweep of stairs and cranked concrete beams at each end of the Northern Foyer and Caves below. It notes that careful consideration has been given to the proposed location and detail of the lifts, including the adoption of Utzon and Hall's palette of materials. This is assessed as lessening their overall impact on the aesthetic qualities of these spaces. In addition, it suggests these impacts are acceptable when balanced against the substantial improvement in accessibility achieved to better enable patrons to attend and appreciate the performances.

Heritage Council assessment

This assessment applies to both the proposed eastern and western lifts within the Northern Foyer. The proposed lift's design is a mirror image of each other and therefore impacts discussed apply equally to both locations.

Setting, Views and vistas

Location

- 3.36 New lifts are proposed for both the eastern and western side of the Northern Foyers (unlike similar work in the JST Northern Foyer where one lift was located on the western side). The lifts are proposed to be located towards the outer edges of the Northern Foyer. This reduces the visual impact within the space as it locates the lift towards the end of the broad sweep of steps (level 2 and 3) and within a gap between the external walls (external void area level 4) which will largely be hidden behind the projecting glazing of the Northern Foyer. However, the proposed western lift will be more visible than the eastern lift when viewed externally due to the visual accessibility of the western side of the SOH.
- 3.37 Of the options explored, the proposed location of the lifts within the Northern Foyer is the most acceptable due to the limited visual impact. However, it is unclear why both lifts are necessary. Further justification should be provided outlining the need for two lifts within the space, in particular the western lift as this will result in a higher cumulative impact of the space. It is acknowledged that the lifts serve accessible seating in the Concert Hall, however, it is unclear whether the required accessible seating and amenity could be provided with a single lift.

- 3.38 The location of the splayed lift access at Level 3a hard up against the glazing line interrupts the horizontal continuity of the precast granite stairs. The stairs currently read as an extension of the external stepped podium. This is an essential part of these stairs and should be retained and respected as much as possible. However, the splaying of the lift access does allow a larger area of useable staircase to be retained. This is in contrast to recent work in the JST Northern Foyer, which aligned the lift access perpendicular to the lift. This resulted in an area of unusable triangular staircase being retained. The proposed splayed lift access is considered preferable in this case.

Height

- 3.39 The lifts have been designed to limit the height of the shaft with lift gear located to the side. The lifts are proposed to sit below the existing glazed roof which spans over this area. This is acceptable as it will allow the full height of the existing space to be understood and appreciated.

Spatial

- 3.40 The proposed lifts will have an adverse impact on the spatial qualities of the Northern Foyers, in particular levels 3 and 3a by diminishing the form and generosity of the staircase widths, and impacting the distinctive rhythm of the concrete roof cranked beams.
- 3.41 At level 4, the spatial qualities are less impacted due to the location of the lifts between the external walls, and the height which stops below the existing glazing line allowing the majestic qualities of the space to still be appreciated.

Design/Materials

- 3.42 The proposed materials at level 4 match the existing materials palette (glass and bronze framing) of the space. At this level, the lift shaft is proposed to be glazed to match the existing external glazing. This will limit interruption of views to the harbour from Level 4.
- 3.43 The lower levels are proposed to be solid walls clad in bronze. Due to the size of the lift and the structure required, the internal lift shaft is proposed to be constructed of concrete. The solidity of the lifts on these levels will impact the views to, and connection of the space with, the harbour, in particular level 3a. The use of bronze cladding for the lift shaft, as well as walls within the Caves area introduces a new design aesthetic. The use of the bronze panelling should be reviewed to determine its appropriateness and to better respect and align with the consistent 'natural' palette of materials of the SOH, and to be less visually dominant.

Fabric – Physical/Visual

- 3.44 The proposed works will have an adverse impact on significant form, fabric and structure in this area. The installation of the lifts requires cutting and modifying of the dominant cranked concrete beams and removal of large sweeps of stairs and precast panel flooring. The works also require alteration of the existing external façade glazing at level 4.
- 3.45 It is understood that due to the splayed access to the lift at level 4, six cranked beams will be impacted by the works. However, it is unclear why the same number of cranked beams at level 3 are required to be impacted when access to the lift at this level is aligned perpendicular to the lift.
- 3.46 Similarly, the plans show full sweeps of concrete steps being demolished and replaced. It is recommended that the extent of demolition is reviewed and reduced to ensure that as much original fabric is retained in situ as possible. In addition, any new steps installed must match the existing in both form and finish. This should be

determined in consultation with the nominated heritage consultant working closely with an experienced craftsperson to ensure colour and form matching.

- 3.47 The lift shafts are proposed to be aligned with the cranked beams. This will minimise additional physical impacts to the cranked beams and will assist in mitigating visual interruption of the full sweep of the beams. However, the proposed detail to extend two beams to the new lift disrupts the aesthetics of the distinctive bend line of the cranked beams. It is recommended that this detail be revisited to better integrate the beams within the existing significant design aesthetic. Modifications to beams below should retain and respect the line of the primary crank points.
- 3.48 In addition, any new concrete elements proposed including beams and stair hobs, must match the existing in finish. Again, this should be determined in consultation with the nominated heritage consultant working closely with an experienced craftsperson to ensure colour matching. As noted above, a site visit undertaken by Heritage Division staff in January 2019 noted similar works in the JST Northern Foyers which were patchy, and the concrete colour mismatched. For some heritage places, it could be argued that the difference in colour identifies new works. However, given the high-quality finish and detailing in the SOH are integral to its significance, the new works must be matched by equal high-quality craftsmanship to ensure the new works are seamlessly integrated into the design.
- 3.49 The modifications to the existing external façade glazing at level 4 for the insertion of the lifts will impact significant fabric. However, the modified area is confined to the ends of the glass wall which are relatively concealed by the shell and the projecting Northern Foyer glazing. In addition, the works will require only minimal additional intrusion into the foyer space and minor changes to the steel structure. Therefore, the modification of this element to locate the lifts in this area is considered acceptable.

Recommendations

- 3.50 The Heritage Council is supportive of equitable access, but this must be balanced against respecting the heritage values of the place. Further justification should be provided outlining whether DDA compliance can be adequately met with the provision of one lift only. The cumulative impacts of installing a second lift would need to consider the necessity of the lift against alternative operating methods and/or routes within the Concert Hall at Level 4a only.
- 3.51 The extent of demolition within the Northern Foyers must be reviewed and reduced to ensure that as much original fabric is retained in situ as possible.
- 3.52 Any new steps installed must match the existing in both form and finish. This should be determined in consultation with the nominated heritage consultant working closely with an experienced precast concrete craftsperson to ensure colour and form matching to the satisfaction of a Heritage Council representative.
- 3.53 The Heritage Council acknowledges the need for the intervention to the cranked beams to provide lift access. The proposed detail of the extension of the cranked beams to the new lift should be reviewed and revised to minimise visual impacts to ensure the new works do not disrupt the aesthetic qualities of the distinctive line of crank points in the beams.
- 3.54 Any new concrete elements proposed including beams and stair hobs, must match the existing in high quality finish. This should be determined in consultation with the nominated heritage consultant working closely with an experienced concrete expert to ensure seamless consistency to the satisfaction of a Heritage Council representative. It will be a requirement of the s60 approval and certification.
- 3.55 In addition to the following condition recommended in the HIS, *the use of bronze panelling on the southern wall in the Caves area (Level 2) should be tested and reviewed once the other walls are stripped back, by the Opera House's Conservation*

Council, Eminent Architects Panel and heritage architect, to determine its appropriateness (Pg104), the extensive use of bronze panelling should also be reviewed to ensure it is consistent with existing panelling used within the SOH. This should be undertaken in consultation with a Heritage Council representative to ensure the 'natural' visually recessive palette of materials and colours is retained and respected.

Toilet upgrades (Northern Foyers)

Applicant position

- 3.56 The HIS states that the design of the new accessible toilets is acceptable as they are consistent with the fit out and finishes of the adjacent original toilet fit outs and will enhance facilities for people with mobility impairments.

Heritage Council assessment

Setting, Views and vistas

Location

- 3.57 The location for the proposed accessible toilet facilities is acceptable as it utilises the existing circulation area for public toilets and respects Hall's geometry and set out of the facilities.

Spatial

- 3.58 The proposed accessible toilet facilities will not significantly impact the spatial qualities of this area as works are limited to an existing circulation space for the toilet facilities and do not interrupt the cranked concrete beams. Therefore, the positioning is acceptable.

Fabric – Physical/Visual

- 3.59 The proposed works will require the removal of an existing column and part of one wall at the entry to the vestibule area to provide a compliant width for entry to the toilet facilities. A new column aligned along the existing wall line will replace the existing column and part wall. This modification is acceptable as it will retain the existing configuration of the space. However, the new column should match the finish of the existing column.
- 3.60 Separate to the accessible toilet works, the plans also indicate the removal of two WCs within the female toilet area to locate a mechanical duct. It is unclear why this is necessary as it results in the diminishing of an unaffected original space.

Recommendations

- 3.61 The removal of two WCs within the female amenities to provide a mechanical duct should be reviewed and reconsidered in consultation with a representative of the Heritage Council to ensure an original Peter Hall space is not unnecessarily impacted. In addition, the number of original Peter Hall public toilet facilities within the SOH should be identified to better understand the cumulative impacts of the proposed works on original Peter Hall spaces.

Accessibility upgrades to Seating/ Dressing rooms

Applicant position

- 3.62 The HIS states that the accessibility upgrade works will considerably enhance the functionality and code compliance of the Concert Hall, thereby catering for a wider range of performance types and ensuring it continues to be used as a major concert venue. In addition, it states that alterations to the Back-of-House performers' areas, including dressing rooms, toilets, corridors and assembly rooms, to improve access and functionality, will generally have minimal heritage impact. It notes the works are confined to discrete areas and will continue the existing Hall regime of materials, fittings and finishes as closely as requirements permit, in accordance with CMP policies.

