

# AWARD-WINNING INNOVATION

**DEVELOPER :** Corrective Services NSW  
**MAIN CONSTRUCTION COMPANY :** Watpac  
**ARCHITECT :** MODE Design  
**STRUCTURAL ENGINEER :** Northrop Consulting Engineers  
**CONSTRUCTION VALUE :** \$140 million

Watpac was engaged by Justice Infrastructure NSW as the Design and Construct Contractor to deliver the Mid North Coast Correctional Centre Expansion project. The new expansion includes four new accommodation blocks, exercise yard, an industries and programs building, health clinic, segregation and protection cells, recycling building, custodial offices and outdoor recreational areas, and a new secure perimeter with an integrated security system.

The Mid North Coast Correctional Centre upgrade project involved a 440-bed expansion of the existing correctional centre near Kempsey on the mid north coast of New South Wales. Construction was carried out by Watpac, a leading national construction company established in 1983. The project commenced onsite in April 2018 and was completed on time and on budget.

The existing correctional centre remained operational throughout the works, with the new expansion zone constructed directly adjacent to the existing centre and the secure prison perimeter was broken

through during the programme to connect the two together. Extensive refurbishment works were also required to the existing areas which was done in a phased manner.

“The interfacing with the existing operational centre needed close planning with Corrective Services to minimise disruption,” said Luke Hunter, Project Manager. “Collaboration between all stakeholders was required and everyone contributed to the success of the job. We tried to create partnerships between all stakeholders throughout the project journey.”

“Key personnel were consistent throughout the project which shows the positive culture that was created onsite,” said Luke. “People were invested until the end which made a big difference to the project.”

As a community focused company, Watpac are also committed to supporting regional growth which was evident on this project where 50% of the total trade costs came from local businesses. “We set ourselves pretty high targets for local involvement, especially on regional projects,” explained Luke. “It’s definitely a key focus for the business wherever we can.”

Watpac proposed a number of design innovations for the project including changing the new accommodation block roof from a structural steel portal frame to a lightweight steel truss that could be assembled at ground level and craned into position. As well as taking the roof works off the project critical path, the resulting health and safety benefits in terms of minimising working at height won Watpac a Safe Work NSW award.

Precast concrete footings were chosen for the 1km secure perimeter wall around the boundary of the expansion zone. “The precast footing had not been done before in the Prison Bed Capacity Programme and worked very well. It eliminated a lot of site works and created significant project efficiencies,” explained Luke. “In regional areas, the availability of sufficient skilled tradespeople to deliver the project

is often a big challenge. Prefabrication of the footings allowed us to reduce the number of site resources that were required.”

Innovations such as these were introduced following extensive user reviews with the client during design finalisation and allowed Watpac to optimise the project cost without compromising on the design. “Our value management approach added big benefits in terms of the overall value for money of the project,” said Luke.

Watpac were well placed to deliver a successful result for the project through their Port Macquarie office which gives them local knowledge and engagement with the Mid North Coast Region. Their local portfolio includes hospitals such as Port Macquarie Base Hospital and Kempsey Hospital, education facilities such as Charles Sturt University, aged care projects and defence projects.

With a strong Australian heritage and now part of the global BESIX Group, an international contractor with iconic projects like Dubai’s Burj Khalifa to their name, Watpac has national operations in Brisbane, Sydney, Port Macquarie, Melbourne, Adelaide and Townsville.

*For more information contact Watpac Limited, Level 1, Suite 2, 68 Clarence Street, Port Macquarie NSW 2444, phone 02 6584 9693, fax 02 6584 0358, website [www.watpac.com.au](http://www.watpac.com.au)*

Images this feature:  
Aerial photography by SKYview Aerial Photography.  
Ground photography by Industrial Photography Australia,  
Leopold Aerial Photography and Iron and Clay Photography



Below Northrop delivered all structural and civil engineering including the precast system for the perimeter wall as well as adjusting the design for the roof.



Below Custom Steel Frames prefabricated the steel trusses used for the accommodation building roofs, which were lifted into place once assembled.



Image by Industrial Photography Australia



Image by Industrial Photography Australia



Image by Industrial Photography Australia



Northrop Consulting Engineers were engaged to deliver all structural and civil engineering design and documentation, in addition to construction phase services for the expansion of the Mid North Coast Correctional Centre. The project also included alterations and additions within the existing facility.

With extensive correctional centre experience, Northrop understand the unique challenges associated with such projects. “Security is absolutely the number one priority,” said Greg Laver, Lead Structural Engineer. “Any areas that may be occupied by inmates, must have secure ceilings, secure roof structures and solid walls.”

