

MARINE

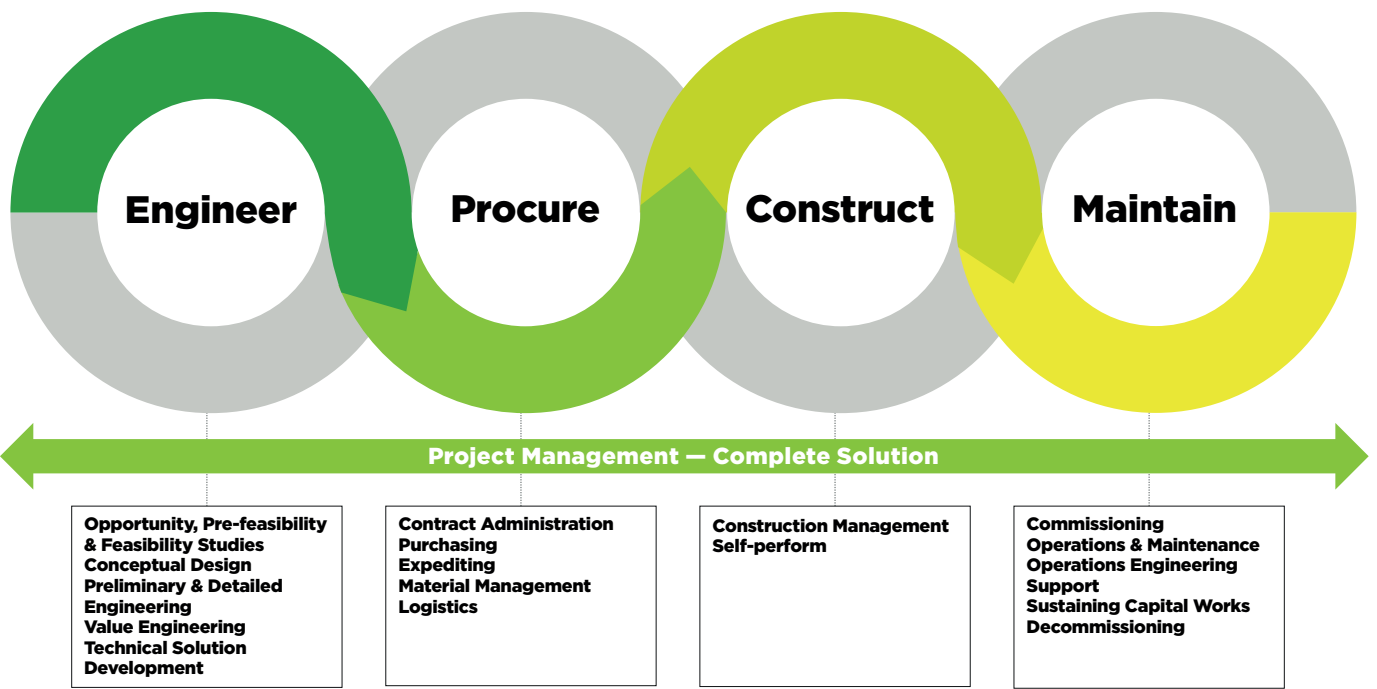
DRIVING PROGRESS



BUSINESS MODEL

A value offering encompassing part or full optimal integration of the complete life cycle of project execution; Project Management, Engineering, Procurement, Construction, Commissioning and Operations.

Value Offering



Market Sectors

Infrastructure

- Power
- Water & Waste Water
- Transport

Resources

- Mining & Metals
- Oil & Gas
- Petrochemical

Building

- Government
- Commercial/Industrial
- Social/Residential

Specialist Capabilities

- Marine
- Pipelines
- Tunnel & Underground
- Rail
- Mechanical
- Civil
- Fabrication
- Building

Global Regions



We operate throughout Australia, Asia, New Zealand, Pacific Islands and the Middle East. Bringing local knowledge and international expertise.



Innovation and creative construction in Marine.

The McConnell Dowell name is synonymous with marine design and construction, with over 330 marine projects and 60 years of award-winning solutions for wharves, jetties, ocean outfalls, breakwaters, causeways and submarine pipelines.

The last two decades have witnessed profound change in the international maritime market. Increased global demand for goods and resources is driving the change. This comes concurrent with the globalisation of manufacturing and delivery supply chains. At the same time, vessel sizes are growing bringing even greater demand for port infrastructure investment and changes in how we use facilities. Ports play a critical role in prosperous cities and in national and regional economies.