Heritage Council assessment

Setting, Views and vistas

- 3.63 The proposed changes to the Concert Hall's interior includes the provision of additional accessibility seating. This involves the modification of a number of rows of existing seating to install provisions for wheelchair accessible seating. This seating configuration can be installed and removed as necessary. The changes will maintain a consistent language in terms of materiality and fabric and are considered acceptable.
- 3.64 The modifications to the dressing rooms are confined to existing dressing room spaces. No alterations are proposed outside of these spaces with the exception of widening of access doors. This will not significantly alter the aesthetic values of these spaces.
- 3.65 Internally, the proposed works will maintain a consistent language in terms of materiality and fabric and are considered acceptable.

Fabric

- 3.66 The works to upgrade the dressing rooms involve the reconfiguration of dressing room spaces and include the demolition of several walls to make the spaces DDA compliant. Existing doors are proposed to be retained and where possible reused. However, all wall fixtures and finishes including hand basins and WC's are proposed to be demolished. The significance of these elements should be assessed in situ prior to works being undertaken to ensure they are appropriately handled.
- 3.67 Three original dressing room facilities with their Peter Hall fit out are affected by the proposed works. New finishes reflect Hall's original palette of materials in terms of materiality and fabric which will lessen the impact and are considered acceptable. However, further details regarding the number of original Peter Hall dressing rooms remaining unaffected should be provided to better understand the cumulative impacts of the proposed works on original Peter Hall spaces.

Recommendations

- 3.68 The recommendation within the HIS (p 87) should be adopted. *Original fittings, including white birch plywood lockers and dressing room fitouts are important components in Peter Hall's fitout of the Podium. They should be retained and wherever possible, reused and incorporated into new areas to retain the consistency of his design regime in accordance with the CMP. This was done when the Orchestra Assembly Room was created in 1998 / 99 and should continue.*
- 3.69 Further assessment of the wall fixtures and finishes including hand basins and WC's proposed to be demolished as part of the dressing room upgrades should be undertaken to determine the significance of the elements. Should elements be identified as significant, they should be retained, reused and incorporated into new areas to retain the consistency of the design aesthetic in accordance with the CMP.

In addition, the number of original Peter Hall dressing room facilities within the SOH should be identified to better understand the cumulative impacts of the proposed works on original Peter Hall spaces.

4.0 ACOUSTIC UPGRADES

4.1 The proposed works for this component of the project will affect the significance of the SOH and impact the following State Heritage Values:

- Associative Significance; and,
- Aesthetic Significance.

These values are addressed within this assessment.

Acoustic Reflectors

Applicant position

4.2 The HIS states that the over-stage reflectors will have a high visual impact to the space by partially masking views towards the grand organ and the drama of the faceted ceiling above, including the central crown element (in particular from the stalls and the front of the circle) but that the works will improve the Concert Hall acoustics. The HIS notes the geometry and the colour of the over stage reflectors will allow these new elements to be read as separate to the existing structure. It recommends that a high gloss or matte finish should be avoided and that a sample of the significant over stage reflector is retained and archived as part of the SOH collection.

Heritage Council assessment

Setting, Views and vistas

- 4.3 The proposed reflectors are larger, and solid, compared with the existing reflectors and the arrangement of these new elements is denser than the existing. This will have a high visual impact by masking views towards the grand organ which is the focal point of the space and will impact on the drama of the faceted ceiling above, in particular the central crown element. The new elements will also increase visual clutter within the space.
- 4.4 It is understood that the height and angle of the over stage reflectors can be adjusted within the space depending on performance requirements. However, it is unclear what position the reflectors will occupy at a 'resting' stage. Further details should be provided to clearly show that direct vision of the organ and pipes ensemble, the folded and domed ceiling forms and the timber finishes, which are significant Peter Hall design elements, are visible at rest stage.
- 4.5 The new reflectors are proposed to be coloured magenta. Whilst this will have a high visual impact within the space, the colour will visually separate and contrast with the suspended elements from the radiating geometry of the white birch plywood ceiling. This will allow the Peter Hall elements to be clearly discerned. In addition, the colour reflects Hall's original colour palette for the space. These elements will be able to be removed easily in the future should acoustic technology advancements allow. Therefore, these elements are acceptable provided the details are provided for 'at rest' stage indicating direct vision to the significant elements within the space is still achieved.
- 4.6 The removal of the existing over stage reflectors will have a visual impact on the space. The reflectors are prominent, distinctive iconic elements and their removal will also result in the loss of original fabric. It is therefore recommended that in addition to retaining a sample for archiving in the SOH collection, that the remaining reflectors

are meaningfully used as a set that is publicly accessible in a way to interpret the story of change to the SOH.

- 4.7 The side wall reflectors will have a high visual impact when they are in use by interrupting the visual continuity of Hall's vertical faceted ceiling panels. However, they will have less of a visual impact than the over stage reflectors, as they are automated and will fold into the side wall of the ceiling when not in use. The noted visual impacts of these elements are therefore acceptable.

Spatial

- 4.8 The proposed reflectors will have an adverse impact on the spatial qualities of the Concert Hall due to the increase in visual clutter and the obscuring of the focal points of the space, in particular the grand organ. In addition, the existing reflectors are light, transparent elements within the space and their replacement with larger and more solid elements will diminish the grandeur of the space.

Fabric – Physical

- 4.9 The proposed over stage reflectors will not result in any major physical impacts to the space, with the exception of the removal of the existing over-stage reflectors. However, the side wall reflectors will require works to the significant white birch ceiling which will have an adverse impact on significant fabric in this area.

Recommendations

- 4.10 The Heritage Council seeks the best possible balance between acoustic performance and aesthetic values and qualities of the SOH for the community as a whole. Therefore, further details should be provided to clearly show that direct vision of the organ and pipes ensemble, the folded and domed ceiling forms and the timber finishes, which are significant Peter Hall design elements, are visible when the Concert Hall is at rest stage.

- 4.11 The following recommended condition relating to the over-stage reflectors within the HIS (p 106) should be adopted.
- *Before manufacture of the final reflectors, the final colour and finish is prototyped in situ in the Concert Hall and approved by the Opera House's Conservation Council, Eminent Architects Panel, and heritage architect.*

The final detailed design should be resolved in consultation with a representative of the Heritage Council as part of the Section 60 application.

- 4.12 The following recommended condition relating to the existing over-stage reflectors within the HIS (p 106) should be adopted.
- *An original acrylic cloud reflector in good condition is identified and archived as part of the Opera House's collection.*

In addition, it is recommended that the remaining reflectors are meaningfully used in a way that is publicly accessible to relay the story of change to the SOH. This should be undertaken in consultation with a representative of the Heritage Council.

- 4.13 The following recommended condition relating to the existing side wall reflectors within the HIS (p 106) should be adopted.
- *Before commencement of works on the plywood ceiling, the process and methodology for dismantling a full panel, cutting out, construction, and operation of these retractable side reflector panels, is tested via a full size operational prototype.*
 - *The existing white birch panels are retained and reinstated in their original locations, and not replaced with new as these are book and end-matched from a single log with panels above.*
 - *Cuts across an original sheet junction are avoided wherever possible, and where this is not possible, the sheet junction is retained in its existing location.*

- *There is minimal visual interruption of existing white birch plywood, and preferably, the cut-out section to accommodate the reflector is used as the face of the new reflector to ensure it matches.*
- *Reflector panels are fully retracted and the original plywood surface finishes flush with the existing plywood when reflector panel is not required.*

The final detailed design is to be resolved and approved by the Opera House's Conservation Council, Eminent Architects Panel, heritage architect and a heritage council representative. To be resolved as part of the Section 60 stage application.

- 4.14 It is recommended that the automated settings for the Concert Hall include an 'at rest' setting which results in the new acoustic and amplified equipment being hidden as much as possible to allow an audience or tour visitor to appreciate the Concert Hall in as original as possible state. The details of this setting mode and when it will be available are to be resolved with a Heritage Council representative as part of the Section 60 stage application.
- 4.15 The new acoustic reflectors should be designed to be as reversible as possible and able to be removed easily in the future to foreshadow acoustic technology advancements.

Panelled Box Fronts

Applicant position

- 4.16 The HIS states that these works will have high physical impacts with the loss of much of the significant 1973 wall fabric and the more recent 2011 fabric. However, it states that these works are considered acceptable as they will not greatly alter the character of the Concert Hall. It notes that the new panelling respects the original material of the auditorium by continued use of glue laminated brush box and will result in improved acoustic benefits.

Heritage Council Assessment

Setting, Views and vistas

- 4.17 The proposed 'wave' surface profile introduces a strong visual pattern into what is presently a relatively 'quiet' flat timber backdrop. The original sawtooth profile box fronts were replaced with flat panels in the same material in late 2011. The new panelling, whilst a different form, utilises the same laminated brush box timber as Hall's design.
- 4.18 It is understood that the new panels will not be installed on every wall surface of the Concert Hall, with areas of flat box front being retained. However, it remains unclear if any saw tooth box front is to be retained. Further confirmation is required to understand what extent of significant 1973 fabric is proposed to remain.

Fabric – Physical

- 4.19 The proposed works will have a major impact on significant fabric in the Concert Hall as it requires the removal of original Hall components. Any component of the new acoustic solution should be flexible, reversible and able to respond to new technologies as they emerge. This should include the option of reinstatement of original fabric and the uncluttered experience of the space. It is therefore recommended that new acoustic finishes or amended surfaces should overlay original material and forms. This may enable original forms and surfaces to be exposed once more at a later date. This also aligns with the CMP Tolerance for Change table which notes that reversibility is important.
- 4.20 The works also require the removal of the original tapered bronze guard rails surrounding the boxes. This is not supported.

Recommendations

- 4.21 The following recommended condition relating to the laminated brush box panels within the HIS (p 105) should be adopted.
- *A full panel size prototype or mock-up of the laminated brush box diffusion panel should be tested in situ and the pattern refined if required. This mock-up test is presently planned for November 2018.*
- The final detailed design should be resolved in consultation with a representative of the Heritage Council to be issued as part of the Section 60 stage application.
- 4.22 The following recommended condition relating to the tapered bronze guard rails within the HIS (p 105) should be adopted, with the highlighted change (strikeout).
- *The original tapered bronze guard-rails surrounding the boxes and the front of the circle should, if possible, be retained.*
- 4.23 The proposed new box fronts should overlay original material and forms to enable the reinstatement of original fabric and the uncluttered experience of the space should new technologies emerge.
- 4.24 The extent of removal of box fronts should be clarified to ensure representative samples of all types of 1973 box fronts are retained in situ. The proposed new box fronts should only be supported if this representative sample of 1973 box fronts is resolved in consultation with a representative of the Heritage Council as part of the Section 60 stage application.