The facility remained operational throughout the construction process which posed additional challenges. “We had to work around the functioning facility as well as meeting the security needs of the officers,” said Greg. “We designed a precast fence system for the 1km perimeter security wall. This meant that no temporary propping was required which greatly reduced construction time and the impact on the existing facility.”

Northrop were also instrumental in adjusting the design for the accommodation building roof, which resulted in a reduction of

steel tonnage by utilising light steel framing. “This allowed the roof structure to be assembled on the ground, the roof sheeting attached, then lifted directly onto the supporting accommodation cells. This greatly improved safety by reducing the amount of time working at height. Temporary scaffolding was also not required.”

Successful delivery of any project relies on the relationships developed. “Northrop would like to acknowledge the outstanding work by Watpac’s site management and construction team on this project.”

Established in 1976, Northrop is a successful engineering consultancy locally owned and managed by engineers who work in the business. The company employs over 400 staff with eight offices across New South Wales, Queensland, Victoria and the Australian Capital Territory. Highly experienced in civil, structural, building services and sustainability, Northrop service a wide range of infrastructure, site works and building projects, offering complete engineering services to support full project delivery.

For more information contact Northrop Consulting Engineers, Level 1, 215 Pacific Highway, Charlestown NSW 2290, phone 02 4943 1777, email newcastle@northrop.com.au, website www.northrop.com.au

A key innovation utilised on the Mid North Coast Correctional Centre upgrade project was the use of light steel trusses for the roof structure of the four new accommodation blocks. Custom Steel Frames worked closely with both Watpac and Northrop Consulting Engineers, to develop the design in the early stages of project development. This relationship enabled the development of a solution that met the client’s requirements while enhancing safety and accelerating the erection process.

The roof trusses were designed by Custom Steel Frames, and then prefabricated by welding high quality lightweight steel in their factory. The 10m trusses were easy to manage and assembled onsite by experienced erectors at ground level before being craned into position.

“The roof lifting approach allowed a number of trades to reduce their exposure to falling from height,” said Colin Shanks, Managing Director of Custom Steel Frames. “It also allowed large sections of the building to be closed out very quickly once the roofs were lifted into position.”

The roofs for each accommodation block were divided into eight separate lifts, which each included the roof structure, insulated panels,

mechanical ductwork and the safety rail. Custom Steel Frames works constructed roof trusses for just under 10,000m<sup>2</sup> of roof area of which 7,200m<sup>2</sup> was assembled at ground level and craned into position.

The largest individual lift (34m x 11m) was 15 tons (including chains and a 21m spreader bar) which required the use of a 220 ton crane. “This was a rewarding and challenging project to be involved in,” said Colin. “We’ve been doing roof lifts on projects for over 20 years. When you get the right project it’s a better way to build.”

As the leading and longest established makers of steel frames and trusses in New South Wales, Custom Steel Frames are constantly building on their 25 years experience in manufacturing frames for residential and commercial projects and deliver cost effective solutions for projects of all types and sizes.

For more information contact Custom Steel Frames, 110 Fitzroy Street, Dubbo NSW 2830, phone 02 6884 2266, email csfd@customsteel.com.au, website www.customsteel.com.au

Below Australia Wide Roofing's work on the accommodation block roof contributed to the Safe Work NSW award won Watpac.

Below BAVAP installed non-slip flooring and waterproofing to the kitchen and coolroom areas.



As a leading nationwide provider of metal roofing services, Australia Wide Roofing's team of experienced professionals uses quality materials from trusted suppliers to deliver roofing systems that will pass the test of time.

Australia Wide Roofing supplied and installed Colorbond roofing, Kingspan Insulated Panel roof and wall cladding along with gutters and downpipes for the accommodation blocks, health and segregation blocks, linkways and walkways to the Mid North Coast Correctional Centre.

"We played a big part in the job. We were onsite from start to finish. It was challenging at times but we have got the manpower and capability to bring in projects like this on time and on budget," said Rob Atherton, Director

The roof for the accommodation block was prefabricated at ground level before being craned into position. This innovative approach resulted in a quicker and safer installation.

Australia Wide Roofing's work on the accommodation block roof contributed to the Safe Work NSW award that was won by the main

contractor, Watpac. Subsequently, Australia Wide Roofing was also nominated and won the Metal Roofing and Cladding Association of Australia's 2019 Safety Award.

Australia Wide Roofing were able to build on their existing strong relationship with Watpac to deliver a successful result for the project. "Credit should go to Watpac for a very well run and organised job," said Rob.

