



# **Clarence Correctional Centre Australian Construction Achievement Award 2020**

**Stage 1 Submission**

**7 November 2019**

# 1 OUTCOMES ACHIEVED AGAINST PLANNED TARGETS FOR KEY PROJECT PARAMETERS

The Clarence Correctional Centre Project Management Plan identified the following Key Project Indicators (KPIs):

## 1.1 Workplace Health and Safety

KPI	Result
No Class 1 Incidents	Nil
LTI Frequency Rate below 1.2	1.1
TRIFR below 10	5.6

## 1.2 Time

KPI	Result
By Procurement Date in the Development Phase Program	All procurement was delivered as per the Development Phase Program

## 1.3 Cost

KPI	Result
Achieve margins as tendered	Commercial in confidence

## 1.4 Procurement

KPI	Result
By Procurement Date in the Development Phase Program	Achieved
Let subcontract package within 5% of tendered allocation	Commercial in confidence

## 1.5 Quality

KPI	Result
Product Defects (Quality Event Cost) not to exceed 0.1% of Project turnover	0.017%

## 1.6 Environment and Heritage

KPI	Result
Environmental Incident Frequency Rate below 5	0.38
Zero Class 1 Incidents	Nil

## 1.7 Stakeholder satisfaction

KPI	Result
Have less than 5 complaints raised per month	1.45 complaints per month.

## 1.8 Innovation

KPI	Result
<p>Innovative approaches to project issues and the use and development of new technologies</p>	<p><b>Project Innovations in planning</b></p> <ul style="list-style-type: none"> <li>- Operator led campus de-institutionalised approach to design</li> <li>- De-institutionalised landscape solution including trees to low risk female maximum and male minimum security areas</li> <li>- Extensive electronic security to the perimeter in lieu of institutionalised solutions like electrification or razor tape. Security solution with 100% field of view surveillance and sight-lining</li> <li>- Highly 'transparent' secure buildings (e.g. gatehouse) using materials technology</li> <li>- Significant sustainability, daylighting and thermal comfort innovations using building orientation, clerestory windows, sunshades and cross ventilation</li> <li>- Satellite Opiate Substitute Treatment Program (OSTP) for the dispensing of methadone outside a central health facility</li> <li>- Community buildings with satellite audio visual link, education and programs in other areas</li> <li>- Significant artwork program, using local regional gallery artwork and artists</li> </ul> <p><b>Project innovation in design, construction and technology</b></p> <ul style="list-style-type: none"> <li>- Pre-fabrication – modular cells and pre-cast panels, modular steel fencing</li> <li>- Secure glass technology for cells (no bars)</li> <li>- Prisoner property conveyor storage 'bag' system</li> <li>- Snorkel solution for smoke extraction relief air - improvements in daylight and amenity by deleting mechanical dampers which usually inhabit the lower portion of dayroom windows;</li> <li>- 'Multi-keyed' Barri bolt securing system for infrastructure services</li> <li>- Fire services solution under veil of operational &amp; risk management</li> <li>- Innovative fire drenching detailing of secure windows and doors allowing visual security &amp; transparency</li> <li>- Econoclad insulated roof sheeting creating efficiencies in construction and exceeding the BCA requirements</li> <li>- Wifi enabled tablets with IPTV and other functionality for prisoners</li> <li>- Flecked vinyl – extensive use for recurrent cost savings</li> <li>- Drone detection systems</li> </ul> <p><b>Creative Cranage</b></p> <p>Early engagement allowed refinement of the approach and to determine best practice for installing 630 cells, weighing up to 80 tonnes, and 5,000 precast panels .</p> <p>The early involvement meant the project was able to:</p> <ul style="list-style-type: none"> <li>- Refine lifting methods and logistics for cells resulting in cost efficiencies.</li> <li>- Provide an innovative approach to platform design and haul roads for crawler cranes and heavy transport, resulting in significant earthworks savings.</li> <li>- Procurement of high-grade timber Azobe mats from Germany. These mats have capacities like low-grade structural steel and reduce the required capacity and materials for the crane platforms.</li> <li>- Implement a best practice approach to rigging and lift insert design, reducing man-hours and time spent working at heights, resulting in a safer working environment and additional cost savings.</li> </ul>