Acoustic Drapes

Applicant position

- 4.25 The HIS states that while the acoustic drapes throughout the auditorium will have high impacts on the significant fabric and character of the Hall interior they are generally considered acceptable provided they meet several conditions relating to installation, location and configuration.

Heritage Council Assessment

Setting, Views and vistas

- 4.26 The proposed new operable acoustic absorbent drapes above the stage, box fronts and rear walls will have a high visual impact when they are in use by interrupting the visual continuity of Hall's vertical faceted ceiling panels and the grand organ. The bold, solid colour of the new elements will also increase visual clutter within the space. However, as the new elements are automated and will completely fold into recesses and slots when not in use, the noted visual impacts of these elements can be controlled and therefore are acceptable.

Fabric – Physical

- 4.27 The proposed works require modification to white birch ceiling crown (concentric white birch plywood rings) and the white birch side walls to install the operable drawers. This will have high impacts to original fabric. Further detail is required to resolve the design to ensure confidence that the impacts to significant fabric are minimised.

Recommendations

- 4.28 The following recommended condition relating to the white birch ceiling crown within the HIS (p 107) should be adopted.
- *Before commencement of works on the plywood ceiling, the process and methodology for cutting out, constructing, and operating these new panels, both in the crown and the side walls, be tested via a full size operational prototype that includes a full size drape.*

- *The automated acoustic absorption drapes rising from the floor and manually deployed drapes on the box fronts etc, should be tested with a full-sized mock-up to ensure all technical and design issues are resolved.*
- *The cloth material used for the drapes and banners is to be plain, without pattern, and the colour based on the signature magenta of the seat upholstery, grading towards black, closest to the stage, as indicated on the renders provided in the application.*
- *the location and configuration of the drapes respects the geometry of the interior.*
- *All drapes are fully retractable and the machinery / hardware for their automation / deployment is fully concealed from the auditorium;*
- *The substantial modifications to the ceiling crown to accommodate the drapes and their machinery is as least intrusive as possible, so that when retracted, the crown looks as close as possible to the original configuration.*
- *the existing white birch ring is retained and not replaced as these ring elements are matched from a single log with other ceiling panels.*
- *there is minimal loss of existing white birch plywood, and preferably, the cut out section to accommodate each acoustic drape unit is used as the lower face of its access panel to ensure it matches; and*
- *Reflector panels are fully retracted and the original plywood surface finishes flush with the existing plywood when reflector panel is not required.*

The final detailed design is to be resolved and approved by the Opera House's Conservation Council, Eminent Architects Panel, heritage architect and a heritage council representative. To be resolved as part of the Section 60 stage application.

- 4.29 It is recommended that the automated settings for the Concert Hall include an 'at rest' setting which results in the new acoustic and amplified equipment being hidden as much as possible to allow an audience or tour visitor to appreciate the Concert Hall in as original as possible state. The details of this setting mode and when it will be available are to be resolved with a Heritage Council representative as part of the Section 60 stage application.
- 4.30 The new acoustic drapes should be designed to be reversible and able to be removed easily in the future in response to acoustic technology advancements.

Lighting/ Speakers

Applicant position

- 4.31 The HIS notes that the new lighting and speaker arrays have the potential to clutter the space and detract from views to the grand organ as well as the auditorium itself, but as they arise from the acoustic improvements, they will also enable positive acoustic impacts. It finds that the negative impacts are acceptable provided the works meet several conditions.

Heritage Council Assessment

Setting, Views and vistas

- 4.32 The proposed new lighting and speaker arrays will result in additional clutter within the space and will partially obscure the significant Peter Hall elements, in particular the grand organ. This combined with the new acoustic over-stage reflectors and acoustic drapes/banners, will result in adverse visual impacts. It is unclear if the lighting and speaker arrays are able to be positioned in less intrusive locations when not in use (rest stage). Further details are required to adequately assess the impacts.
- 4.33 The colour of speakers and lighting arrays is also unclear. These should be coloured to minimise contrast as, despite much of this equipment being used 'in the dark'

during performances, the visual impact is high during pre and post-performance times.

Fabric – Physical

- 4.34 The proposed works require additional penetrations into the white birch plywood ceiling to install the new lighting and speaker arrays as well as theatre equipment. Further details of penetrations including number and diameter should be provided to enable appropriate assessment.

Recommendations

- 4.35 The following recommended condition relating to the new lighting arrays within the HIS (p 108) should be adopted to maximise views to the grand organ and minimise clutter.
- *Lighting bars and fittings deployed for any performance are minimum in number and as efficient as possible.*
 - *Lighting arrays between the reflectors are not enclosed and arranged and placed to minimise their visibility from the auditorium and maximise views towards the grand organ.*
 - *Lighting bars / trusses over the stalls are only deployed when necessary and removed when not required.*
 - *Every effort is made by production and technical crews to minimise clutter from suspended lighting infrastructure for each performance.*

The final detailed design is to be resolved and approved by the Opera House's Conservation Council, Eminent Architects Panel, heritage architect and a heritage council representative. To be issued as part of the Section 60 stage application.

- 4.36 The following recommended condition relating to the new speaker arrays within the HIS (p 108) should be adopted with the highlighted change (strikeout), to maximise views to the grand organ and minimise clutter.
- *Speaker arrays are as small as possible to minimise their visual presence.*
 - *For non-amplified performance, at least the centre 3 speaker arrays ~~are raised high towards the ceiling or preferably, removed. This should apply to all other speaker arrays wherever and whenever this is possible.~~*
 - *Speaker arrays deployed anywhere in the space for any performance are minimum in number.*

In addition, the colour of the speaker and lighting arrays should be revisited to minimise visual impacts during the 'at rest' stage. The final detailed design is to be resolved and approved by the Opera House's Conservation Council, Eminent Architects Panel, heritage architect and a Heritage Council representative. To be issued as part of the Section 60 stage application, including a revisit of the colour of speaker units to minimise visual impacts at the rest stage.

- 4.37 It is recommended that the automated settings for the Concert Hall includes an 'at rest' setting which results in the new acoustic and amplified equipment being hidden as much as possible to allow an audience or tour visitor to appreciate the Concert Hall in as original as possible state. The details of this setting mode and when it will be available are to be resolved with a heritage council representative as part of the Section 60 stage application.
- 4.38 Further details of ceiling penetrations for new lighting and speaker arrays including number and diameter should be provided to enable appropriate assessment. All efforts should be made to reuse existing penetrations to reduce the number of new ones.

5.0 CONCERT HALL FUNCTIONAL WORKS

5.1 The proposed works for the functional component of the project will affect the significance of the SOH and impact the following State heritage values:

- Associative Significance; and,
- Aesthetic Significance.

These values are addressed within the assessment.

Stage improvements

Applicant position

5.2 The HIS states that the proposed works to automate the stage will not impact on significant fabric or spaces. It notes that this work will result in a positive change and will provide a more 'intimate' stage setting, improve sightlines from the auditorium, and improve functionality of the stage.

Heritage Council Assessment

Setting, Views and vistas

5.3 The proposed stage upgrades including lowering of the existing stage will not result in significant visual impacts. It is agreed that it will improve sight lines from the auditorium and improve functionality.

Fabric

5.4 The proposed works require the removal of the stage and reconfiguration and relocation of seating. It is unclear from the HIS as to the level of significance of the stage and equipment. While supported in principle, further details are required to adequately assess the impacts of the works prior to removal. In addition, an archival recording of equipment should be undertaken in situ.

Recommendations

5.5 The following recommendation relating to the removal of theatre machinery (p 88) should be adopted to minimise impacts to original fabric.

- *A full heritage assessment of existing machinery and equipment in the Concert Hall will be undertaken, and any significant pieces identified. The process outlined in this policy was carried out for the recent Theatre Machinery Project in the Joan Sutherland Theatre where the machinery was fully documented before decommissioning and selected significant pieces removed and archived as part of the Opera House collection. It is proposed this same process will be employed for the Concert Hall Renewal Project.*

5.6 The following recommended condition relating to the removal of seating within the HIS (p 110) should be adopted to minimise impacts to original fabric.

- *To avoid unnecessary wastage, it is recommended that as much of the removed seating as possible be used in the new position.*

Modifications to back stage area

Applicant position

5.7 The HIS states that the proposed works will have minimal impact on significant structure but will provide substantial improvements to functionality and accessibility. It also notes that the changes to the side foyers respects Hall's geometry and set out of the auditorium entries and side foyers and follows existing detailing and materials. Overall the works will result in moderate visual impacts as the overall width of the

foyer is reduced, however the quality and character of space and the 'natural' palette of materials and colours is retained and respected.

Heritage Council Assessment

Setting, Views and vistas

- 5.8 The proposed introduction of the automated stepped stage platforms requires the circulation space within the side wings (backstage area) to be extended and doors to the stage relocated. 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.
- 5.9 The proposed reconfiguration of the back-stage area, in conjunction with the new accessible theatre entries, significantly narrows the side foyer width and diminishes the grandeur of the space as patrons ascend around the Concert Hall. It also impacts on the stepped configuration of theatre wall as each section fans out. It is recommended that this modification be reviewed to minimise the narrowing of the side foyer space.
- 5.10 The proposed use of existing detailing and materials will limit the visual impact of the modification and is considered acceptable.

Spatial

- 5.11 The proposed reconfiguration of the back of house stage area resulting in the narrowing of the Side Foyer, coupled with the proposed new passageway will have an adverse impact on the spatial qualities of the space by diminishing the form and generosity of the public access width at level 2. Whilst the overall majestic qualities of the side foyer space dominated by the soaring concrete ribs above, will not be affected by the works, the reconfiguration of the side foyers to accommodate an increase in backstage area should be reviewed with the view to minimising the narrowing of the side foyer space, if possible.

