Inaugural Innovation & Excellence Awards

26 October 2017
Queensland Major Contractors Association

QMCA is the construction industry peak body representing Queensland’s leading major construction contracting companies.

The Association’s Vision is: driving change to achieve a more sustainable major construction industry in Queensland.

QMCA’s current membership includes 12 of the top performing construction companies in Queensland that together account for approximately 70–80% of the construction and civil engineering workload undertaken in Queensland. The Association also has Associate members.
Contents

Queensland Major Contractors Association 2

Innovation & Excellence Awards 4

Shortlisted Entrants 5

Guest Speaker 17

Judges 18

Sponsors 20
Innovation & Excellence Awards

The Association seeks to recognise and reward projects and concepts which have brought new thinking, ideas and technology to the construction industry, and demonstrated excellence in the implementation of those projects and concepts. These projects have contributed to making the industry safer, more efficient and competitive, and better able to contribute to the development of Queensland and Australia.

The Award was open to QMCA member companies and seeks to recognise innovation and excellence in engineering infrastructure, specifically ideas or concepts that have been successfully implemented in Queensland in the last 18 months. The inaugural Award will be presented on 26 October 2017.
Shortlisted entrants

Lendlease Engineering Pty Limited
Kingsford Smith Drive Upgrade – Scour Mattress

Lendlease Engineering Pty Limited
Gateway Upgrade North – EME2 Asphalt

John Holland Pty Ltd
Dalrymple Bay Coal Terminal Remedials – Mobile Swing Stage Gantry

Clough Projects Australia Pty Ltd
Well Pad Low Point Drains

Seymour Whyte + Fulton Hogan Joint Venture
Bruce Highway Upgrade Project – Diverging Diamond Interchange

CPB Contractors
Logan Enhancement Project – Cloud-based Collaborative Review Platform
Entrant:
Lendlease Engineering Pty Limited

Project/Idea/Concept:
Kingsford Smith Drive Upgrade – Scour Mattress

Summary:
The Kingsford Smith Drive (KSD) upgrade is Brisbane City Council’s flagship project transforming one of the city’s most significant routes into a vibrant urban corridor with the Brisbane River as the centrepiece.

The upgrade involves widening the road from four to six lanes between Theodore Street at Eagle Farm and Cooksley Street at Hamilton. It also includes improvement works between Cooksley Street and Breakfast Creek Road at Albion. A cantilevered structure over the river will be built to support the widened road and new river walk.

Kingsford Smith Drive will be widened into the river between Bretts Wharf and Cameron Rocks Reserve by approximately 10 to 15 metres. Construction commenced in 2016 and is expected to be complete in 2019.

The project team have created a strong culture that celebrates and drives innovative design and methodology through collaboration, fostering an environment that encourages new approaches and embracing the complexity and challenge the unique Kingsford Smith Drive upgrade provides.

The marine team have been responsible for the design, development, and implementation of precast concrete scour mattresses.
The 262 precast concrete mattresses of up to 40 metres long have been designed to protect the river bank from scouring during flood events. The size, scale and application within a tidal river are unique within Queensland.

The team also took an innovative approach to the installation of the mattresses developing bespoke modular lifting frames with remote release and sonar equipment specifically for the project to improve safety and quality outcomes for installation onto the river bed.
Entrant:
Lendlease Engineering Pty Limited

Project/Idea/Concept:
Gateway Upgrade North – EME2 Asphalt

Summary:
Lendlease (LL) has been contracted to design and construct the Gateway North Upgrade project in Brisbane, on behalf of the Department of Transport and Main Roads (TMR), in partnership with Transurban Queensland (TQ).

The $1.143 billion project is jointly funded by the Australian Government ($914.18 million) and Queensland Government ($228.54 million) on an 80:20 split. The project involves widening the Gateway Motorway to six lanes between Nudgee and Deagon, as well as undertaking safety works through to Bracken Ridge. Major work began in early 2016, with the project due for completion by late 2018.

One of the key innovations applied on the Gateway Upgrade North project was the use of Enrobé à module élevé Class 2 – more commonly known as EME2 asphalt.