Established in 2001, Australia Wide Roofing is committed to delivering a high standard of customer service at an affordable price. Their professional team treats every property with the utmost respect and has the experience to tackle any metal roofing project.

For more information contact Australia Wide Roofing, 4/2 Statham Street, Bennetts Green NSW 2290, phone 02 4948 6164, email office@australiawideroofing.com.au, website www.australiawideroofing.com

BAVAP are specialist installers of epoxy and polyurethane floor coatings. Servicing Australian Capital Territory, New South Wales and Victoria, they provide the best quality floor coatings achievable for government and private projects from large to small. They installed non-slip flooring and waterproofing to the kitchen and coolroom areas on the Mid North Coast Correctional Centre project.

This was the first time BAVAP had worked with Watpac, who were looking for an applicator that could achieve the correct finish within a tight timeframe.

"The manufacturer, Hychem, recommended us. We had previously used Hychem on the Junee Correctional Centre project which was completed this year so they knew we were quite comfortable with the corrections environment," said Anja Peschler, Director.

"The Hychem product had already been specified by the design team but we would have recommended them regardless," said Anja. "We have a very strong relationship with manufacturers. With their technical expertise they can meet us in the middle to solve the unusual situations that emerge on any project."

To ensure the project ran smoothly, BAVAP drew on their combined experience of 50 years including specialist experience in correctional facilities.

"Once we got started the project was straightforward. We had good communication with the other trades onsite and the builder. It's nice to work with people you know and trust, and who know that they can trust you to get the job done," explained Anja.

Regardless of the size or type of project, BAVAP's first goal is to achieve outstanding finishes of the highest quality. "We hold ourselves to delivering better than acceptable finishes," said Anja. "We pride ourselves on keeping up with our commitments which takes the stress away from our customers because they know what they will get."

For more information contact BAVAP Pty Ltd, phone 0435 958 449, email admin@bavap.com.au, website www.bavap.com.au

Below Coffs Coast Formwork supplied a range of concrete services to the new section of the Mid North Coast Corrections Centre.



Below Commercial Painting Group were responsible for all the painted finishes including doors, windows, frames and epoxy wall finishes.

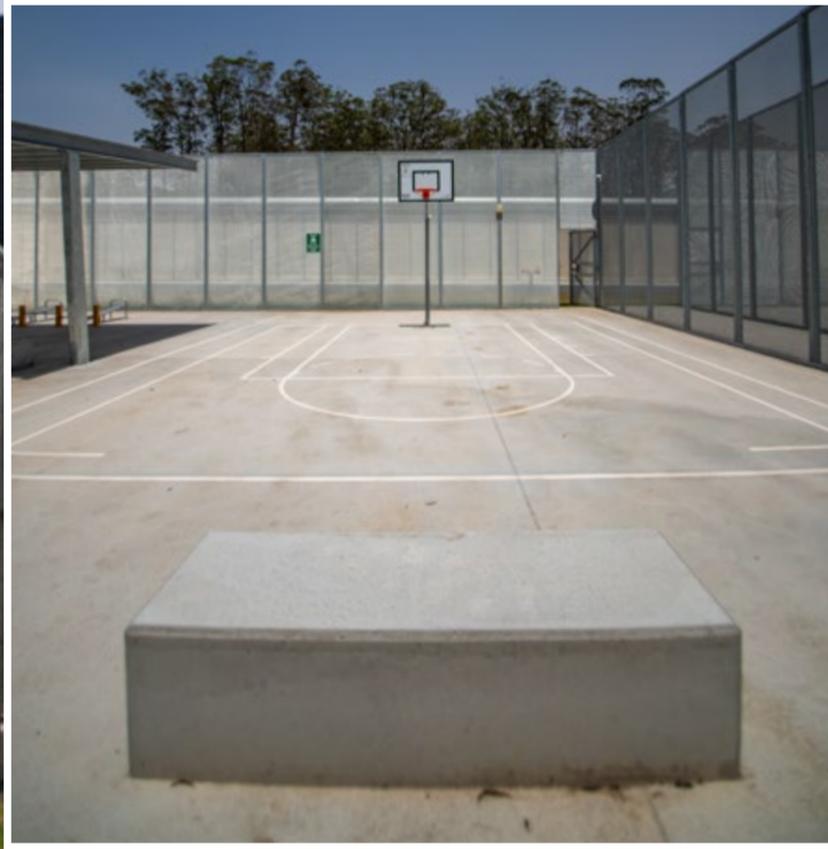


Image by Industrial Photography Australia



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Image by Industrial Photography Australia



Coffs Coast Formwork provided all aspects of formwork and concreting works to the Mid North Coast Correctional Centre's upgrade, which included ground slabs, suspended slabs, roadways, walkways and stairs. Their work also included detailed excavation, placing of reinforcement, as well as the pumping and finishing of concrete.