## 2 COMPLEXITY, DIFFICULTY AND OPTIMISATION OF THE CONSTRUCTION TASK

### 2.1 Logistics

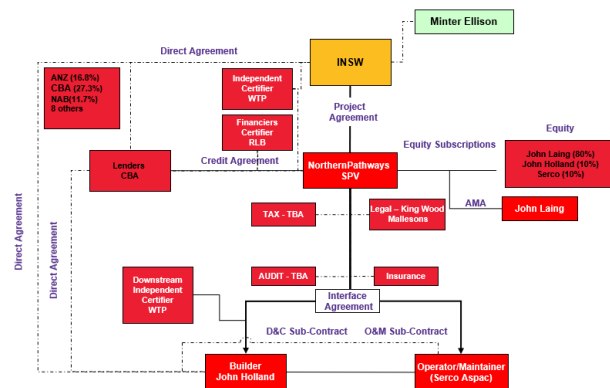
The Clarence Valley is undergoing an infrastructure boom. There are three major projects underway; the new Grafton Bridge (\$240M), the Woolgoolga to Ballina Pacific Highway upgrade (\$4.3B) and the Clarence Correctional Centre (\$700M). This placed a burden on the local resource pool across all projects and resulted in skilled labour shortages. The resources for the project peaked at 1400 per day in mid-2019. This placed stress on surrounding roads and residents, who were not used to large vehicle numbers.

The site is located 12.5 km from Grafton, in a rural area. A greenfield site, the NSW Government has facilitated services to the site, including water, high voltage power, communications and road upgrades, however these were not available until the project was nearly complete. When the project commenced, the road leading to the centre was being upgraded by another contractor, resulting in traffic constraints to and from site.

The large size of the site (195ha) also placed logistical stress on the project. To walk the length of the site takes over 1 hour, with many workers walking up to 20km per day. Internal paths and roadways had to be constructed for wet weather events to ensure the safety of the workforce.

### 2.2 Interfaces

As the Design and Construct contractor in a Public Private Partnership (PPP), John Holland had numerous interfaces with stakeholders. The extent of these are pictured right in the contract structure. Additionally, the project had many external stakeholders and authorities to which we had to report:



Entity	Interface requirements
Police/Fire/Ambulance	Communication of site management/incident reporting plans
Department of Industry	Monthly ISLP reporting
Department of Planning and Environment	Regulatory reporting as required
Environmental Protection Agency	Regulatory reporting as required
Clarence Valley Council	Regular meetings required regarding utilities, local community concerns and economic development
Community Consultative Committee	Quarterly meetings with the 10 community delegates.
Aboriginal Lands Councils	Cultural heritage consultation with 3 Lands Councils and quarterly yarning circles with the local community
Office of Environment and Heritage	Regulatory reporting as required
RMS	Quarterly interface meetings regarding traffic impact and other cumulative construction impacts.
ComCare/Safework NSW	Regulatory reporting as required
Local community	Category 1 Primary stakeholders who are directly impacted or have a vested interest in the project. Category 2 Secondary stakeholders who are indirectly impacted by the Project and need to be kept informed of the Project.

## 2.3 Constraints

On a project of this size, there were several construction related constraints:

- Regional, rural location, presenting logistical constraints and resourcing issues
- Lack of skilled resources in the local area
- Lack of consultation and engagement with the local community during planning stages of project
- Working hours (7 – 6 M-F) and 8 – 5 Saturday) until an extension of Environmental Protection Licence (EPL)
- Poor to no mobile phone coverage for most of the site for the first half of the project construction
- Poor condition of local roads in early stages of project, combined with the impacts of the Pacific Highway upgrade which adjoins the project site

## 2.4 Community

The project worked diligently to forge positive relationships with our neighbours. When the team wanted to expedite the program to work 7 days per week, outside EPL, they drew upon these relationships and negotiated agreements to extended working hours (6am – 10pm, Monday to Friday and 7am – 5pm Saturdays and Sundays). Negotiated agreements are rarely accepted by residents and licence amendments difficult to obtain. The team clearly outlined the parameters of extended working hours; the residents gained a thorough understanding of the impact of the works; the agreements were approved and EPL amended.

The project is located on a road traditionally used by farmers to move stock. Consultation discovered three farmers held Stock Movement Permits. A stock movement protocol was developed to enable farmers to move stock during periods of high construction traffic. Further consultation found the farmers were impacted by the new Pacific Highway alignment. The cumulative impacts of the two developments was much greater than anticipated. Seeing how deeply affected the farmers were, the team successfully lobbied the NSW Government and the farmers were granted mitigations to facilitate stock transport.