Fabric

- 5.12 The proposed works require the demolition of existing fabric, including anteroom ceiling and wall finishes. However, the extent of demolition required is unclear and should be clarified.
- 5.13 All brush box timber panelling in the side foyers is proposed to be carefully removed and retained for reuse on the relocated walls. This is considered appropriate. The timber panelling within the anteroom should similarly be carefully dismantled, retained and reused as part of the works to ensure original fabric and existing character of the spaces is retained.
- 5.14 It is understood that the two toilet facilities within the anteroom (level 2) are proposed to be demolished due to the raising of the floor level and refurbished in the same position. It is recommended that existing fixtures be reused to minimise impact to the character of the space.

Recommendations

The following recommendations are to be submitted as part of the Section 60 stage application.

- 5.15 The reconfiguration of the side foyers to accommodate an increase in backstage area should be reviewed with the view to minimising the narrowing of the side foyer space.
- 5.16 The extent of demolition within the anteroom and orchestra assembly room should be clarified to enable appropriate assessment.

- 5.17 Timber wall panelling within the anteroom and orchestra assembly room should be retained and reused as part of the works to ensure original fabric and existing character of the spaces is retained.
- 5.18 WC fixture and fittings from the two toilet facilities within the anteroom (level 2) should be retained and reused as part of the refurbishment works to ensure original fabric and existing character of the spaces is retained including the 'natural' palette of materials and colours.
- 5.19 Any new elements proposed, including concrete finishes, must match the existing in both form and finish. This should be determined in consultation with the nominated heritage consultant working closely with an experienced expert to ensure seamless consistency, to the satisfaction of a Heritage Council representative. It will be a requirement of the s60 approval and certification.

Technical improvements

Applicant position

- 5.20 The HIS states that much of the existing machinery and equipment associated with the Concert Hall is approaching the end of its life and requires replacement. It notes that if it is not replaced, safety and other compliance issues will remain and the efficient operation and management of the Concert Hall as a venue will be hindered. It concludes that the works will have minimal impact to significant spaces.

Heritage Council Assessment

Setting, Views and vistas

- 5.21 The works to reconfigure and augment the existing technical zone within the ceiling above the stage (level 8 and 9) will have minimal impacts on a significant space and no visual impacts from the Concert Hall itself.

Fabric

- 5.22 The proposed works involve the expansion of the existing plantroom on level 9, and relocation of the plant to level 10. This includes removal of existing machinery and equipment such as winches. A full assessment of the significance of these items should be undertaken prior to removal of any items to ensure appropriate action is taken in regard to significant fabric prior to decommissioning.

Recommendations

- 5.23 The following recommendation relating to the removal of theatre machinery (p 88) should be adopted to minimise impacts to original fabric.
 - *A full heritage assessment of existing machinery and equipment in the Concert Hall will be undertaken, and any significant pieces identified. The process outlined in this policy was carried out for the recent Theatre Machinery Project in the Joan Sutherland Theatre where the machinery was fully documented before decommissioning and selected significant pieces removed and archived as part of the Opera House collection. It is proposed this same process will be employed for the Concert Hall Renewal Project.*

This assessment must be undertaken prior to the removal of any items to ensure appropriate action is taken in regard to recognition and recording of significant fabric and engineering solutions of the time. In addition, archival recording must be undertaken prior to removal, with the equipment in situ.
- 5.24 Further detail regarding the strengthening of the steel structure above the plywood Concert Hall ceiling should be provided to adequately assess the impacts of the works.

Seat refurbishment

Applicant position

- 5.25 The HIS states that although the works modify the original Hall interior, it retains and respects the original set out, form, details, materials, colour and finish of the Concert Hall seating and will not detract from the significant character of the Concert Hall. It considered the work to be low impact. It does however recommend reuse of fabric.

Heritage Council Assessment

Setting, Views and vistas

- 5.26 The proposed works to improve fire rating of the seating within the Concert Hall will utilise existing form, details, materials, colour and finish of the current Concert Hall seating. This will limit visual impacts and retain the existing character of the space.

Spatial

- 5.27 The spatial qualities of the Concert Hall will not be impacted as the proposed upgrading of seating within the Concert Hall will utilise existing form, details, materials, colour and finish of the current Concert Hall seating, including location which will retain the existing spatial configuration of the space.

Fabric

- 5.28 The removal of 50% of seating will have an impact on original fabric. However, the replacement seating retains and respects the original set out, form, details, materials, colour and finish of the existing Concert Hall seating.

Recommendations

- 5.29 The following recommendation relating to the modification of seating (p 110) should be adopted to minimise impacts to original fabric.
- *The white birch plywood seat shells should only be replaced with matching if they are beyond repair.*

Air conditioning upgrade

Applicant position

- 5.30 The HIS states that the changes and additional elements for the air conditioning system have been designed and detailed to minimise impact on the fabric and avoid discordant patching of the existing plywood linings and notes that visually this should have a neutral impact. However, it also suggests potentially negative impacts from the revised 'canon-port' openings and new air delivery registers are acceptable provided that a number of conditions are met including that works should be detailed to minimise impact on the fabric and avoid discordant patching of the existing plywood linings.

Heritage Council Assessment

Setting, Views and vistas

- 5.31 The works require the infill of the existing rectangular openings with matching white birch veneered ply, with a discrete shadow line to delineate the extent of the original opening. This modification will have a visual impact on the current configuration of the cannon-ports which are a significant character of the hall. However, the use of white birch plywood to match the existing surrounding surface will minimise visual impacts.
- 5.32 The addition of a series of diffusers within the lower sections of the white birch plywood ceiling will have a visual impact as it will introduce additional penetrations into the significant ceiling. To minimise this visual impact, the plans indicate the new

diffuser register (vent) with a white birch surround, which is different to the existing (black). This is considered acceptable as it will allow the new diffusers to sit quietly in their new location.

Fabric – Physical

- 5.33 The proposed works require modification to white birch ceiling to accommodate the new diffusers. This will have additional impacts on the significant ceiling.

Recommendations

- 5.34 The following recommended conditions relating to the cannon-ports and diffusers (p109) should be adopted to minimise impacts to original fabric.
- *A full size mock-up of the 'cannon-port' infill panels should be assembled and approved before these particular works commence.*
 - *The 'cannon-port' infill panels are closely fitted with a fine shadow line to delineate the extent of the original opening, and match the adjacent white birch as closely as possible.*
 - *New air delivery registers in the soffits over the boxes should respect the geometry of the ceiling, plywood panels and adjacent registers, have white birch surrounds with narrow slot registers, and visually sit 'quietly' in their location.*

The final detailed design is to be resolved and approved by the Opera House's Conservation Council, Eminent Architects Panel, heritage architect and a heritage council representative. To be resolved as part of the Section 60 stage application.

- 5.35 An evaluation of the mechanical equipment should be undertaken to assess the significance of this equipment prior to removal works being undertaken to ensure appropriate action is taken in regard to recognition and recording of significant fabric and engineering solutions of the time. In addition, archival recording must be undertaken prior to removal, with the equipment in situ.

6.0 CREATIVE LEARNING CENTRE

- 6.1 The proposed works for this component of the project will affect the significance of the SOH and impact the following State Heritage Values:

- Associative Significance; and,
- Aesthetic Significance.

These values are addressed within this assessment.

Applicant position

- 6.2 The HIS states that the proposed works are more than modest functional improvements and constitute a major change. However, it notes that this proposal retains and respects the character and design regimes used by Hall, noting that his work was inspired by Utzon's concepts. The HIS finds that in this instance and for this proposed facility, this is considered an appropriate response and a positive impact. It also states the change of use is a positive change as it will enable the public to visually engage with this private space.

Heritage Council assessment

Setting, Views and vistas

- 6.3 The proposed works to convert existing office space into a Creative Learning Centre facility will have visual impacts as it will significantly alter the space. However, the reuse of the existing Peter Hall white birch plywood 'wobbly' panels for the wall and ceiling cladding is supported as this will continue the Peter Hall design aesthetic of simple finishes including off form concrete and plywood cladding and minimise visual impacts when viewed from the northern broadwalk.

- 6.4 The proposed relocation of the original western entrance doors is not supported as it is inconsistent with a core design principle 'Solidity of base is important'. The entry doors are proposed to be relocated further west to create an entry lobby with access to spaces on the north and south. Currently the entry doors are deeply recessed, concealing them in shadow and limiting visibility to them (5.5m from podium façade). Relocation would mean that the deep shadow of the existing entry will be reduced. The proposed position of the entry doors is considered too shallow (2m from the podium facade). This will result in an emphasis on the opening, diminishing the solidity of the podium.

Spatial

- 6.5 The proposed works will have an impact on the spatial qualities of the area. Currently, this space is divided into two rooms separated by a curved corridor which is defined by a dropped ceiling featuring Peter Hall's white birch wobbly panels. The new Creative Learning Centre will connect these two spaces and remove the interpretation of the curved corridor.
- 6.6 However, the reuse of the existing Peter Hall white birch plywood 'wobbly' panels for the wall and ceiling cladding will lessen the spatial impacts. Further recommendations to lessen the impacts are described below.

Fabric – Visual

- 6.7 The proposal involves the reconfiguration of the Peter Hall internal layout including the removal of a number of existing internal walls and partitions to create larger spaces to house the Creative Learning Centre. The majority of these walls are minor internal partitions and their removal is not seen as having an adverse impact on the SOH. Further, their removal will facilitate the connection of spaces.
- 6.8 However, the cutting of a large opening in the major curved loadbearing concrete wall to connect spaces is considered too broad. The removal of the curved wall will also restrict understanding of the original curved corridor space and room configuration. The width of the openings should be reduced so that sufficient area of the original wall remains to provide evidence and understanding of the wall and spatial arrangement of the space.
- 6.9 In addition, details of strengthening required for the opening should be provided to further assess any potential impacts to the integrity of this important concrete element. It is noted that a previous application for a new Function Centre in the north eastern section of the Opera House proposed removal of a significant extent of similar walls, however this design was modified to ensure a larger portion of wall was retained to provide a greater understanding of the nature of the original wall.