The team at Coffs Coast Formwork are safety conscious and were able to work effectively to complete their works programme within time. "The programme was tight but it was well organised by Watpac and proved to be achievable," said Michael Dahl, Company Manager. "We pride ourselves on our quality and that's how we get our repeat business."

The ability of Coffs Coast Formwork to provide an end-to-end service from formwork to finished concrete, is a key point of difference for the company. "It means that we can control the quality, it also means we control our own destiny as far as the programme goes," explained Michael.

Based in Coffs Harbour, the company has a long history of serving the Mid North Coast of New South Wales. They have a wide range

of project experience including schools, hospitals, apartments, and government buildings. "Our attitude is that no job is too big or too small."

The positive culture at Coffs Coast Formwork is a key part of their success. "We are a family based company and we treat our employees as family. We like to think we're builder friendly and we always try to provide a quality product," said Michael. "We are particularly proud of the work we put in on this project and the fantastic end result we achieved."

For more information contact Coffs Coast Formwork, 25 Craft Close, Toormina NSW 2452, phone 02 6658 1665, email info@ccform.com.au

Commercial Painting Group Pty Ltd are a Dulux accredited, award-winning master painter that offers a wide variety of solutions for projects across New South Wales. For the Mid North Coast Correctional Centre they were responsible for all the painted finishes including secure doors, cell doors, steel windows and frames and epoxy wall finishes.

The Dulux SteriGuard product was used throughout the project. "The product was something that we recommended because of the overall benefits," said Deb Morton, Project Advisor. "One advantage of this product is that it is chemical and scrub resistant as well as being anti-bacterial and anti-microbial. It gives a better outcome not only for residents but also for the staff."

With prior experience on similar projects including Junee and Wellington Correctional Centres, Commercial Painting Group had no problem delivering a successful result in this case. "We found the project straightforward as Watpac ran a successful project," said Deb.

Commercial Painting Group have previously worked with Watpac on projects including Port Macquarie Base Hospital, Kempsey Hospital and Charles Sturt University. They are also currently working on many

other projects including Macksville Hospital, Mudgee Hospital and Warilla Library. "We are pretty diverse. Our attitude is 'have work, will travel'," said Deb.

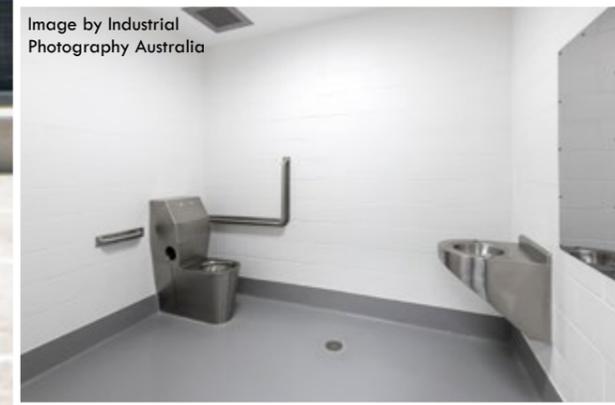
Commercial Painting Group remains a family owned business and this ethos shows in the value they place on their workforce. "Some of our guys have been with us for eight or nine years," Deb said. "Our team is very dedicated to what they do. We couldn't do what we do without them."

This dedication is evident in the results they achieve time and time again. "No matter what happens on a job we will always get it over the line on time," said Deb. "With our can-do attitude, whatever your project we will make it work for you."

For more information contact Commercial Painting Group Pty Ltd, phone 0435 009 665, email deb@commercialpaintinggroup.com.au, website www.commercialpaintinggroup.com.au

**Below** Verges Creek Polished Concrete completed approximately 2,000m<sup>2</sup> of concrete polishing onsite applying an industrial crème polish finish.

**Below** Hogan Group were appointed to complete the hydraulic works, including installation, commissioning and testing.



**Verges Creek Polished Concrete** is a newly established family run business based in Kempsey, New South Wales, which specialises in achieving beautiful, functional and sustainable polished concrete outcomes for both commercial and domestic customers.

On the Mid North Coast Correctional Centre upgrade project, the company polished approximately 2,000m<sup>2</sup> of concrete. They used a 3-phase grinder and gas burnisher to provide an economical and dust suppressant industrial crème polish finish to the floor. This process, developed by Owner, Mathew Renfrew through 20 years of experience, resulted in a clean, hygienic and functional floor that will stand the test of time.

