

### 2021 Awards for Excellence – Innovative Design

*The OneConsult 2021 Awards for Excellence Innovative Design Award winners have been announced as Aurecon and Tonkin.*

This year's Consult Australia 2021 Awards for Excellence Innovative Design Award has been won by 2 outstanding companies, Aurecon for the Square Kilometre Array (SKA) – Infrastructure Australia and Tonkin for their Parramatta Escarpment Boardwalk project. The award recognises firms who have demonstrated outstanding innovation in any aspect of the design process.

#### **Winner**

#### **Aurecon**

#### **Square Kilometre Array (SKA) – Infrastructure Australia**

The Square Kilometre Array (SKA) is a multinational science project to build the world's largest and most sensitive radio telescope. Experts from more than a dozen countries are working together on one of the most complex science projects ever conceived to design this next generation radio telescope that will expand our understanding of the universe and drive technological development worldwide.

Engineering, design and advisory company, Aurecon, in partnership with CSIRO, formed the Infrastructure Australia consortium to project manage and design the entire site infrastructure, power distribution, and the Central Supercomputing Building for the SKA site in Murchison Shire, Western Australia. Aurecon's Infrastructure Australia Consortium Lead, Shandip Abeywickrema, said the design team has faced many challenges, including minimising radio 'noise' created by the systems placed at the high-tech astronomy observatory. This is essential to avoid drowning out the faint signals from space that the telescope is designed to detect. "Containing the interference created by our own computing and power systems is an unusual construction requirement," Abeywickrema said. "We're trying to reduce the level of radio emissions by factors of billions."

Teamwork was the key, Aurecon and CSIRO have worked together for decades, and the current SKA infrastructure project continues Aurecon's previous successful delivery of world class infrastructure for the SKA precursor, the Australian Square Kilometre Array Pathfinder (ASKAP) telescope. Significant challenges are navigated with stakeholders that include government agencies, engineers, scientists and project managers across the globe, delivering nine work packages in parallel. A clear communication and interfacing strategy is enabling the successful delivery of each work package.

Designing the Central Supercomputing Building The Central Supercomputing Building for the SKA telescope is a unique facility with the primary function of protecting the radio quiet environment at the remote site. Aurecon, in partnership with CSIRO, developed the building design to include a fully welded, double shielded enclosure to prevent the signals from the vast array of electronic and electrical equipment contained inside the building from interfering with the sensitive receiving antennas outside.

The building is designed to be prefabricated and brought to site in modules as an optimum logistics solution for the site's remote location. This method will keep site labour costs within budget and minimise the potential quality risks associated with remote building construction. The design of the building was optimised and modelled in Building Information Modelling (BIM) software to give the client and stakeholders the ability to 'walkthrough' the building in a virtual environment, allowing testing and amendments to the building's components, useability, and layouts in real time. Infrastructure over a vast site area covers a 40 km radius and includes roads and tracks, fibre and power distribution, communications, site monitoring, and buildings. Ground preparation for the antennas and the road designs will utilise construction techniques that ensure cleared areas are kept to a minimum, and existing tracks or previous routes will be retained as far as possible to minimise disturbance to the natural landscape.

### **Winner**

### **Tonkin**

### **Parramatta Escarpment Boardwalk**

The Parramatta River Escarpment Boardwalk, a new stretch of off-road walking and cycling path and boardwalk along the Parramatta river, has been won the Consult Australia Awards for Excellence Award for Innovative Design.

In 2017, Tonkin was engaged by lead architect Hill Thalys to assist in design of the Parramatta River Escarpment Boardwalk. The boardwalk is a crucially important piece of infrastructure for Parramatta, and design of the new boardwalk is one of the key missing links that resolves continuous foreshore access for pedestrians and cyclists from the University of Western Sydney at Rydalmere to Parramatta Park.

It also provides a new set of stairs up to Stewart Street and Macarthur Street to ensure safe and direct access for the public and local school students. Completed in early 2021, the project builds on City of Parramatta's ambition to refocus the city to the river, and will contribute to waterside celebrations, activation, and recreation.

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Tonkin was engaged to provide concept design, detailed structural design and construction phase services for the 225m-long, three [1] metre wide concrete walkway and cycleway. Located opposite the Parramatta River Wharf, the boardwalk was designed to provide a link to Parramatta Valley Cycleway, which connects Parramatta Park to Melrose Park through completely off-road facilities. The innovation of the boardwalk design is multi-faceted.