Use

- 6.10 The area proposed for the Creative Learning Centre is currently used for offices for SOH staff. This area is not publicly accessible. The change of use from office space to a dedicated area to engage with younger performers will improve public access to this space, which is one of the main functions of the SOH. This change is considered acceptable.

Recommendations

The following recommendations are to be submitted as part of the Section 60 stage application.

- 6.11 The proposed relocation of the western entry doors should be revised to ensure the deep shadow of the existing entry is not adversely reduced
- 6.12 The proposed opening within the curved concrete wall should be reduced in area to ensure that sufficient area of the original wall remains to provide evidence and understanding of the wall and spatial arrangement of the space.

- 6.13 Details relating to strengthening of the existing curved concrete wall required for the proposed opening should be provided to allow for adequate assessment of impacts.

7.0 ARCHAEOLOGY

- 7.1 This proposal does not appear to involve any excavation. However, confirmation is required to ensure archaeological relics are not impacted by the works.

Recommendations

- 7.2 The applicant is to confirm that excavation is not proposed as part of this project.

8.0 CULUMLATIVE IMPACTS

- 8.1 The large scope of works proposed in the Concert Hall and Creative Learning Centre Renewal Project, as part of the SOH Building Renewal Program, including to significant spaces, fabric, forms and materials, will have a high cumulative impact on the heritage values of the SOH.
- 8.2 The HIS has provided a *Summary Assessment of Impacts* which attempts to assess the overall impact of the works against the entire Building Renewal Project Appendix A, *HIS*). It divides the 'assessed impact on significant values' into eight sections from tangible to intangible impacts. While this is effective in conveying information visually, it does not reflect the weighting given to the significant values. There three key State heritage values being impacted by the proposal – associative, aesthetic and social. These values are disproportionately applied in the assessment table which changes the results of the assessment of impacts, making the works appear more acceptable than would be the case if just assessed only against the identified values. This assessment should be revised to better reflect the cumulative impacts of these works using the identified heritage values.
- 8.3 In addition, due to the significant changes to the SOH including to spaces, forms, materials and fabric, the CMP must be updated to reflect these changes should the works receive approval.

Recommendations

- 8.4 The Conservation Management Plan must be updated to reflect the significant changes to the spaces, forms, fabric and materials of the SOH. The updated CMP is to be submitted to the satisfaction of the Heritage Council.
- 8.5 The *Summary Assessment of Impacts* included in the HIS should be revised to better reflect the cumulative impacts of these works only using the identified heritage values. This should be submitted to the satisfaction of the Heritage Council.

9.0 CONCLUSION

- 9.1 The proposed works are part of the Sydney Opera House Trust's Building Renewal Program to improve the operational efficiency of the site. The works subject to this report include a range of accessibility upgrades, acoustic upgrades, technical enhancements and functional upgrades in and surrounding the Concert Hall. In addition, the proposal includes works to convert existing office space into a Creative Learning Centre. There are no material conservation works being undertaken with this proposal.
- 9.2 There are several components of the proposed works which will have an adverse impact on the SOH particularly the provision of a passageway cut through the existing stairs of the Eastern Side Foyer of the Concert Hall, which will diminish the width of the space and remove significant fabric, the provision of two lifts in the Northern Foyer and

the introduction of new acoustic treatments within the Concert Hall, which have adverse visual and physical impacts on the space.

- 9.3 It is recognised however, that there is a need for equitable access within the building and the proposed works will have an improved impact on the continued use of the Sydney Opera House as a premier performance arts venue. This intangible value has been acknowledged as an important part of its heritage significance.
- 9.4 However, to ensure the proposed works do not have an unacceptable impact on the significant heritage values of the SOH, any component of the new works should be flexible, reversible and able to respond to new technologies as they emerge. This should include the option of reinstatement of original fabric and the uncluttered experience of the space.
- 9.5 Subject to the recommendations within the Heritage Impact Statement and this report, in general the proposed works are considered to have an acceptable level of material effect on the heritage significance and State heritage values of the Sydney Opera House.

PART 2 – ASSESSMENT OF MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (NES) UNDER THE EPBC ACT 1999

10.0 BILATERAL AGREEMENT- ASSESSMENT REPORT

- 10.1 The following Bilateral Agreement Assessment Report considers the proposed works against the relevant Matters of National Environmental Significance (NES) for World and National heritage values of the SOH. This assessment is to be read in conjunction with Part 1 – Heritage Council of NSW Assessment, Comments and Recommendations (Part 1) which considers the proposal against the State heritage values of the SOH. Reference is made to Part 1 throughout this assessment in order to avoid unnecessary repetition between the sections.
- 10.2 The Bilateral agreement between the Commonwealth and New South Wales was made under section 45 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) relating to environmental assessment.
- 10.3 Of relevance to the SOH, S 6.3 (b) of the Bilateral agreement requires that the NSW Assessment Report includes:
- (i) *a description of:*
 - (A) *the action; and*
 - (B) *the relevant impacts of the action;*
 - (ii) *all relevant impacts on Matters of NES. This means that the nature and extent of likely impacts must be explicitly assessed for each Matter of NES, being, as relevant:*
 - (A) *the World Heritage values of a World Heritage property*
 - (B) *the National Heritage values of a National Heritage place*

11.0 SIGNIFICANT IMPACT CRITERIA

- 11.1 The Matters of NES Significant Impact Guidelines 1.1 assists with determining whether an action is likely to have a significant impact. The significant impact criteria for both World Heritage and National Heritage properties with cultural heritage values are similar. They state that an action is likely to have a significant impact on the values of a property if there is a real chance or possibility that it will cause:
- *one or more of the values to be lost*
 - *one or more of the values to be degraded or damaged, or*
 - *one or more of the values to be notably altered, modified, obscured or diminished.*
- 11.2 Examples are provided that an action is likely to have a significant impact on historic heritage values of a place if there is a real chance or possibility that the action will:
- *permanently remove, destroy, damage or substantially alter the fabric of a place in a manner which is inconsistent with relevant values*
 - *extend, renovate, refurbish or substantially alter a place in a manner which is inconsistent with relevant values*
 - *permanently remove, destroy, damage or substantially disturb archaeological deposits or artefacts in a place*

- *involve activities in a place with substantial and/or long-term impacts on its values*
- *involve the construction of buildings or other structures within, adjacent to, or within important sight lines of, a place which are inconsistent with relevant values, and*
- *make notable changes to the layout, spaces, form or species composition of a garden, landscape or setting of a place in a manner which is inconsistent with relevant values.*

12.0 SIGNIFICANCE

World Heritage values

- 12.1 In 2007, the SOH was inscribed in the World Heritage List (Place ID: 105914). The Statement of Outstanding Universal Value states.

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.

- 12.2 The SOH is inscribed under Criterion (i) 'to represent a masterpiece of human creative genius' as follows:

The SOH 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.

- 12.3 For World Heritage places, 'authenticity' and 'integrity' are important concepts. Authenticity is the ability of the attributes of the place to convey the Outstanding Universal Value. Integrity is a measure of the wholeness and intactness of attributes of the place needed to carry Outstanding Universal Value.

- 12.4 With regard to authenticity and integrity, UNESCO states:

All elements necessary to express the values of the SOH are included within the boundaries of the nominated area and buffer zone. This ensures the complete representation of its significance as an architectural object of great beauty in its waterscape setting. The SOH continues to perform its function as a world-class performing arts centre. The Conservation Plan specifies the need to balance the roles of the building as an architectural monument and as a state of the art performing centre, thus retaining its authenticity of use and function. Attention given to retaining the building's authenticity culminated with the Conservation Plan and the Utzon Design Principles.

National Heritage values

- 12.5 In 2005, the SOH was included in the National Heritage List (Place ID 105738). The Statement of Significance states that it was

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.

- 12.6 The SOH was included in the National Heritage List under Criteria A, B, E, F, G and H. The values under each criterion are listed below.

Criterion A Events, Processes

The SOH is significant in the course of Australia's cultural history, both for its place in the national history of building design and construction, as well as the history of the performing arts in Australia. The SOH represents a masterpiece of modern architectural design, engineering and construction technology in Australia. It is a national icon that has become an internationally-recognised symbol of modern Australia and of Sydney, Australia's largest city. From the earliest concept drawings, the building's striking design, its quality as a monumental sculpture in the round, and its inspired design solution in response to its prominent setting on Bennelong Point in Sydney Harbour, have attracted national and international professional and public acclaim. 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. Since the

official opening on 20 October 1973 by Queen Elizabeth II, the SOH has played 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. The achievement of its design and construction between 1957 and 1973 is all the more remarkable because it marks a significant transitional period in Australian political and economic development, and changing social attitudes towards Australian cultural life in the decades following World War II.

Criterion B Rarity

The SOH is a cultural icon that has no counterpart in Australia. With its distinctive sail-like concrete shell roofs standing boldly upon a massive granite-faced platform, located prominently on the Sydney Harbour foreshore, the SOH 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.

Criterion E Aesthetic characteristics

The design, form, scale and location of the Opera House make it one of the most significant landmarks in Australia. The aesthetic qualities of the SOH relate both to its topographical setting on Bennelong Point, and its distinctive architectural features. Its landmark qualities are enhanced by the building's juxtaposition with Sydney Harbour, its relationship with the Sydney Harbour Bridge, the garden landscape of Bennelong Ridge, the sandstone cliff face of Tarpeian Rock, and the vistas and views to and from The Rocks, Circular Quay, East Circular Quay, Macquarie Street, the Botanic Gardens and the harbour. The sculptural, billowing sail-like roof shells provide a visual link to and artistic representation of the yacht-scattered harbour waters. The ceramic white tiles of the roof further add to this relationship and provide a dramatic contrast with the blue waters of the harbour. The building with its strongly curved design emphasis is juxtaposed with the nearby Sydney Harbour Bridge which itself has a strongly emphasized curvature, and this visual relationship is a further element of the place's aesthetic appeal. The place's dramatic aesthetic appeal is enhanced by subtle floodlighting on the white roof shells at night. 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 public promenades including the Forecourt, Broadwalk, and podium platform and steps contribute to the majestic qualities of the place. The large forecourt and sweeping podium steps prepare the visitor for 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. The two large murals commissioned specifically for the SOH, including John Olsen's 'Five Bells' and Michael Nelson Jagamara's 'Possum Dreaming', enhance the aesthetic values of the interior.