The site contains five detention basins holding a total of 35.8ML. Surrounding landowners were concerned with basin operation, which saw flow rates and quantities of water vary from predevelopment levels. The team invited neighbours to visit site and have the EPL process explained; they also implemented pumps, to pump from the basins into the WWTP pond during periods of heavy rainfall, limiting overflows and dirty water entering waterways. The water was then treated and released as clean water into surrounding waterways. The landowners were consulted and advised of mitigation measures, and a discharge protocol was implemented, which advised residents of water quality and discharge periods and mitigated the number of complaints.

## 2.5 Risk Management

John Holland developed, implemented and regularly updated a project specific Risk Management Plan which covered the D&C contractual requirements, including:

- organisational structure identifying key personnel with risk management responsibilities and accountabilities,
- interfaces of the Risk Management Plan with other Plans;
- details of the risk management principles, framework and processes in accordance with ISO 31000;
- processes and procedures for the identification, assessment, treatment and management of risks;
- a risk register, including risks, hazards, risk owners, mitigation strategies and residual risk assessment;
- timing and details of risk review processes, compliance, and audit related activities;
- specific measures to minimise risks to Project stakeholders, including third party stakeholders; and
- Reporting procedures

## Safety In Design

The Safety in Design process was a risk management-based process involving the Operator and was implemented through the Design Development Phase focusing on design layout, configuration, selection of materials, construction methodology, future maintenance and serviceability. The Safety In Design risk analysis identified under two principle categories:

1. General Safety in Design
2. Project Risk Assessment

Unique to the Safety in Design process under the PPP was the identification of Operational Risk items as part of the design mitigation process incorporating aspects of design planning, hardware systems, products & energy controls.

## 2.6 Sustainability and conservation

**Biodiversity:** Through Consent Conditions, the project purchased ecosystem and species credits through Biodiversity Conservation Trust. John Holland also purchased squirrel glider, koala, brush-tailed phascogale and wetland ecosystem credits. Currently we are negotiating the purchase of credits on local property and emu credits for our Biodiversity Offset Strategy.

**Water reuse:** Construction activities had intensive water use requirements. Vast amounts were needed for dust suppression, ground treatment and landscaping. 85ML of non-potable wastewater was captured and recycled for construction purposes, resulting in a reduction of use of potable water, which during the current drought, was an important environmental outcome.

**Trees preservation:** Across the site, patches of vegetation were identified early and protected from disturbance. This includes over 24ha conservation area along the western perimeter. Security fence extending its length was the first construction activity for the project, providing immediate protection.

**Reuse of site won mulch and topsoil:** Over 6210m<sup>3</sup> of mulch was created from the trees cleared for the project footprint. This material was screened and blended with topsoil to serve as an organic matter additive. Other mulch was used for tree/gardens, erosion and sediment controls.

**Environmental awareness campaign:** Since construction commenced an environmental awareness campaign 'Green Wednesday' has been run weekly. Publications on 75 environmental awareness topics were distributed to personnel who have used them for Toolbox Talks and prestart messaging.

**Waste Innovation:** Innovative ways were devised to deal with difficult waste streams, the most problematic being polystyrene waffle pods used for slab pours. To prevent airborne polystyrene beads escaping during the cutting process, the pods were cut inside flyscreen mesh enclosures. The loose beads were vacuumed up and sent back to the supplier with the offcuts for reprocessing and reuse. The polystyrene packaging that came with the 8ha of roof panelling created a similar issue. When substitution for another packaging material could not be established by the supplier, a recycling system was devised. This saw the same quantity (8 ha) of 50mm thick polystyrene backloaded and sent to a recycling facility by the supplier.