For modern day marine projects to meet the demands of progressive cultures they must mitigate environmental impact while growing profitability, increasing performance and fostering positive community relationships. There is increasing pressure to find the most efficient and beneficial way to operate within limited land areas.

In designing new marine facilities McConnell Dowell gives priority to social, cultural and environmental components of each unique community. Sustainable outcomes are built into every project and we take the safety of our workers, our customers, the public, and the community very seriously. Our projects are consistently recognised for their engineering excellence, safety, and sustainability.

We can help drive progress for Port owners across all asset types based on our multidiscipline capability and broad local and international experience in marine projects. Our infrastructure capabilities include:

Wharves & jetties: We bring a strong track record of working in busy operational port environments and provide a safe working environment for all port users.

Outfalls: We deliver complex and challenging water infrastructure projects. Internationally, our fleet of marine equipment is cutting-edge, while our systems and procedures for marine project delivery minimise disruption to both the community and the environment.

Pipelines: A leading international pipeline contractor, we have constructed over 30,000 km of new pipe networks across more than 200 projects using horizontal directional drilling (HDD), micro-tunnelling, direct pipe, marine pipe pulls, pipe bridges and other complex crossing solutions.

McConnell Dowell has a dedicated in-house Engineering Department with extensive experience in designing both permanent and temporary structures for our projects. Our technical expertise is complemented by our relationship management skills and our flexibility around partnerships and contract arrangements. We engage in all types of business relationships, from fixed price contracts and Framework Agreements for maintenance and capital improvement projects through to risk-reward based systems such as Design and Construct (D&C), Early Contractor Involvement (ECI), and Alliances.



McConnell Dowell has a proven track record of delivering world class marine projects. Our projects are consistently recognised for their engineering excellence, safety, and sustainability and our fleet of marine equipment is world leading.



Driving Progress Through Collaboration

With a culture that is founded on continuous improvement, innovation, and developing long-term relationships with customers, we embrace collaborative contracts such as Early Contractor Involvement (ECI). We find the ECI model helps to nurture enduring relationships between project parties as well as to develop cost-effective and certain outcomes quickly.

We work collaboratively with customers, design teams, and project stakeholders to build on existing knowledge and experience. Through risk reviews and optioneering workshops we identify any potential issues and innovations in the project design and delivery.

Effective management and control of these services is underpinned by our industry-leading project management systems.

The McConnell Dowell Management System (MMS) is well suited to complex projects which involve multiple participants and require smart tools to support teams working collaboratively to achieve outstanding outcomes. At its most basic level the MMS guides projects to compliance. However, its flexibility and scalability are key attributes that have led to the delivery of many successful projects. The MMS can integrate our project partners' systems into the overall project execution system, as it has done on the \$1.4 billion Waterview Connection project and Wynyard Edge Alliance.

When combined with talented people, the MMS becomes a 'learning' management system.

At the start of the project the MMS provides the blueprint for robust project management and storage of the growing project information generated in the project's early stages. Information is not only stored, but integrated into the MMS, which becomes more specific to the project, the design, and the methodology as they are developed. Lessons learnt and best practices documentation generated during delivery are then considered and reviewed during work planning activities on the next project.

Project Experience

Project Name	Client	Contract Type
The 36th America's Cup Infrastructure by Wynyard Edge Alliance	Auckland Council / Panuku	Alliance
Stronger Christchurch Infrastructure Rebuild Team	Christchurch City Council / Christchurch Earthquake Authority / NZ Transport Agency	Alliance
Sydney Desalination Project	Sydney Water Corporation	Alliance
Toll Berthing & Infrastructure	Toll Transport	ECI
Hay Point Shiploader 2 and Berth 2 Replacement	BM Alliance Coal Operations Pty Ltd	ECI
Swanson Dock East Berth 1	Port of Melbourne	ECI
Australian Maritime Infrastructure Wharf Upgrades	Commonwealth of Australia	D&C
Holcim Jetty	PT Holcim Indonesia TBK	D&C
International Cruise Terminal	Singapore Tourism Board	D&C
Marina Bay Sands Resort	Marina Bay Sands Resort	D&C
Port Kembla Outer Harbour Tug Berth Facility	Port Kembla Port Corporation	D&C
Port Nelson Wharf Extension	Port of Nelson	D&C
Rapid Growth Project 5	BHP Billiton Iron Ore Pty Ltd.	D&C
Rosedale WWTP Ocean Outfall	North Shore City Council	D&C
Clandebye Ocean Outfall	Fonterra Co-operative Group Ltd.	D&C
Tahuna Ocean Outfall	Dunedin City Council	D&C
Webb Dock	Port of Melbourne Corporation	D&C
Amrun Chith Export Facility	Rio Tinto	Construct Only
Hay Point	GM Alliance Coal Operations Pty Ltd.	Construct Only
Avatui Port	Cook Islands Port Authority	Construct Only
Queens Wharf	Maritime and Ports Authority of Fiji	Construct Only
Trimarine Wharf	Samoa Tuna Processors	Construct Only
Christchurch Pier	Christchurch City Council	Construct Only
Taharoa Buoy	NZ Steel Mining Ltd. (Bluescope NZ Steel)	Construct Only