Criterion F Creative or technical achievement

The SOH represents a masterpiece of architectural creativity and technical accomplishment unparalleled in Australia's history. In every respect, it is a structure at the leading edge of endeavour. Its many awards, including the Royal Australian Institute of Architects Gold Award given to architect Jørn Utzon in 1973, reflect its pivotal place in the national story of creative achievement providing, as Utzon envisioned, 'an individual face for Australia in the world of art' (Frampton and Cava 1995, 296). The design of the building reflects Utzon's intention to create a sculptural form that would be both a focal point in Sydney Harbour and a reflection of its character. 'The white sail-like forms of the shell vaults relate as naturally to the Harbour as the sails to its yachts' (Assessors Report cited in Norberg-Schulz 1980, 56).

The 'hybrid' interior spaces of the SOH 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). In his Design Principles booklet submitted to the SOH Trust in 2002, Utzon revealed the two ideas of particular importance in his design: first, his use of organic forms from nature, evident in the leaf form pattern devised for the ceramic roof tiles, and second was 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. On a grander scale, the light toned shells of the building were to stand out against the (then) darker fabric of the city' (Kerr 2003, 44).

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 paneling, 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.

The process of building the SOH resulted in the development of a number of innovative technical and creative solutions that were groundbreaking in the history of building design and construction in Australia. This is especially the case with the design and construction of the roof, based on the geometry of the sphere. The roof shells had to span large areas to accommodate the main hall and smaller hall. The solution to the structural challenges of the roof shells devised by Utzon and Ove Arup and Partners over a four year period involved the production of arched segments of varying curvature from the same range of precast modular units. The concrete shells were finally produced by cutting a three-sided segment out of a sphere and by deriving regularly modulated curved surfaces from this solid (Frampton and Cava 1995, 273). The roof shells with their vaulted concrete ribs were constructed using precast concrete segments fixed together with epoxy resin and held together by pre-stressing tendons, representing a considerable structural innovation for the period. The roof shells were faced in off-white Swedish Hoganas tiles inspired by the Chinese ceramic tradition. Using a European technique of prefabrication, over

one million tiles were cast into precast concrete lids on the ground then bonded onto the ribbed superstructure of the shells (Frampton and Cava 1995, 280). From the point of view of science, the Opera House embodies within its structure the integration of sophisticated geometry, technology and art. It epitomizes the extraordinary creative potential of the assembly of prefabricated, repeated components (Norberg-Schulz 1996, 101).

The building was the first of its kind in Australia to use computer-based three-dimensional site positioning devices, geothermal pumps, tower cranes, chemical anchors, non-competitive tendering, life-cycle engineering, parametric design (such as the use of governing equations to model a design), and critical path methods. It gave rise to the establishment of a testing laboratory at the University of New South Wales that became one of the first organizations in the world to commercialise university research and support technology transfer. It also promoted Australian expertise internationally, and opened the way for international engineering construction firms such as Ove Arup to establish their operations in Australia. Utzon's approach to project management was instrumental in changing Australian building and building procurement practices, including de facto pre-qualification of bidders, use of scope drawings, performance-based design assistance from trade specialists, mock-up testing, and on-the-job skill development (Tombesi 2005).

Criterion G Social value

The SOH is an enduring symbol of modern Sydney and Australia, both nationally and internationally. Indeed, the profile of the distinctive ceramic clad roof shells has become an instantly-recognisable national emblem. For example, it provided the inspiration for the logo used to promote the 2000 Olympic Games held in Sydney. The 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 SOH is a mecca for both Australian and international visitors to Sydney, attracting over 100 million visitors since the opening in 1973. The high cost of construction was met by a major public lottery that served to enhance its status as a place for the people.

Criterion H Significant people

The SOH is directly associated with Jørn Utzon, whose design won an international competition in 1957 and was hailed by the architectural critic Sigfried Giedion as opening a new chapter in contemporary architecture. Utzon's design represented a significant development in the basic concepts of the Modern Movement in architecture associated with free plan and clear construction. It evolved during a period of experimentation in modern architecture occurring internationally in the 1950s. Utzon was influenced by the architecture of the ancient Mayans and Aztecs, as well as the work of earlier twentieth century architects including the Finnish architect, Alvar Aalto with whom Utzon worked in 1945, Frank Lloyd Wright, and Mies van der Rohe. Utzon's creative genius, exemplified in the SOH, is widely acknowledged amongst national and international scholars of modern architectural history. Although Utzon left the project in 1966, prior to the building's completion, the SOH is nevertheless identified with him and he has attracted national and international acclaim. His professional recognition in Australia is reflected by awards such as the Royal Australian Institute of Architects' Gold Award mentioned above, and internationally in awards such as the prestigious Pritzker Prize for Architecture awarded to Utzon in 2003.

The peninsula on which the SOH now stands has a special association with Bennelong, an Aboriginal man 'captured' by Governor Arthur Phillip in 1789. Bennelong became a prominent and influential figure in the early Sydney colony, sharing information about his culture with Governor Phillip and regularly visiting the Governor's residence. He was the first Aboriginal adult in the new colony to play a significant role in mediating interactions between Aboriginal people and the early settlers, and was reportedly highly regarded by both Aboriginal people and Europeans. Governor Phillip built the first structure - a house - on the peninsula for Bennelong's use, and from the 1790s the peninsula became known as 'Bennelong Point', and was known to Aboriginal people as Tyubow-gule (McBryde 1989, 17).

13.0 NSW GOVERNMENT APPROVAL REQUIREMENTS AND CONDITIONS

- 13.1 The application for the Concert Hall and Creative Learning Centre project is a State significant development (SSD) made under Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal is classified as SSD under the provisions of the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) as clause 1 of Schedule 2 of the SEPP states that all development within the SOH is SSD. The Minister for Planning is the consent authority for SSD.
- 13.2 Following determination by the Minister for Planning, an application for approval for the proposed works is required to be made to the NSW Heritage Council under section 57(1) of the *Heritage Act 1977*. This requirement is identified in the SOH Management Plan (2005) which must be considered by consent authorities under Clause 288 of the EP&A Regulation 2000, and is required under clause 90 of Schedule 6 and clause 16 of Schedule 6A of the former EP&A Act.
- 13.3 Note that this approval process only assesses impacts to the SOH State heritage values.

14.0 INFORMATION AND OPINION ON WHICH THIS ASSESSMENT IS BASED

- 14.1 In addition to the documents submitted with the application, this assessment is based on
 - Requirements of the EPBC Act 1999
 - *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*, 2013
 - *ICOMOS Guidance on Heritage Impact Assessments for Cultural World Heritage Properties – A publication of the International Council on Monuments and Sites*, January 2011.
 - *Matters of National Environmental Significance – Significant Impact Guidelines 1.1*, EPBC Act 1999, Department of the Environment 2013
 - *Operational Guidelines for the Implementation of the World Heritage Convention*, UNESCO 2013
 - *Respecting the Vision*, SOH – a Conservation Management Plan, by Alan Croker, Fourth Edition, SOHT July 2017 (CMP) endorsed by the Heritage Council 2017
 - *Sydney Opera House Concert Hall and Creative Learning Centre Renewal Projects Heritage Impact Statement (HIS)*, Design 5, 2018
 - *Utzon Design Principles*, SOHT May 2002

Specific aspects of these documents are referenced below where relevant.

15.0 IMPACTS ON MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE AND THEIR ACCEPTABILITY

Summary of Impacts

- 15.1 The proposed action will impact on Matters of NES in both a positive and negative way. The positive impacts arise from the provision of equitable access to the Concert Hall and surrounding Foyers of the SOH and upgrades which improve its use as a premier performance venue. These impacts strengthen some intangible values and therefore have a positive impact on some Matters of NES.
- 15.2 However, to achieve the positive impacts, the proposed action includes some detrimental impacts on values. There are visual, spatial and physical adverse impacts on some Matters of NES arising from the loss of original building fabric, some alterations to original building fabric and the introduction of new building fabric.
- 15.3 Where there are some positive and some negative impacts on values, it is important to consider all of the values. The *Burra Charter* article 5.1 states

‘Conservation of a place should identify and take into consideration all aspects of cultural and natural significance without unwarranted emphasis on any one value at the expense of others’.

The Summary Assessment of Impacts included in Appendix A of the Sydney Opera House Concert Hall and Creative Learning Centre Renewal Projects Heritage Impact Statement (HIS), should be revised to assess against all of the identified heritage values.

- 15.4 The 2011 ICOMOS *Guidance on Heritage Impact Assessments* notes that the cumulative effect of separate impacts should also be considered. The cumulative impacts of the works to the Concert Hall and Creative Learning Centre need to be assessed as part of the overall SOH Building Renewal Program, including works nearing completion for the Joan Sutherland Theatre Accessibility and Additional Works and Front of House Works. Inspection of these works has also informed the assessment of the proposed action for the Concert Hall and Creative Learning Centre.
- 15.5 Finally, in accordance with the Conservation Management Plan’s Policy 20.14, these substantial changes to the SOH should be reported to the World Heritage Committee.

Four components of the action

- 15.6 The action and associated impacts on Matters of NES are discussed as four components as detailed in Part 1.
- Concert Hall Accessibility Works
 - Concert Hall Acoustic Works
 - Concert Hall Functional Works
 - Creative Learning Centre

Aspects of the action with greatest adverse impacts

- 15.7 The aspects of the action with the greatest adverse impacts are the:
- provision of a passageway cut through the existing stairs of the Eastern Side Foyer of the Concert Hall
 - provision of two lifts in the Northern Foyer

- Western Podium exhaust hood
- introduction of new acoustic treatments within the Concert Hall.

Mitigation measures and feasible alternatives to be investigated further

- 15.8 To ensure that the action does not have an unacceptable impact on Matters of NES, the proponent has nominated some mitigation measures in the HIS.
- 15.9 Some feasible alternatives to aspects of the action or areas where further investigation is required have been identified through the assessment process. Their likely impact on Matters of NES deserve further consideration to reduce negative impacts on values as far as possible. The key ones are summarised below.