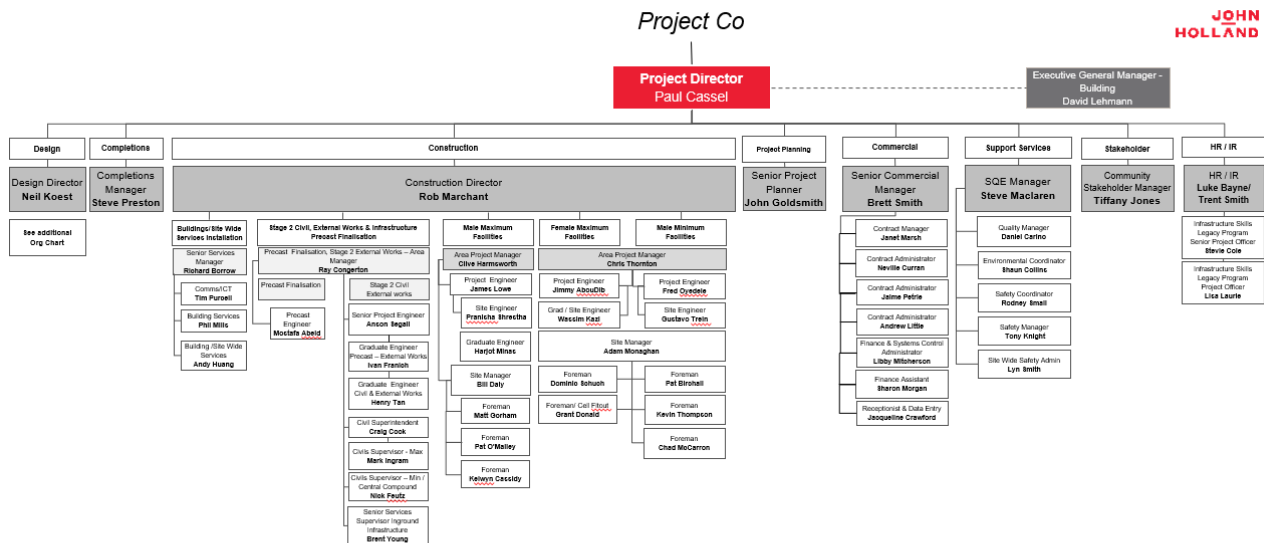
**Recycling:** Approximately 8000t of concrete has been recycled by a local quarry licensed to receive this waste material. Material is crushed and blended with raw materials for reuse as road base.

**Design:** Project wide BCA exceedance of energy requirements of 6-14%.

# 3 LEADERSHIP AND MANAGEMENT OF THE PROJECT DELIVERY

## 3.1 Project team relationships

A Project of this size requires considerable resources, and the John Holland team peaked at 75 staff, plus 30 workforce. Due to size, the project was divided into four areas: Female Maximum, Male Maximum, Male Minimum and External Works (Civil). This enabled autonomy for each area, with the works programmed in stages to avoid resourcing issues.



Clarence Correctional Centre Delivery Org Chart Rev. 50  
5 November 2019

Subcontractors/Suppliers

## 3.2 Generating a legacy for the construction industry

The project was selected as an Infrastructure Skills Legacy Program (ISLP) pilot project (one of five projects in NSW). The ISLP aims to capitalise on record levels of infrastructure investment to boost the number of skilled construction workers and create fresh pathways to employment across the state.

The project was selected due to its size, regional location and proximity to Grafton which is recognised for economic disadvantage and as a youth unemployment hotspot with a rate of 23.5% compared to the state average of 10.1%.

The project worked collaboratively with the contractors and John Holland managers to gain their buy-in and alignment with the program's intent. ISLP officers supported the contractors to achieve the targets by running information sessions and linking them with local services and government resources to support recruitment and retention of local workers, young people and workers of ATSI origin.

A 'Workforce Transition Support' series was held in Q4 to provide practical support for workers finishing up on the project and assist them to prepare for the future and link them up with support services during times of stress.

- While we exceeded the target for women in non-traditional construction occupations, a 'Women in Construction' event was delivered onsite in collaboration with TAFE NSW to promote pathways for women in the construction industry beyond the life of this project
- With the high number of young people on site, events supporting the engagement and retention of young workers was delivered by Caring in Construction, including 'Hints for a Healthy Headspace' and 'Foundations for the Future'

Targeted Outcomes	ISLP Target	Average (Apr 2018 – Aug 2019)	Progress
<b>Learning Workers (excluding apprenticeships)*</b>	20%	11.5%	not met
<b>Apprenticeships</b>	20%	32.8%	Exceeded
<b>Women in Non-Traditional Occupations</b>	2%	2.4%	Exceeded
<b>ATSI employed on the project</b>	John Holland target: 8%	9.1%	Exceeded
<b>Less than 25 years</b>	8%	20.9%	Exceeded
<b>Local workers</b>	n/a	34.5%	n/a

\*As a pilot project, participation is to trial and refine ISLP. The Department of Industry is considering amending the Learning Worker target for future projects to include the Apprentice numbers. This lesson they have gained from the project (and others) and will lead to guidelines amendments for future public major projects in NSW.

### 3.3 Entrant's contribution in the design process

John Holland, as D&C contractor, was responsible for the engagement, management and coordination of over 31 expert corrections design consultants. This included management of all design packages, which totalled over 20,000 documents across 84 design review packages to the stakeholder group. These commenced in July 2017 and the majority were concluded in September 2018. These were presented in up to 4-5 concurrent submissions per month of varying status.