Having worked previously within the Mid North Coast Correctional Centre facility, Mathew already had a good understanding of the tight regulations and Corrective Services requirements.

“The floor needed to be hard wearing, dust free and stain resistant while still being aesthetically pleasing,” explained Matthew. “The slab itself was good and fit for purpose so our system did not need much adaptation. It was a pleasure working with Watpac on the project,

they were easy to communicate with and everyone was there to get the job done. We appreciated the opportunity to showcase what we are capable of.”

Verges Creek Polished Concrete is owned and operated by Mathew and his partner Rachael Jeffree, and combines Mathew’s experience in the construction industry with Rachael’s background in administration and law. Mathew has built a strong local reputation as a reliable, efficient tradesman who strives to achieve the desired outcome for his customers.

Verges Creek Polished Concrete prides themselves on going the extra mile for their clients. Their ambition is to build a loyal and happy team of exceptional concreters and polishers who will master the art of concrete polishing, building on their clients’ inspirations and exceeding their expectations.

*For more information contact Verges Creek Polished Concrete Pty Ltd, phone 0488 002 648, email admin@vcpolishedconcrete.com*

**Hogan Group** combines three generations of plumbing and roofing industry experience with a comprehensive fleet of heavy plant and machinery. Based in Taree, New South Wales, they strive to support local employment in the Mid North Coast.

Hogan Group completed the original hydraulic installations at the Mid North Coast Correctional Centre in 2001 and were appointed to complete the hydraulic works for the recent expansion project which included the refurbishment of existing areas and construction of a new 440-bed accommodation facility. The hydraulic works involved installation, commissioning and testing of all wet services including connections to site wide infrastructure.

The existing sewer infrastructure had to be expanded to accommodate an additional 440 inmates. Hogan Group’s proposal for the installation of an independent dedicated sewer main was implemented and an additional sewer pump station diverted all newly completed infrastructure from the existing pump station.

Prefabrication was utilised on the project with the four maximum security pods coming complete with all services and sanitary fixtures. This rapidly accelerated the installation of the hydraulic services and

helped Hogan Group meet the client’s tight timescales. Compressed programmes were a constant challenge for all trades. These were achieved with a positive approach to meeting deadlines set by Watpac, the head contractor, and the Hogan Group project management team.

The positive working relationship between Hogan Group and Watpac stems from prior projects including the Port Macquarie Base Hospital, Kempsey Hospital expansion and Charles Sturt University. Hogan Group management advised that Watpac are a proactive company. Their project management teams liaise directly with site personnel, creating a positive outcome for all associated with the project.

Hogan Group successfully completed the project with expertise and support from Reece Plumbing Supplies, Tradelink Plumbing Supplies, Aqua Energy Group, Refire Group, Tasman Tanks, Opie Manufacturing Group, Enware Smartflow and Thermann Hot Water Heaters.

*For more information contact Hogan Plumbing Group, 6 Flametree Close, Taree NSW 2430, phone 02 6552 0900*



The recently completed Mid North Coast Correctional Centre project was a complex undertaking including a new expansion connected to the existing facility as well as renovations and alterations within existing areas.

Port Demolition carried out a range of works on the project including removal of around 200m of secure perforated sheet metal fencing, associated footings and piles as well as internal strip out works and removal of overhead street structures.

A phased approach to the demolition was required to suit the programme. Port Demolition attended site for around five months in total with up to seven operatives onsite at any one time.

Despite the challenging nature of the project, Port Demolition had no problems getting the work done to a high standard. "We have done correctional centre work before," said Tony Williams, Founder and Owner. "We have also worked a lot with Watpac and always find them very good to work with."

Port Demolition are experts in demolition and earthmoving works for projects of all types including residential, schools, carparks, roads,

drainage, sewerage and asbestos removal. They boast a large selection of equipment including excavators ranging from 2.5T to 36T capacity, tip trucks, low loaders, vibrating road rollers, graders and bulldozers.

Established in 1985, Port Demolition are proud to serve the Port Macquarie region as a locally family owned business with quality demolition and earthmoving at affordable rates.

Port Demolition focus on their reliability, which Tony believes sets them apart. "With our 30 years of experience we pride ourselves on getting the job done quicker and better than the competition."

The team at Port Demolition are ready to definitely rock your world, with any jobs requiring a professional demolition and earthmoving contractor on the New South Wales Mid North Coast,

For more information contact Port Demolition, 537 Hastings River Drive, Port Macquarie NSW 2444, phone 0418 654 009, email portdemo@bigpond.com