EME2 is a high modulus asphalt product developed in France during the early 1990s, which has been used successfully on French roads for 25 years. Based on its success, EME2 has been used in other parts of Europe and South Africa.

The product was developed as a flexible and fatigue resistant asphalt mix, suitable for heavily trafficked roads. It offers superior performance when compared to ‘conventional’ asphalt bases as it has a higher stiffness, better durability and improved rut and fatigue resistance.

It also offers a range of sustainability benefits, including use of fewer non-renewable raw materials (such as aggregates) associated with the reduction in asphalt quantities required. During design, the use of EME2 allows the overall thickness of asphalt pavements to be reduced by up to 20 per cent.
On the Gateway Upgrade North project, close to 10,000 tonnes of EME2 was used to construct a 1,700-metre long section of the new Deagon Deviation’s southbound carriageway. This was the first major road project in Australia, and within a design and construct project contract model, to use EME2.

The decision to use EME2 was due to its sustainable and innovative properties being recognised by the collective project team.

The project has a substantial volume of asphalt pavement (approximately 500,000 tonnes) to deliver and the team recognised that EME2 presented an opportunity to lay thinner pavements while still achieving the high stiffness, performance and durability that a heavily trafficked road requires.

By reducing pavement thickness, the team recognised there would be a direct reduction in the overall paving program for the project, with the fast and efficient placement of EME2 in turn reducing construction impacts on road users and the surrounding community.

The team also recognised the impact EME2 could have on the project’s pursuit of an Infrastructure Sustainability (IS) rating from the Infrastructure Sustainability Council of Australia (ISCA). The project is pursuing an ‘Excellent’ rating across two phases. Having achieved an ‘Excellent’ Design rating in June 2016, the project is now focussed on achieving its ‘Excellent’ As Built rating.
Entrant: John Holland Pty Limited

Project/Idea/Concept: Dalrymple Bay Coal Terminal Remedials – Mobile Swing Stage Gantry

Summary:
The Dalrymple Bay Coal Terminal (DBCT) is Queensland’s largest coal export terminal. It is located 38km south of Mackay at the Port of Hay Point, and is leased by DBCT Management (DBCTM).

John Holland was engaged by DBCTM to undertake Pile Wrapping Works as part of the DBCT Pile Wrapping Remedials Project. DBCT has 1,706 marine piles that support jetty and berth structures in a predominately open, offshore location.

The objective of the DBCT Pile Wrapping Remedials Project was to improve safety, reduce costs and environmental risks associated with pile maintenance, and to prolong the life of the asset.

The project approach involved a comprehensive review of the protective treatment options and access methods, which was undertaken across several stages over a three-year period, as follows:

1. **Optioneering /concept design:**
   this involved tabling all available options for treatment materials and access methods in order to make a substantial recommendation to DBCTM. Access options investigated included rope, boat and platform, and swing-stages supported from under the jetty structure.

2. **Trials, data collection, reporting and recommendations:** A detailed trial program was developed, approved and implemented encompassing treatment materials and access. This included recording data for trials of three different wrapping products and five different access methods involving the wrapping of 50 piles.
3. Preliminary development of access methods derived from the recommendations: Based on the trial results, the swing-stage concept was advanced through a series of preliminary workshops, with John Holland’s engineers, specialist structural mechanical and electrical engineers and DBCTM. As a result, a 3D model of the gantry was developed.

4. Detailed design: all engineers worked together to ensure every aspect of the gantry fitted and functioned effectively. The design was reviewed for safety, and WorkCover / ComCare consulted to ensure all relevant approvals were received. The fully designed Mobile Swing-stage Gantry was then approved by DBCTM to enter into manufacture, supply and commissioning.

