Title

Sydney Opera House VAPS Design Report

In support of s75w Planning Application Sept.2012
Major Project MP09_0200

Date

14 September 2012

Reference

20100112-Report-PDR2

Client

Sydney Opera House Trust

Scott Carver in Collaboration with Jan Utzon

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1 Introduction

This report is submitted in support of a planning application relating to three design changes on the approved Vehicle and Pedestrian Safety Project. The s75w application seeks to amend the approved scheme under the Major Project MP 09_0200 as outlined in the Planning Submission prepared by Byrnes and Associates.

These changes are a result of design development on the project, all of which have been carefully assessed by Scott Carver, as Project Architects and in close consolidation with Jan Utzon. In addition to this, the Gate House redesign has been a collaboration between Jan Utzon and Scott Carver.

The proposed changes have also been reviewed and approved by a number of stakeholders including:

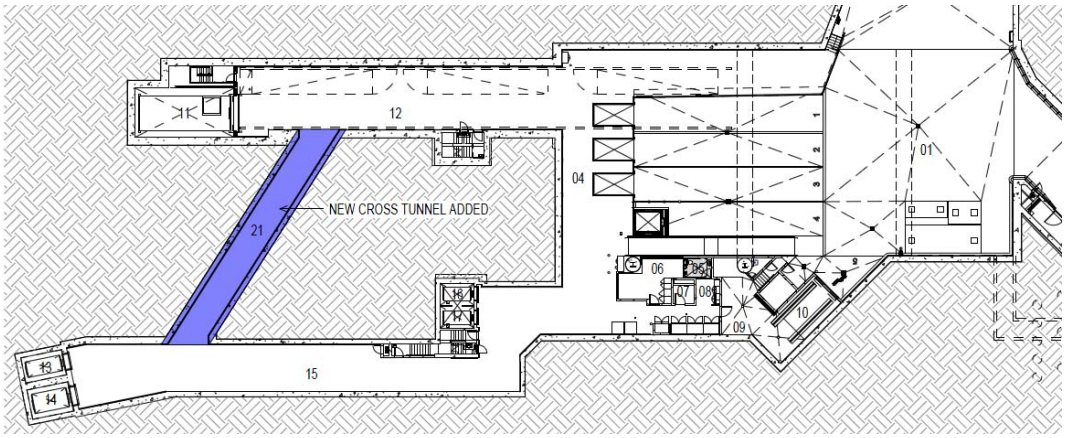
- The Eminent Architects Panel – established by the Sydney Opera House Trust to provide review of projects at the Sydney Opera House. The Panel includes the Government Architect.
- Alan Croker – Heritage Consultant and author of the Conservation Management Plan Edition 4.
- The Conservation Council of the Sydney Opera House; and
- The Opera House Trust.

The three items that this application encompasses include:

1. Introduction of a Cross Tunnel at B4 level, between the Opera Theatre Corridor and the Concert Hall Corridor at B4 level within the dock.
2. Amendments to the Ramp Balustrade wall and precast panelling at Forecourt level.
3. Amendments to the Gate House.

2 Cross Tunnel

The proposed cross tunnel is a new corridor connecting the Opera Theatre Corridor to the east and the Concert Hall Corridor to the west at B4 level, or the base of the approved scheme.
This corridor provides a number of benefits to the project and its' construction.
The tunnel is approximately 22 metres long and is 3.2m wide internally. The long sectional profile of the ramp varies from 2.4m high to 4.4m high due to the tunnelling process.



Location of the cross tunnel at B4 Level

The cross tunnel provides the following benefits:

a) It provides an improved construction methodology, through allowing the tunnelling equipment to cross from the Opera Theatre corridor to the Concert Hall corridor, prior to excavation is complete in the main dock volume. This offers improvements to the construction program.

b) It provides an alternate path of egress out of both the Opera Theatre and the Concert Hall corridors; by way of offering an additional route to egress stairs.

c) It provides improvements to the circulation flow for bump in and bump out of equipment, accessing the lifts (Lift 12 and 22) at the end of the Concert Hall Corridor. The tunnel allows equipment being bumped in to circulate from the dock in a clockwise direction towards the lifts - that in turn connect to the rear of the Concert Hall. As equipment exits the lifts, they can travel in the same clockwise direction, across to the Opera Theatre Corridor and in turn to the dock.

The proposed cross tunnel is located at B4 level and has no visual impact externally to the approved scheme or impact upon existing structure. It is located well under the existing basement and provides a transitional (circulation) space rather than additional usable floor space.
The cross tunnel is approximately 75 sq.m in footprint that represents a very small percentage and increase to the approved scheme.