Removal of original fabric

- 15.10 The action includes the removal of some original fabric. Removed fabric should be retained and reused where possible to retain the consistency of the design regime in accordance with the CMP.

New fabric

- 15.11 Any new fabric should be installed in a way which promotes flexibility and reversibility. This is particularly applicable for equipment being installed which may become redundant due to future technology. It should be capable of removal with minimal further impact on original fabric. This should also include the option of reinstatement of original fabric and the uncluttered experience of the space in the future.
- 15.12 Given the requirement for cohesiveness of the whole experience, the CMP and the *Utzon Design Principles* recommend carefully matching the materials and finishes when introducing new fabric, as well as reusing original fabric whenever possible.

Promote understanding of changes

- 15.13 It is particularly important that the process of change at the SOH can be understood by the public. Both the HIS and Part 1 support that approach. It is therefore essential that the narrative of changes is available to the public. In some cases, it is necessary that original fittings and fabric of significance, made redundant by technology, can still be appreciated and contribute to that story of change.
- 15.14 Consistent with *Condition 4* of the Commonwealth approval for the SOH Building Renewal Program - Safety, Accessibility and Venue Enhancements (EPBC 2016/7825), the five (5) year Heritage Interpretation Strategy for the interpretation of the architectural history of the SOH and its World and National Heritage values should be amended to include the Concert Hall works.
- 15.15 Updating of the Conservation Management Plan to reflect the significant changes to the spaces, forms, fabric and materials of the SOH provides one record of change. This provides an enduring record which complements the public story.

Avoiding visual clutter

- 15.16 The substantial amount of new acoustic and amplified equipment and elements will create visual clutter compared to the current arrangement. In the *Utzon Design Principles*, Utzon made several references to avoiding visual clutter, although not specifically addressing the Concert Hall. Inclusion in the automated settings for the Concert Hall of an 'at rest' setting which results in the new acoustic and amplified equipment being hidden as much as possible will allow appreciation of the Concert Hall in as original as possible state. It will provide increased opportunity for views to significant Peter Hall designed elements as close as possible to the original configuration.

Further review and research

- 15.17 There are some actions where further review may have the potential for change to reduce negative impacts. These have been outlined in Part 1, with many of them to be addressed as part of the Section 60 stage application under the *Heritage Act 1977*.
- 15.18 Further research is required to assess the significance of some elements potentially being impacted prior to approval of actions which impact on them. This assessment must be undertaken prior to the removal of any items to ensure appropriate action is taken in regard to recognition and recording of significant fabric and engineering solutions of the time. In addition, archival recording must be undertaken prior to removal, with the equipment in situ to record the full ensemble of parts.

Conclusion

- 15.19 Subject to the recommendations within the HIS and Part 1, in general the action is considered to have an acceptable impact on Matters of NES.

16.0 DISCUSSION OF THE IMPACTS ON MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE OF EACH OF THE FOUR COMPONENTS OF THE ACTION

16.1 Part of action: Concert Hall Accessibility Works

Relevant impacts of the action

- 16.1.1 The action and the relevant impacts of the action for the Concert Hall accessibility works are described in S 3.0 of Part 1.

Matters of NES affected by the action

- 16.1.2 World Heritage values – Authenticity (form and function) and integrity
- 16.1.3 National Heritage values – Criterion A (Events, Processes), Criterion E (Aesthetic characteristics), Criterion F (Creative or technical achievement), Criterion G (Social value), Criterion H (Significant people)

Nature and extent of likely impacts on:

(A) the World Heritage values of a World Heritage property

- 16.1.4 The impact is positive in terms of authenticity of function as the works enhance accessibility to public spaces, including the Concert Hall, provide accessible dressing rooms for performers and provide new accessible patron toilet facilities.
- 16.1.5 The negative impacts on authenticity of form and integrity associated with the new handrails, toilets and seating are minor.
- 16.1.6 The works with a substantial negative impact on values and authenticity of form and integrity are:
- the partial demolition of a section of stairs on the Concert Hall Eastern Side Foyer to create a passageway/accessible path of travel to the Caves in the Northern Foyer;
 - the new external exhaust hood on the Western Podium façade resulting from relocation of the plant room; and,
 - two new lifts in the Northern Foyers, including the cutting of the exceptionally significant cranked concrete beams.
- 16.1.7 The negative impacts involve the loss of original designed spaces, the loss of fabric and the introduction of new fabric.

(B) the National Heritage values of a National Heritage place

- 16.1.8 The Concert Hall accessibility works will have a positive impact on the values of Events, Processes (Criterion A) and Social Value (Criterion G) as they strengthen public access to the SOH.
- 16.1.9 They will have a negative impact on the values of Aesthetic characteristics (Criterion E), Creative or technical achievement (Criterion F) and Significant people (Criterion H).
- 16.1.10 Impacts on the Aesthetic characteristics occur in the Eastern Side Foyer and Northern Foyer of the Concert Hall and will detrimentally change the strong aesthetic experienced while moving through these spaces. There is a visual and spatial impact on the flight of stairs in the Eastern Side Foyer from the introduction of the passageway. There is a visual and spatial impact on the outer ends of the broad sweep of steps and cranked concrete beams in the Northern Foyer from the proposed lifts.
- 16.1.11 Other impacts on Aesthetic characteristics and Creative or technical achievement relate to fabric and spaces in the same locations. This includes detrimental changes to eight of the reinforced radial cranked beams in the Northern Foyer (both sides) and the alterations to Peter Hall's external glazing which are both required to accommodate the lifts. Similarly there is an impact on the precast granite plank steps in the Eastern Side Foyer and the Northern Foyer where the existing expanse of stairs is cut for the passageway and entry to the lifts.
- 16.1.12 The introduction of the exhaust hood on the Western Podium façade impacts on the values of Aesthetic characteristics, Creative or technical achievement and Significant people. The solidity of the podium in one of the most highly visible areas is associated with Utzon's innovative design concept.

Conclusions on relevant impacts on Matters of NES

Description of feasible mitigation measures, changes to the action or procedures to prevent or minimise environmental impacts on each relevant Matter of NES proposed by the proponent

- 16.1.13 The proponent suggests that the location and design of the insertions of the passageway and the lifts minimise visual intrusion into the space and avoid interrupting the relationship of the foyer spaces with the harbour setting.
- 16.1.14 The proponent argues that the tangible impacts on fabric must be considered in relation to the substantial improvements in function and accessibility which are intangible values.
- 16.1.15 The proponent generally proposes matching the existing materials and finishes when new elements are introduced as a mitigating measure because it will reduce visual impacts. This is supported. However, it has been observed that there were some issues in achieving a matching appearance between new and existing concrete in the recent alterations to the Joan Sutherland Theatre Side Foyer passageway.

Description of any feasible alternatives to the action or mitigating measures that have been identified through the assessment process, and their likely impact on Matters of NES

- 16.1.16 There are some actions which should be subject to further review as there is potential for change to reduce negative impacts. These are:
- the need for two lifts within the Northern Foyer (refer S 3.50)

- the location and size of the new mechanical exhaust hooded external opening into the podium wall (refer S 3.26)
 - the method of installation of handrails, particularly the impacts on precast granite stair treads (refer S 3.33/4)
 - the extent of demolition within the Northern Foyer to ensure that as much original fabric is retained in situ as possible (S 3.51)
 - the proposed detail of the extension of the cranked beams to the new lift to ensure the design does not disrupt the aesthetic qualities of the distinctive line of crank points in the beams (S 3.53)
- 16.1.17 There are some elements which require further research to assess their significance. A good understanding of their significance is needed prior to decision-making about actions which may impact on them. These are:
- Mechanical equipment and machinery while it is in situ (refer S 3.27)
 - the number of Peter Hall public toilet facilities, including the value of their fixtures and finishes, so that there is a better understanding of the impact of the potential loss of some amenities (S 3.61 and S 3.69)
- 16.1.18 The action includes the introduction of bronze panelling on one wall of the new passageway and on the southern wall in the 'Caves' area. This treatment introduces a new design aesthetic which will detract from the aesthetic values. A panelling treatment consistent with existing panelling used within the SOH is required to ensure the existing 'natural' visually recessive palette of materials and colours is retained and respected (refer to S 3.17 and S 3.55).

16.2 Part of action: Concert Hall Acoustic Works

Relevant impacts of the action

- 16.2.1 The action and the relevant impacts of the action for enhancement of the Concert Hall acoustics are described in S 4.0 of Part 1.

Matters of NES affected by the action

- 16.2.2 World Heritage values – Authenticity (form and function) and integrity
- 16.2.3 National Heritage values – Criterion A (Events, Processes), Criterion F (Creative or technical achievement), Criterion G (Social value)

Nature and extent of likely impacts on:

(A) the World Heritage values of a World Heritage property

- 16.2.4 The impact is positive in terms of authenticity of function as the works enhance the acoustic experience of the Concert Hall as a performance venue.
- 16.2.5 The negative impacts on authenticity of form and integrity associated with new acoustic upgrades are substantial.
- 16.2.6 The key substantial negative impact on values and authenticity of form and integrity are:
- permanent visual and physical impacts on the Peter Hall interiors which contribute to the 'role of the building as an architectural monument'
 - the visual impact of clutter within the Concert Hall, some of which is permanent and some which is temporary during specific performances.

- 16.2.7 The negative impacts involve tangible values, including the loss of original designed views, the loss of original fabric and the introduction of new fabric, as well as intangible values with the introduction of additional clutter detracting from the visual experience of some performances.

(B) the National Heritage values of a National Heritage place

- 16.2.8 The Concert Hall acoustic works will have a positive impact on the values of Events, Processes (Criterion A) and Social Value (Criterion G) as they strengthen the public experience of acoustic performance at the Concert Hall.
- 16.2.9 They will have a substantial negative impact on the value of Creative or technical achievement (Criterion F).
- 16.2.10 Detrimental impacts on the value of Creative or technical achievement occur in the Peter Hall designed Concert Hall interior in terms of changes to fabric, spaces and visual experience. These include the removal of the existing over-stage reflectors and addition of new reflectors, the addition of new profiled timber panelling to box fronts and stage surrounds and their reorientation, and the provision of new operable acoustic drapes. In addition to the physical impacts, significant views to the organ and pipes ensemble, the folded and domed ceiling forms and the timber finishes are detrimentally impacted by the acoustic works.