Marina Bay Sands Retail Space Conversion,
Singapore

OUR PROJECT



TS



OUR PROJECTS

36th Americas's Cup and Associated Infrastructure Works, New Zealand



With the America's Cup due to kick off in January 2021, the project involved tight time frames to get the infrastructure designed, consented and built in time.

Due to the location of the project being near the busy Wynyard Quarter and Viaduct Basin, the Alliance was faced with very complex stakeholder management requirements.

Delivery under the Alliance model allowed close collaboration between design and construction teams during the design development to ensure optimum constructability and construction safety. The Alliance model allowed us to run design planning and consenting in parallel, early procurement of key plant and materials and the flexibility to accommodate changes.

Relationships were built with key stakeholders including the Maritime Museum, residents on Princes Wharf, restaurants on North Wharf, Sanford Fisheries, SeaLink, Silo Park, and current users and tenants of the Outer Viaduct Harbour Basin.

Precasting was carried out at Whangarei and all major components were delivered by barge rather than road transport to avoid disrupting the already heavy traffic in the area.

This is considered one of the most successful Alliance across New Zealand and Australia and has greatly enhanced the ability to get the works completed on time. All team members are taking the lessons learnt from this Alliance back to their home organisations with a view to implementing key strategies on future Alliances.

5 Link Bridges

700,000 m³ of Dredging

7 Breakwater Structures

604 Piles



Webb Dock, Australia

The Port Capacity Project (PCP) is a \$1.6 billion upgrade at the Port of Melbourne that includes the redevelopment of Webb Dock to create a third international container handling facility, alongside the development of a dedicated facility servicing Victoria's automotive import-export trade. McConnell Dowell was the Principal Contractor delivering the Maritime Works Package of the PCP for the Port of Melbourne Corporation (PoMC). The Package comprised the design and construction of improved waterside infrastructure, including:

- Extension, upgrade and rehabilitation of the existing wharf infrastructure at Webb Dock East
- New continuous wharf at Webb Dock West
- Dredging of Webb Dock
- Installation of new and relocation of existing navigational aids to suit revised navigation limits.

The works were delivered in a live operational environment with the McConnell Dowell team working closely with PoMC and their port tenants to ensure zero unplanned disruption.

We delivered project efficiencies and innovations that promoted significant value for money outcomes, including reducing dredging costs by \$30m. A number of these innovative approaches not only ensured continuity of port trade, but also upheld the Port of Melbourne's uncompromising environmental standards. The project was delivered on time and within budget, and we achieved a score of excellent on over 98% of the project KRAs.