An operator led design, the approach to design management needed to consider the review and submission and management of design deliverables to multiple stakeholder parties, including as part of the PPP process consortium members, such as Project Co and the operator and stakeholder parties such as the State and the independent certifier. The Design Management Plan outlined how this would be managed.

### 3.4 Workplace Health and Safety

John Holland recognises suicide and mental health issues are a pervasive industry-wide problem and backed the project HSEQ Manager to develop a strategic project-based response. As a result, the project developed and implemented Caring in Construction – suicide prevention & mental wellbeing pilot.

Caring in Construction is acutely aware of the impact construction projects can have on regional communities as projects draw to completion and 'pack up and leave' the area. Exacerbated by the local issues of economic disadvantage and high levels of youth suicide in the region, the program was designed to provide sustainable mental health solutions for the workforce.

Achievements since launching Caring in Construction in August 2018:

- Accreditation and mobilisation of 25 on-site Mental Health First Aiders (MHFAs).
- Data-collection system commissioned to capture progress. Summary of results at 30 June 2019:
  - o On average the MHFA service is being accessed by a worker every 5 days,
  - o 61% of whom are local to the Clarence Valley,
  - o 44% of the total were identified as either 'at-risk of harm to self or others' or presenting 'moderate mental-health-issues'. \ \

Follow-up contact is captured within 8-weeks of initial contact. Up-take of 'recommended support services' is around 70% and a decline in the severity of the original presenting symptoms is evident.

Caring in Construction continues to develop and grow, with roll out to other John Holland projects expected in 2020.

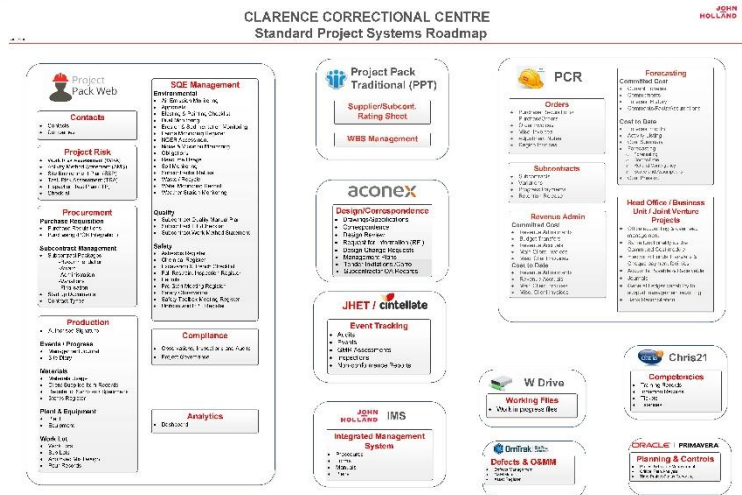
Additionally, the project has:



- Invested 5-600 manhours per month training workers in procedural matters to gain the awareness and knowledge to conduct their works in a safe manner reducing risk to themselves and their workmates.
- Introduced the “Daily Safety Brief” that goes out to all workgroups each day and delivered at every pre-start meeting conveying critical HSE information and instruction, ensuring everyone on the same page.

### 3.5 Planning and control of design and construction operations

John Holland uses a suite of cutting-edge software for the planning and control of projects. The structure used for the Clarence Correctional Centre is pictured right. Additionally, the project management plan (and subplans) outline the planning and controls required for the project.



### 3.6 Industrial relations

John Holland has completed over 3.7 million-man hours of the Project, with zero lost time due to industrial action. This is a significant result when considering the scale of the project and the number of subcontractors delivering the works.

John Holland has achieved this outstanding result through the implementation of the below IR approach:

- **Engaging with Stakeholders** – John Holland has engaged extensively throughout the Project with key external stakeholders, including regulators and various unions. This engagement commenced prior to construction and has continued throughout the Project;
- **Subcontractor Management** - John Holland has well-established, best-practice procedures to manage sub-contractors. Additionally, we convened a monthly subcontractor IR meeting to raise issues and address concerns. John Holland was also proactive in ensuring IR disputes relating to subcontractors were dealt with in accordance with the relevant grievance procedure and closed out in a timely manner;
- **Effective dispute resolution process** – A robust Health and Safety Committee was established at project commencement with all subcontractors participating in the process. This was an effective way to manage and resolve any safety issues as they arose.

### 3.7 Training and development initiatives

Approximately 700 workers have participated in NSW Smart & Skilled training since 2018 delivered by local RTOs, enabling many to obtain basic tickets as well as high risk work licenses. The training addresses industry skills shortages, while also building capacity of the local community/workforce.