3 Ramp Balustrade and Perimeter Wall

The proposed design change to the ramp perimeter includes:

3.1.1 Balustrade to the Ramp and precast wall cladding

The ramp balustrade has been amended due to safety considerations, BCA requirements and crowd loading considerations. The original application was approved with a 450mm pre-cast up-stand (with a bronze handrail over and steel wire balustrade between) , in keeping with the design of the western edge of the Forecourt. That design however, does not comply with BCA standards due to the fall to the ramp below being greater than 4 metres in height.

In addition, the likelihood of the Forecourt being used to hold future public events means that the balustrading needs to comply with the NSW variations to the BCA requirements for Entertainment Venues (previously 'Places of Public Entertainment'). This requires a 1.2m high balustrade.

Detailed consideration was given to potential designs in collaboration with Jan Utzon and Design 5 Architects and been reviewed by the Eminent Architects Panel.

A 1.2 metre high pre-cast up-stand has been chosen as the preferred design solution for 3 reasons:

- it provides a simple solution architecturally and is less visually apparent than a balustrade incorporating a range of finishes including metal work elements;
- unlike the western edge of the Forecourt where balustrading is designed to allow a view over the edge, there is no desire to encourage viewing over the edge of the loading dock entrance ramp;
- and in public event situations where large numbers of patrons may lean against the balustrading, it provides the safest design solution.

3.1.2 Precast Wall Cladding to the eastern side of the ramp

As a consequence of the balustrade changes to the outside of the ramp, the precast wall panelling to the eastern side (or against the Tarpeian Wall) has been adjusted to match the balustrade wall. It shall finish 1200mm above the forecourt level, in lieu of the existing 450mm height when measured above the forecourt level. The precast panels to the Tarpeian Wall retain the nominal 300mm offset to the wall, as per the approved scheme.

3.1.3 Deletion of Precast to the Tarpeian Wall between the Ramp and Air Vent.

To the north of the ramp portal is the vent structure to the Opera House car park, which also accommodates services associated with the Dock and the Lower Concourse.

The approved scheme involves a section of precast between the ramp portal and air vent. This has been deleted to create a clean separation between the ramp and air vent; and allow for an increased interface of the forecourt, directly with the Tarpeian Wall.

4 Gate House

The proposal includes a change in the location and design of the Gate House following detailed design development. The redesign process is in response to:

a) Ensuring the location serves vehicles entering and exiting, including the interface between the security personnel and the vehicle.
b) The functional needs of the Gate House and the security personnel.
c) And ensuring the materiality of the gate house is appropriate for the Forecourt of the Sydney Opera House.

The design of the Gate House as proposed is a result of a collaboration between Jan Utzon and Scott Carver. It has been reviewed and is supported by Alan Croker and the Eminent Architects Panel.

As a result of the design development phase of the project, a number of reasons were identified and explored, that has led to the amended solutions. The following outlines the design rationale.

4.2 Location

During Design Development of the VAPS project, considerable work was done with the Projects Traffic Engineers, to fine tune the location of the Gate House with respect to a number of key circulation requirements, relating to vehicles entering and exiting the ramp; plus vehicle movements to the Forecourt, including Taxis, VIPs, Minibuses and Forecourt events (setup) vehicles.

The primary change between the approved scheme and the proposed change within this submission, is to locate the Gate House to allow a semi trailer to stop at the gate house and not obstruct Macquarie Street. The approved scheme was limited to a MRV (or medium rigid vehicle), clearing Macquarie Street. The proposed solution therefore provides additional queuing distance and reduces the risk of vehicle obstruction to Macquarie Street.

4.3 Gate House Amenity

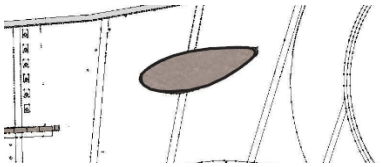
As a result of design development and briefing with SOH Security, the Gate House plan has been finessed to capture the amenity requirements of the security personnel and the core functions they must perform. It also responds to the ‘address’ point for interfacing with the vehicles, the circulation profiles around the gate house and importantly encompasses the design rationale of form and materiality as outlined in section 4.1.4 below.

In addition to this, the form responds to key sight line requirements, in order to afford the security personnel the required visual surveillance of vehicles arriving, vehicles departing (from the Forecourt and from the ramp) and importantly, pedestrians entering the Forecourt from the western side of Macquarie Street.

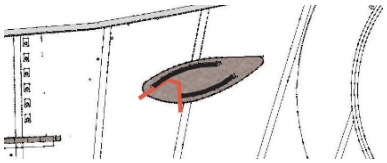
4.4 Design Rationale

The design development of the Gate House has occurred through collaboration between Jan Utzon and Scott Carver. The resultant form and materiality considered the following key elements:

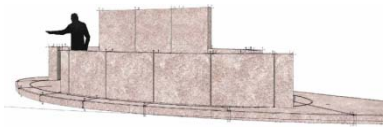
- Initial form established by primary vehicle circulation paths around the gate house.