5. Manufacture, supply and commissioning: this took approximately five months. The bulk of fit-out was undertaken in the fabrication shop, followed by commissioning. These five stages culminated in the following solutions:

- The development of an innovative jetty access maintenance solution called a “Mobile Swing-stage Gantry”, eliminating high risk to personnel involved with drop/suspended scaffolds, while reducing the significant loss of time associated with building scaffolds and working around tides.
- The selection and wrapping of piles with protective tape wrap system incorporating petrochemical tape and primer with polyethylene jacket, eliminating the risk to personnel associated with traditional abrasive blasting and painting.
- These two solutions resulted in the successful delivery of the project objectives to improve safety and reduce costs.
Entrant:
Seymour Whyte Fulton Hogan Joint Venture

Project/Idea/Concept:
Bruce Highway Upgrade Project – Diverging Diamond Interchange

Summary:
The Fulton Hogan / Seymour Whyte Joint Venture (FHSWJV) will transform the Caloundra Road interchange on the Bruce Highway into a Diverging Diamond Interchange (DDI). This innovative interchange design is the first in Australia.

A DDI is a different approach to addressing interchange performance and capacity by swapping the direction of the two main carriageways to the opposite side of the road. This different approach goes against conventional design practices and is not like the traditional part clover/part diamond interchange that was proposed in the Reference Design.

This highlights one of the advantages of TMR adopting the dual ECI tendering process – allowing industry to deliver true innovation.

How the DDI works:

• Motorists on Steve Irwin Way will cross over from the left side of the road carriageway to the other as they drive through the interchange. These motorists will use the two signalised intersections that are synchronised and don’t have any turning movements. This eliminates all turn movements from the intersection delivering substantial safety and capacity improvements.

• Motorists on the Bruce Highway will experience no change with entry and exit ramps also consistent with a typical diamond interchange.

• Motorists making right turns through the interchange from any direction will use two 2-phase traffic signals instead of two 4-phase traffic signals.
• Motorists making left turns through the interchange don’t use any traffic signals.
• The DDI caters for pedestrians and cyclists with dedicated facilities through the interchange.

First implemented in France then popularised in the US, the DDI design will provide significant benefits and outcomes.

While the idea sounds simple, there were a number of design parameters that required detailed analysis with some new standards being developed specifically to address the changing approach for motorists and the changes in vehicle dynamics as they navigate through the crossing carriageways of the interchange.

The DDI significantly enhances capacity and extends the service life of the asset by 10 to 15 years without additional cost.

One of the major advantages of a DDI is that it allows right-turning traffic and through traffic to move through the interchange simultaneously, easing congestion, significantly reducing delays and improving safety.

DDI’s lessen the number of conflict points from 26 (for a regular diamond interchange) to 14, and reduce exposure to the more severe right-angle crashes.
Entrant: CPB Contractors

Project/Idea/Concept: Logan Enhancement Project – Cloud-based Collaborative Review Platform

Summary: In a unique application of new technologies, the Logan Enhancement Project (LEP) has implemented a cloud-based collaborative review platform to enable efficient sharing of information across multiple locations and stakeholders, in support of the challenges associated with an ever changing, dynamic D&C environment.

This platform embraces the idealisation of a “Paperless D&C” that can be adapted and applied through all stages of a project with the key benefit of being accessible anywhere, anytime and by multiple reviews at once.

The design development process of major projects such as LEP typically progresses through a number of designated approval gates, resulting in a process that relies on printed copies to be marked-up by hand by multiple parties, often leading to lengthy time, inflated cost and compromised quality due to the sheer volume of drawings and multiple parties involved.

This implemented concept significantly streamlines the design review process by allowing multiple reviewers to access drawings simultaneously and allows for collaboration of ideas and mark-ups.

As all users can view drawings and work in real-time, idea sharing and effective solutions are induced and can land on the page immediately. This also provides significant time-savings by allowing review to be undertaken by multiple people in parallel, rather than consecutively, and does away with the need to cross-reference and collate inputs.
The LEP cloud-based review initiative combats the quality challenge by improving accuracy of mark-ups and opening up the possibility for more in-depth review. It also greatly mitigates the risk of compromised document security by ensuring that a marked-up copy can never be misplaced, lost or damaged.

