Your ref Our ref 266402-13/JK File ref

ARUP

To Whom It May Concern

Level 5 151 Clarence Street Sydney NSW 2000 Australia **t** +61 2 9320 9320 **d** +61 2 9320 9658 **f** +61 2 9320 9321

jorg.kramer@arup.com www.arup.com

26 February 2019

Dear Sir/Madam

Ken Rosewall Arena (KRA) ESD Statement for Development Application

Arup have been engaged by Tennis Australia as consultant engineers for the proposed upgrades to the Ken Rosewall Arena (KRA), Sydney Olympic Park.

The Sydney Olympic Park Master Plan 2030 Section 4.2 and the Environmental Guidelines Sydney Olympic Park 2008 lay out general objectives, controls and guidelines for projects to achieve a high standard of environmental performance.

The KRA redevelopment project involves the removal of part of the existing roof and the construction of a new PTFE roof over the stadium. The existing structure is a partial perimeter roof only and does not fully enclose the arena. The stadium is to remain as an "outdoor" venue, with the roof intended to provide shade and rain protection but outside air flowing through the space at all times.

As such, the project does not constitute redevelopment of a building as a whole and does not enclose a conditioned space. The minimum building environmental rating targets under Green Star, NABERS and BASIX schemes formalised in Table 4.1 of the SOPA Master Plan 2030 are not considered applicable for this project.

However, to address those general sustainability objectives laid out in the Master Plan Section 4.2.1 and the Environmental Guidelines Section 4 applicable to the scope of works, the proposed development will integrate a number of sustainable initiatives in its design, construction and operation, including the following:

Water Conservation

The Master Plan Section 4.2 requires connection of new development to Sydney Olympic Park's recycled water network. However, per the Sydney Olympic Park Authority Policy POL13/4 for Stormwater Management and Water Sensitive Urban Design (WSUD) the site is not part of the catchment of the recycled water network. The policy clarifies that in this case, non-potable water is required to be harvested locally.

The new roof will be designed to enable collection of rainwater from at least 90% of the enlarged roof surface with a projected plan area of approximately 8,000m².

Updates to the non-potable water uses referenced in the Master Plan are not included within the works under this development application and are to be addressed in separate developments of the stadium. The fall and guttering of the roof will thus be designed for collected rainwater to be fed into a future tank to be designed in further stage development, with the aim of reuse for non-potable uses.

Stormwater and ecology impact

With the new roof spanning over the stadium to the extent of the previously existing roof, no increases to stormwater or ecology impact are expected from the proposed development.

Energy conservation and passive design

The development of the roof will consider optimising shape and the available opening areas to improve airflow inside the stadium driven by typical wind and thermal conditions, with the aim to improve thermal comfort of users as far as possible without the use of energy-consuming active conditioning, in balance with rain and sun protection.

Dematerialisation

The new roof design is predicated on the re-use of much of the existing bowl superstructure, substructure and piling – which are all re-used and capable of supporting the new lightweight PTFE coated fibreglass fabric roof. The circular form is used to create a very efficient self-resolved tension structure. This strategy minimises the use of resources relative to the protection afforded by the extended roof cover.

Yours faithfully

Jorg Kramer Senior Consultant