Design of a structure predominantly over water required consideration of flood implications and the soft river foreshore, but also potential risk of ferry impact, debris loading, user safety and considerable design and construction site restrictions such as no land access and a very narrow waterway width shared with passenger ferries. Tonkin and Hill Thalys worked together to develop a design underpinned by collaborative innovation, creating an outcome that is configured to subtly adjust the atmosphere along the path and designing a walkway that does not impede on the space or the surrounding natural environment.

Specifically, Tonkin created a structural design solution that included a range of structural elements such as piles, and precast and insitu plinths and footings that allowed for ease of constructability in the limited space. Another design consideration was the creation of a staircase that minimised visual impact and integrated with the cliff face – the only exposed shale cliff escarpment in the Sydney basin. Tonkin’s staircase design included stairs supported off reinforced concrete beams that are embedded into the natural cliff face. This design solution created an aesthetic staircase that appears to be floating and which minimises undesirable visual impact on the cliff face.

Working closely with Hill Thalys and City of Parramatta throughout the project, Tonkin provided guidance and advice, including alternatives during the project design phase. Our transparent approach was instrumental in developing a contemporary and durable design that could be constructed within Council’s fixed budget. Innovative collaboration delivered the City of Paramatta with the long-awaited boardwalk that connects the city and the river. The new boardwalk is a modern architectural feature that has been designed with the local community in mind.

Consult Australia has also recognised Arup for Challenging Convention with Innovative Design, as Highly Commended 2021 Awards for Excellence in the category of Innovative Design.

### **Highly Commended**

#### **Arup**

#### **Challenging Convention with Innovative Design**

In a joint venture with Jacobs, Arup were appointed as designer for the Bruce Highway Upgrade – Caloundra Road to Sunshine Motorway on Queensland’s Sunshine Coast. Jointly funded by the Queensland and Australian Governments, the \$932 million CR2SM project involved an upgrade of the Bruce Highway to six lanes, including major upgrades to both interchanges and the delivery of a two-way service road for local traffic on the western side of the highway between Steve Irwin Way and Tanawha Tourist Drive.

The design joint venture developed an innovative design solution that transformed the Caloundra Road interchange into DDI, the first to be built in Australia. The DDI was a unique design for reducing traffic congestion and improving safety for motorists, pedestrians, and cyclists. It also used a smaller footprint than traditional interchange designs. It was among Queensland's highest priority road projects and was designed to meet the strategic transport needs of the Sunshine Coast region in this area well into the future.

The upgrade delivered critical safety benefits to motorists, improved efficiency, and reduced traffic congestion, and ensured the highway can cater for future traffic growth. The speed limit on the upgraded highway returned to 110km/hr, and immunity provided from a 1-in-100-year flood event.

Congratulations to our Award Winners Aurecon and Tonkin, and Highly Commended winner Arup.

Consult Australia is the industry association representing consulting businesses in design, advisory and engineering, an industry comprised of over 58,600 businesses across Australia. This includes some of Australia’s top 500 companies and many small businesses (97%). Our members provide solutions for individual consumers through to major companies in the private sector and across all tiers of government. Our industry directly employs over 285,000 people in architectural, engineering, and technical services, and many more in advisory and business support. It is also a job creator for the Australian economy, the services we provide unlock many more jobs across the construction industry and the broader community.

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## NOTES TO EDITOR

### 1. About Consult Australia

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### 2. About Nicola Grayson

Nicola Grayson is the Chief Executive of Consult Australia. Nicola is responsible for implementing the organisation's strategy, building ongoing external relationships, and for leading Consult Australia's advocacy and government relations agenda on behalf of members.

Nicola is a member of and former chair of the International Federation of Consulting Engineers (FIDIC) Risk, Liability, and Quality Committee. In Australia she chairs the Australian Sustainable Built Environment Council's Urban Resilience Task Group and sits on numerous government forums representing the Consult Australia membership. Nicola is the Convenor for Consult Australia's Champions of Change leadership group for gender diversity and inclusion, a member of the Champions of Change Coalition.

Nicola is a government relations specialist, and has represented industry associations in the United Kingdom, the European Union, and Australia. Nicola has worked across a range of sectors including general insurance, consumer finance, alcohol, and education, in addition to consulting engineering. She has an Honours Degree in Law from the United Kingdom and is a member of the Australia Institute of Company Directors.

### 3. For interview

For more information and to arrange an interview, please contact Nicola Grayson directly on +61499 878 839 or email [nicola@consultaaustralia.com.au](mailto:nicola@consultaaustralia.com.au).