The software that is utilised provides the opportunity for a more sustainable process that embraces the revolution of technology and digital engineering. While the cloud-based technology is not new, the project’s robust application and proven success with this digital application is an industry first.

This sustainable application of technology provides added benefit as it can be utilised throughout the project lifecycle, capturing all design development and reviews, through to the as-built stage, client handover and into operation and maintenance phases.

In summary, the LEP cloud-based design review process provides:

- Increased collaboration and idea generation
- Improved inclusion of team members
- Reduced design review periods
- Streamlined design review process
- Improved quality
- Application throughout project lifecycle
- Fully transferrable to client and other stakeholder
- Improved safety through surety of up-to-date information
- Sustainable solution to an everyday process.
Entrant:
Clough Projects Australia Pty Limited

Project/Idea/Concept:
Well Pad Low Point Drains

Summary:
A significant amount of Queensland’s infrastructure spend over the last 5 years has been in CSG Field Development. The construction of pipeline systems will be ongoing for the next 20+ years.

We have looked at ways to improve the pipeline system to reduce ongoing capital and operating costs. The idea of the well pad low point drain was to capture the water and solids immediately downstream of the wells to eliminate water into the gathering network.
Mr Graeme Newton has more than 25 years’ experience in the infrastructure sector. In the past 15 years he has led large-scale, high profile and complex infrastructure projects within the private and public sector, with a strategic and delivery-oriented approach as a senior executive leading billions of dollars’ worth of projects.

His vast experience and expertise in the industry has seen him awarded with the National Award for Excellence and the QUT Outstanding Alumni Award. Graeme was appointed by the Premier of Queensland in 2011 as the first CEO of the Queensland Reconstruction Authority.

Over the years Graeme has worked in a range of different infrastructure leadership roles including the role of Director-General for the Department of Infrastructure and Planning where he was a key decision maker for Queensland, leading major infrastructure, investments, planning and project delivery. He was also appointed as Coordinator-General under the State Development and Public Works Organisation Act 1971 (Qld).

Before being appointed CEO, Graeme was engaged as Head of Authority on secondment from Deloitte Australia where he was Lead Partner for the Queensland Government with a national focus on the delivery of large, complex and high profile infrastructure and major capital projects. This role involved extensive engagement and strategic policy advice for a range of Queensland and interstate government departments.

Graeme’s key strengths are in strategy, transformation and building high performing teams.
Meet the judges

Christina Levinson
Principal Organisational Development Consultant
iConnect Consulting

Christina is the Director of iConnect Consulting and has over fifteen years’ experience as a consultant in the fields of Organisational Development as a successful coach, facilitator, trainer, and change agent.

She has a wide-ranging experience across industry sectors in continuous improvement, strategy, and innovation management roles. Since 2016, she is also the Chair of the Queensland Chapter of the Lean Construction Institute Australasia (LCIA).

Christina has operated across a diverse range of industries including engineering, construction, mining, utilities, building, manufacturing, science and technologies as well as community services. She has worked with over 70 project teams and organisations, within the private, public and community sectors, to build the strength and effectiveness of their people and operations.

Noel Dwyer
Deputy Chief Engineer, Engineering and Technology
Department of Transport and Main Roads

Noel has worked in TMR since 1990, and has served in Rockhampton, Roma, Emerald and Metropolitan Districts, in Road and Transport Construction Services (RoadTek), and Main Roads offices.

Noel has experience across a variety of areas including traffic engineering and major projects planning such as the Gateway Motorway upgrades. Noel has also been seconded to Austroads in Road Systems Management, and led the Main Roads team of the Drive Tourism Program which won the Public Sector Premiers Award in 2004.

Noel was appointed as Deputy Chief Engineer (GDC) in Engineering and Technology in 2011 and is responsible for the provision of technical and professional advice and services to TMR, involving Geospatial Technologies, Road Planning and Design, Hydraulics and Flooding, and State-wide Capability Development.

Noel was appointed a Fellow of Engineers Australia in 2016.
Karen Sanders

Co-Founder and Commercial Director
Real Serious Games

Karen Sanders is the co-founder and Commercial Director of Real Serious Games, a technology company headquartered in Australia. Real Serious Games has developed a spatial gamification platform and work processes which assist large infrastructure and training providers to build confidence in the delivery of major projects.