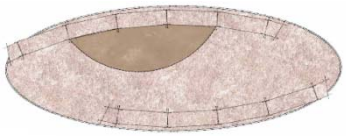
- The perimeter walls in turn provides a semi enclosed area (or 'veranda') to provide an under cover zone where the security personnel interface with the vehicles.



- The base of the gate house is then defined by crushed granite precast panels, to match materials evidenced to the base of the Sydney Opera House and in keeping with the precast panels to the vehicle ramp and the western edge of the Forecourt. The precast panels provide the required impact protection for the security personnel and enclosure.



- A bronze clad utility core is provided to the rear (or east) of the gate house. It accommodates the WC and services in a compact form. It is curved to open up space where the guard sits and where they interface with the vehicles.

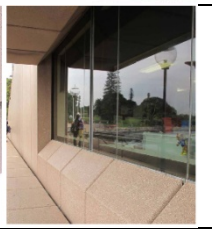


- The simple roof form, structurally divorced from the precast and bronze clad utility core, provides shelter and enclosure. The form is simple and serves its purpose without unnecessary form or profiling. It is profiled like a wing structure with minimal profile and edge conditions.

- A simple glass enclosure then sits between the roof and the precast, with high performance glass offering high visibility for the security personnel.

- Bronze framing to the glass with integral louvers to the west. The framing finishes at a 2100mm high datum, with frameless glass to the soffit of the roof to reinforce the floating nature of the roof.

- The glazing and precast will be detailed in a similar manner to the existing podium glazing around the Opera House, where the precast acts as a 'rain screen' to the structural line and glazing inboard.



Design Rationale images

Gate House photomontage viewed from Macquarie Street.

4.4 Alignment with Original Design Commitments.

In the Architects Design Statement in the approved scheme, there are a few key statements regarding the approved schemes compliance with the Utzon Design Principals; and recognising that the existing guard house is considered an *intrusive* element to the Forecourt, under the CMP.
These statements include:

	Comment:
4.4.1 *The existing guardhouse in its existing size and location is a significant intrusion in the important view of the Sydney Opera House approach. The location, size, form and material of the new guardhouse will reduce the visual impact of this necessary function. The location of the ramp against the Tarpeian Wall, requires the guardhouse….to be located much closer to the Tarpeian Wall.*	The proposed change retains a location closer to the Tarpeian Wall than the existing gate house. Whilst it has shifted a little closer to the ramp, this is simply a product of providing the necessary vehicle circulation and ensuring vehicles do not block Macquarie Street. The proposed solution is larger in footprint than the approved scheme. This is in order to provide the necessary amenity and functionality that this critical security element requires. Importantly it is smaller in scale than the existing gatehouse.
4.4.2 *Minimise intrusion of heavy vehicles and new guardhouse into the Forecourt*	Through utilising the crushed granite precast as a base, and simple glazing and bronze elements (of the Opera House language), it is considered that the solution is a minimal intrusion into the Forecourt. The form is intended to be simple and uses elements that simply serve a purpose without excessive detailing or decoration. It will sit in the Forecourt as a subservient element to the Opera House.
4.4.3 *The orientation of the visitor to the Opera House is improved by the removal of the existing guardhouse and provision of a smaller guardhouse in a less intrusive location.*	The proposed solution does not detract from this commitment.

As stated out the outset, the proposed design of the gate house encompassed within this application is the product of a collaboration between Jan Utzon and Scott Carver. The design solutions, form and materiality have also been reviewed by Alan Croker and the Eminent Architects Panel.

5 Summary

We confirm that the enclosed changes described in this statement and through the Architectural drawings are a result of design consideration through the design development phase of the project. The proposed changes have been assessed at a number of milestones through a robust design review process with all stakeholders at the Sydney Opera House, including the Eminent Architects Panel, Conservation Council, Alan Croker (Heritage Consultant) and in collaboration with Jan Utzon.

In addition to this statement, we refer you to the attached Heritage Statement in response to the Gate House and Ramp Precast Upstand.

This statement is submitted in support of the Planning Application that includes the following Architectural Drawings:

49-FV-SC001-EA-003	Site Plan	Revision 1
49-FV-SC001-EA-100	Basement Level B4 Plan	Revision 1
49-FV-SC001-EA-140	Forecourt Part Plan	Revision 0
49-FV-SC001-EA-300	Section and Elevation (Forecourt)	Revision 0
49-FV-SC001-EA-304	Cross Tunnel Section	Revision 0
49-FV-SC001-EA-325	Section (Concert Hall Corridor) showing Cross Tunnel interface	Revision 1
49-FV-SC001-EA-900	Photomontage	Revision 0

The respective changes represented on the drawings, have been colour highlighted to clarify the elements of change.