Conclusions on relevant impacts on Matters of NES

Description of feasible mitigation measures, changes to the action or procedures to prevent or minimise environmental impacts on each relevant Matter of NES proposed by the proponent

- 16.2.11 The proponent suggests that the location and design of some of the new features and equipment should be subject to further review, including some full scale prototypes to be tested.
- 16.2.12 The proponent argues that the tangible impacts on fabric and visuals must be considered in relation to the substantial improvements in acoustic experience which positively impact intangible values.
- 16.2.13 The proponent proposes detailed methods of protecting some of the characteristics of existing materials and finishes when new elements are introduced.

Description of any feasible alternatives to the action or mitigating measures that have been identified through the assessment process, and their likely impact on Matters of NES

- 16.2.14 There are some actions which should be subject to further review as there is potential for change to reduce negative impacts (some overlap with those suggested by the proponent). These are actions which impact on the following existing and proposed elements of the Concert Hall:
- over-stage reflectors (refer to S 4.10)
 - side wall reflectors (refer to S 4.13)
 - laminated brush box panels (refer to S 4.21, 4.23)
 - tapered bronze guard-rails (refer to S 4.22)
 - 1973 box fronts (refer to S 4.23, 4.24)
 - white birch ceiling crown (refer to S 4.28)
 - new acoustic drapes (refer to S 4.30)

- new lighting arrays (refer to S. 4.35)
 - ceiling penetrations for new lighting and speaker arrays (refer to S 4.36)
- 16.2.15 There are some elements which require further research to assess their significance. A good understanding of their significance is needed prior to decision-making about actions which may impact on them. These are:
- Concert Hall acoustic-related equipment and machinery while it is in situ (refer S 5.23)
- 16.2.16 The loss of the original acrylic cloud reflectors has a negative impact. A mitigating measure is that the original reflectors are retained and used in a way that contributes to the story of change at the SOH for the public. (refer to S 4.12)
- 16.2.17 The substantial amount of new acoustic and amplified equipment and elements will create visual clutter compared to the current arrangement. A mitigation measure is that the automated settings for the Concert Hall include an 'at rest' setting which results in the new acoustic and amplified equipment being hidden as much as possible to allow appreciation of the Concert Hall in as original as possible state. The details of this setting mode and when it will be available are to be developed. (refer to S 4.14) This will allow increased opportunity for views to significant Peter Hall designed elements as close as possible to the original configuration.

16.3 Part of action: Concert Hall Functional Works

Relevant impacts of the action

- 16.3.1 The action and the relevant impacts of the action for Concert Hall functional works are described in S5.0 of Part 1.

Matters of NES affected by the action

- 16.3.2 World Heritage values – Authenticity (form and function) and integrity
- 16.3.3 National Heritage values – Criterion A (Events, Processes), Criterion E (Aesthetic characteristics), Criterion F (Creative or technical achievement), Criterion G (Social value), Criterion H (Significant people)

Nature and extent of likely impacts on:

(A) the World Heritage values of a World Heritage property

- 16.3.4 The impact is positive in terms of authenticity of function as the works enhance the comfort of audience and performers appreciating the Concert Hall as a performance venue. Improved functionality of the stage and back stage is also positive in terms of authenticity of function.
- 16.3.5 There are minor negative impacts on authenticity of form and integrity associated with changes to the stage levels and automation, provision of a new technical equipment zone above the stage ceiling, as well as seat refurbishment.
- 16.3.6 The key substantial negative impact on values and authenticity of form and integrity are:
- the increase in the size of stage wings which narrows the side foyer spaces,
 - the extensive speaker and lighting arrays with resultant ceiling penetrations and visual impacts,

- the upgrades to the existing air conditioner system, including the increase in the number of ceiling diffusers and closing up of canon port openings, and
 - the visual impact of clutter within the Concert Hall, some of which is permanent and some of which is only during specific performances.
- 16.3.7 The negative impacts involve tangible values, including impacts on original designed views, the loss of original fabric and the introduction of new fabric, as well as intangible values with the impact of clutter detracting from the visual experience of some performances.

(B) the National Heritage values of a National Heritage place

- 16.3.8 The Concert Hall functional works will have a positive impact on the values of Events, Processes (Criterion A) and Social Value (Criterion G) as they enhance public comfort during performances at the SOH. They also have a positive impact on the value of Events, Processes (Criterion A) because they assist with staging of performances.
- 16.3.9 They will have a negative impact on the values of Aesthetic characteristics (Criterion E), Creative or technical achievement (Criterion F) and Significant people (Criterion H).
- 16.3.10 Impacts on the Aesthetic characteristics occur in the side foyers of the Concert Hall due to the narrowing of the space which will detrimentally change the strong aesthetic response experienced while moving through these foyers. There is a visual and spatial impact from the loss of the stepped configuration. Other impacts on Aesthetic characteristics relate to fabric on the panelled timber walls and spaces in the side foyers. This is also an impact on Significant people as the side foyers were designed by Utzon.
- 16.3.11 There is an impact on the Creative or technical achievement relating to the interior of the Concert Hall from the updates to the speakers and lighting arrays. These impacts relate to fabric, views and spaces. There is also an impact on the Creative or technical achievement from the upgrades to the existing air conditioning system within the Concert Hall in terms of fabric.

Conclusions on relevant impacts on Matters of NES

Description of feasible mitigation measures, changes to the action or procedures to prevent or minimise environmental impacts on each relevant Matter of NES proposed by the proponent

- 16.3.12 The proponent suggests that the location and design of some of the new features and equipment should be subject to further review, including some full-scale prototypes to be tested.
- 16.3.13 The proponent argues that the tangible impacts on fabric and visuals must be considered in relation to the substantial improvements in the functional performance which positively impact intangible values.
- 16.3.14 The proponent proposes detailed methods of protecting some of the characteristics of existing materials and finishes when new elements are introduced.

Description of any feasible alternatives to the action or mitigating measures that have been identified through the assessment process, and their likely impact on Matters of NES

- 16.3.15 There are some actions which should be subject to further review as there is potential for change to reduce negative impacts (some overlap with those suggested by the proponent). These are:

- reconfiguration of side foyers (refer to S 5.15)
 - demolition within the anteroom and orchestra assembly room (refer to S 5.16)
 - strengthening of the steel structure above the plywood Concert Hall ceiling (refer to 5.24)
 - infilling of the cannon-ports and diffusers (refer to S 5.34)
 - introduction of air delivery registers in the soffits over the boxes (refer to S 5.34)
- 16.3.16 There are some elements which require further research to assess their significance. A good understanding of their significance is needed prior to decision-making about actions which may impact on them. These are:
- Concert Hall existing equipment and machinery while it is in situ (refer to S 5.35)

16.4 Part of action: Creative Learning Centre Works

Relevant impacts of the action

- 16.4.1 The action and the relevant impacts of the action for the Creative Learning Centre works are described in S 6.0 of Part 1.

Matters of NES affected by the action

- 16.4.2 World Heritage values – Authenticity (form and function) and integrity
- 16.4.3 National Heritage values – Criterion A (Events, Processes), Criterion E (Aesthetic characteristics), Criterion F (Creative or technical achievement), Criterion G (Social value), Criterion H (Significant people)

Nature and extent of likely impacts on:

(A) the World Heritage values of a World Heritage property

- 16.4.4 The impact is positive in terms of authenticity of function as the works enhance the ability of the SOH to engage with and promote the performing arts to younger generations.
- 16.4.5 The negative impacts on authenticity of form and integrity associated with the removal of internal walls and partitions to create larger spaces and construction of a new WC and other facilities are minor.
- 16.4.6 The works with a substantial negative impact on values and authenticity of form and integrity are:
- the modification of the recessed entry from the Western Broadwalk, and
 - the cutting of a large opening in the main curved concrete wall and another in minor north south wall to connect spaces.
- 16.4.7 The negative impacts involve the loss of original designed spaces, the loss of fabric and the introduction of new fabric.

(B) the National Heritage values of a National Heritage place

- 16.4.8 The Creative Learning Centre works will have a positive impact on the values of Events, Processes (Criterion A) and Social Value (Criterion G) as they enhance the ability of the SOH to engage with and promote the performing arts to younger generations.

- 16.4.9 They will have a negative impact on the values of Aesthetic characteristics (Criterion E), Creative or technical achievement (Criterion F) and Significant people (Criterion H).
- 16.4.10 Impacts on the Aesthetic characteristics occur in the modification of the recessed entry from the Western Broadwalk due to the reduction of the deep shadow on the existing entry. There is a visual and spatial impact from the loss of the deep alcove. Other impacts on Aesthetic characteristics are due to the proposed opening in the curved concrete wall. Both of these also impact on Significant people as they are features that were designed by Utzon.
- 16.4.11 There is an impact on the Creative or technical achievement relating to both the recessed entry and the opening in the curved wall in terms of fabric, views and spaces. There is also an impact on the Creative or Technical achievement from the removal of the existing fit out designed by Peter Hall, including wall and ceiling white birch plywood 'wobbly' panels and reuse of the 'wobbly' panels in the same space.

Conclusions on relevant impacts on Matters of NES

Description of feasible mitigation measures, changes to the action or procedures to prevent or minimise environmental impacts on each relevant Matter of NES proposed by the proponent

- 16.4.12 The proponent argues that the tangible impacts on fabric and visuals must be considered in relation to the substantial benefits of engaging with younger generations which positively impact intangible values.
- 16.4.13 The proponent proposes that reuse of some existing fabric, such as the 'wobbly' panels is a mitigating measure.

Description of any feasible alternatives to the action that have been identified through the assessment process, and their likely impact on Matters of NES

- 16.4.14 There are some actions which should be subject to further review as there is potential for change to reduce negative impacts. These are:
- the proposed relocation of the western entry doors (refer to S 6.11)
 - the proposed opening within the curved concrete wall and the strengthening it requires (refer to 6.12 and 6.13)