Real Serious Games has provided spatial solutions for many iconic projects and is currently working with an Australian State Government to redefine their spatial planning processes.

Real Serious Games has also launched new initiatives in mobile Virtual Reality education and training facilities. In partnership with social enterprises, Real Serious Games has delivered game play experiences that allow the user to explore the past, learning about traditional cultures, notably Virtual Wirrane II which drew positive attention from the then Prime Minister Julia Gillard.

Karen Sanders has over 20 years of experience in the construction industry having worked as a technical specialist and a project manager, bringing her expert applied knowledge into the serious games sector. Karen is recognised as an industry leader in spatial gamification and was published as part of the G20 Global Café.
Major Sponsor
The Plenary Group

Plenary is an independent long-term investor, developer and manager of public infrastructure.

As an international public-private partnership (PPP) specialist, Plenary has a PPP portfolio of 42 projects worth more than A$30 billion across Australia, Canada and the US.

It adopts a holistic approach to our projects embracing finance, design and construction, complementary commercial development, asset management and operations.

Governments and their agencies look to Plenary as a trusted and authoritative voice on delivering value-for-money public infrastructure that meets the needs and aspirations of a community.
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Arcadis is the leading global design and consultancy firm for natural and built assets. Applying our deep market sector insights and collective design, consultancy, engineering, project and management services we work in partnership with our clients to deliver exceptional and sustainable outcomes throughout the lifecycle of their natural and built assets. We are 27,000 people active in over 70 countries that generate EUR3.4 billion in revenues.

We have been active in Australia for over 75 years, and work on the largest infrastructure, buildings, resources and energy projects across Australia. In Queensland, our teams have partnered with our valued clients on projects such as Airport Link, Tugun Bypass, Go Between Bridge, One William Street and Jewel on the Gold Coast.

Arcadis. Improving quality of life.

Boral

Boral Resources (Qld) Pty Ltd, with its extensive supply network across Queensland is able to provide materials and services for all your project needs.

Our range of services include Concrete and Quarry materials supply, Transport logistics and Road surfacing contracting.

With a large group of technical and professional support staff we are able to respond to the industry’s infrastructure delivery demands.

Boral Resources (Qld) Pty Ltd, with its extensive supply network across Queensland is able to provide materials and services for all your project needs.
Coates Hire

Coates Hire is Australia’s largest equipment hire company supplying hire equipment to a wide variety of markets.

With over 130 years experience, Coates Hire has been providing hire equipment solutions for the simplest, to most intricate projects. Backed by an extensive delivery network, Coates Hire has the expertise to ensure you have everything you need any time you need it.

So no matter how big or small the project is, you can count on Coates Hire to help make it happen.

Construction Skills Queensland

Construction Skills Queensland (CSQ) is an independent training fund supporting employers, workers, apprentices and career seekers in the building and construction industry.

Funded by an industry training levy, they work closely with students, schools, employers, apprentices, industry partners, and training providers across Queensland to build capability at every level of business. The organisation supports training to ensure the rights skills, at the right place, at the right time with a focus on upskilling.

CSQ’s mission is to promote the building and construction industry as a career of choice, encourage investment in skills and training and increase the number of skilled workers in the industry.
Construction Sciences

Construction Sciences provide construction materials testing, geotechnical monitoring and consulting, environmental monitoring and consulting, as well as subsurface utility mapping services. Established in Brisbane in 1990 as Bowler Geotechnical, we are now a team of over 700 staff in 50 permanent laboratories throughout Australia, New Zealand, PNG and Texas in the US.

With an additional 60 site annex laboratory facilities currently in operation, Construction Sciences is the largest CMT provider in Australasia.

Construction Sciences is a specialist at providing a prompt turnaround of large volumes of tests. We are major project specialists.

The Construction Training Centre

The Construction Training Centre (CTC) is a resource hub for the building and construction industry. Its unique facility offers everything that an organisation or individual worker could need to conduct, or participate in, specialist industry training — all in the one place.

CTC is also proud to be a part of the Constructionarium where the first project – a scaled Story Bridge – is now on display. Since its inception in 1994, CTC is increasingly regarded a valuable industry asset, a 'one stop shop' and first choice location for training. It plays host to a broad range of registered training and commercial organisations, some through flexible short-term hire and others through longer-term tenancies. It is also able to provide a complete Verification of Competency and On-Boarding solution through the 30 RTOs that call CTC home.
Protech

Protech is an Australian privately owned, leading and dynamic provider of technical and professional advanced workforce acquisition and management services.

As a company established by engineers and project managers, our market leading solutions are developed in partnership with our clients, using a co-creation approach based on formal project methodologies.

Our range of services includes the supply of high quality and responsive temporary labour hire, total project workforce acquisition and traditional permanent recruitment and selection services.
2017 Innovation Award – Glass Artist

Jo Bone and Aaron Micallef have collaborated in hot glass and shared studio space in Brisbane since 2012. In addition to their mutual passion for the medium of glass, they possess shared and complementary aesthetic approaches revolving around pattern, symmetry and intricacy in the natural world.

Their glass artwork and giftware is created in their studio in Brisbane using traditional hot glass (blowing) and cold-working techniques (cutting, engraving, surface finishing).

Each award is completely unique, and designed especially for QMCA.

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The Comms Team

The Comms Team is a mid-sized communication consultancy which brings together experienced, creative communication professionals. We offer integrated communication, community consultation and stakeholder engagement services delivered through passion and commitment.

Working across sectors including transport, infrastructure, land use planning and water, we have a proven track record delivering services for both government and private companies across all phases of planning and delivery.

Our Comms Creative studio provides high-quality, innovative graphic design and visual solutions from branding through to animation and advertising.

The Comms Team is pleased to support the QMCA by providing graphic design for the awards program.
Brisbane Convention & Exhibition Centre – the story behind the food

The Brisbane Convention & Exhibition Centre (BCEC) is driven by a culture of innovation and leadership, resulting in a number of industry firsts.

The BCEC was the first convention Centre in Australia to:

- Build a dedicated boutique venue hub with the launch of the very successful BCEC on Grey Street
- Develop a carbon calculator for events
- Introduce dedicated Speakers’ Presentation Centres
- Offer a separate Tasting Room
- Introduce a permanent art gallery space to house the Centre’s museum quality collection of Indigenous art doubling as a unique event space
- Introduce a dedicated and specialist Customer Services Team

Actual Innovation Awards:

- Best Mobile Campaign including App (Free App) from Meeting Industry Marketing Awards (MIMA) London
- Best Convention Centre in Australasia, CEI Asia for our culture of Innovation and creative approach in driving business events to Brisbane and Queensland

A New Approach to Dietaries - 20%–30% of all meals today are the subject of dietary requests. To meet this ever-evolving catering landscape, the BCEC has established a dedicated Dietary Kitchen, an Australian first for Convention Centres.

Former Queensland Ambassador Chef, David Pugh, whose much acclaimed Restaurant Two was the recipient of multiple Chef’s Hats has joined the talented team of Chefs at the BCEC as Executive Sous Chef, Development.

David, who is well-known in Australian culinary circles, is applying his fine dining award-winning expertise to running the Centre’s newly established dedicated Dietary Kitchen, working alongside consultant nutritionist, Kerry Leech who also takes care of the dietary needs of the champion Queensland Firebirds.

The establishment of the Dietary Kitchen is part of the most significant agenda of initiatives and enhancements relating to the Food & Beverage operation since the Centre opened in 1995.
General Members (Executive)

BCC Contracting
BMD Constructions
Acciona Infrastructure
Clough
CPB Contractors
Fulton Hogan
Golding
John Holland
Laing O'Rourke
Lendlease
McConnell Dowell
Seymour Whyte

General Members (Ordinary)

Allroads
Downer
Ghella

Associate Members

Piper Alderman