AWARDS

2017 Australian Construction Achievement Award

10,000 T of Reinforcing Steel

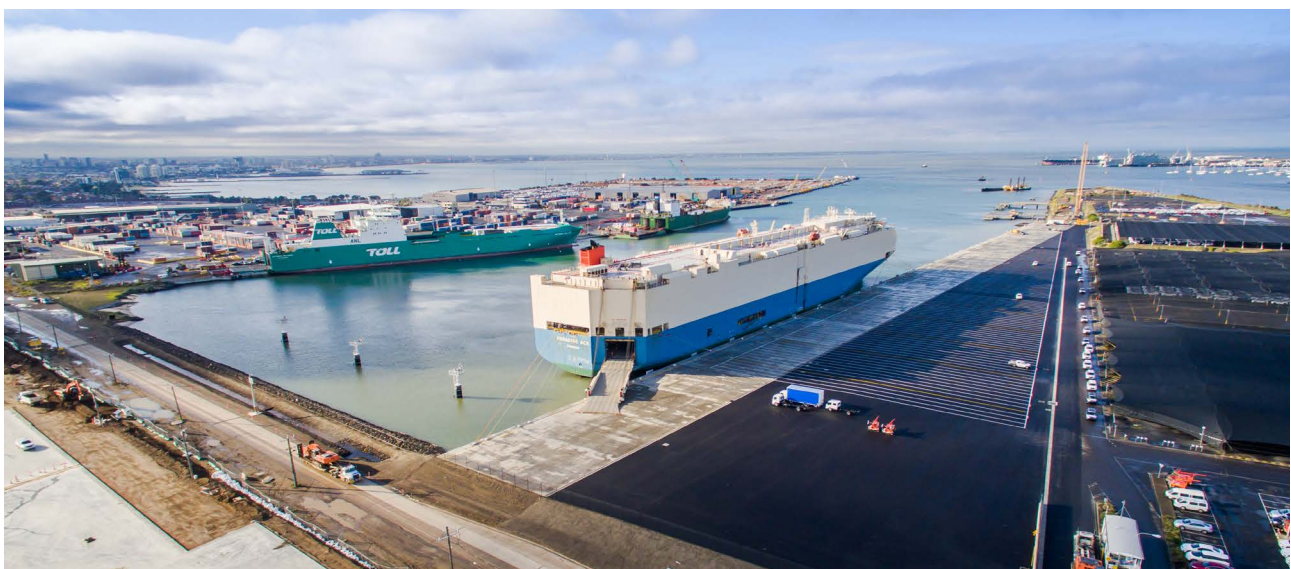
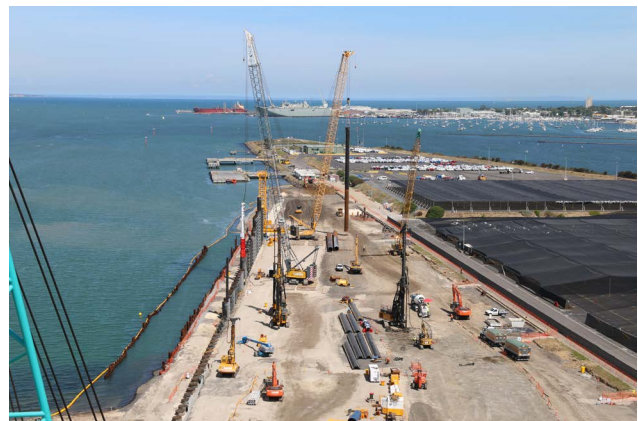
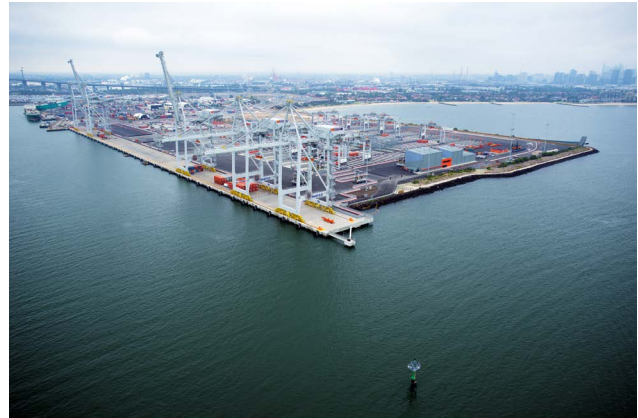
40,000 m of Sheet Pile Installation

1.8 Million m³ of Dredge Material Removed

40,000 m³ of Structural Concrete

900 Tubular Steel Piles

15,000 m³ of Rehabilitated Concrete Deck



OUR PROJECTS

Petronas Rapid 12B Solid Product Jetty, Malaysia

710 m Long Jetty Head

1300 m Long Trestle

5 Million Man Hours Worked LTI Free



McConnell Dowell ((Malaysia) delivered an EPCC contract fro Petronas Named Package 12B. The EPCC delivery of the Solid Product Jetty and associated Handling Facilities at Tanjung Setapa are part of the RAPID project in Malaysia.

The package included:

- Solid Handling Jetty comprising a 1300 m trestle, 710 m jetty head, 2 container berths and sulphur loading berth
- Onshore civil works comprising a container stacking yard, truck and trailer parts and a workshop area along with distributor
- Roads and utilities
- Industrial buildings comprising 450 m long sulphur stockpile warehouse,a terminal operation building, an administration building, workshop, substations and other ancillary buildings
- A topside and landside material handling system fro sulphur with loaders and unloaders including ail mechanical and electrical works

McConnell Dowell offered value engineering during the tender stage of the project which saw the client save \$20 M. The key value engineering taken onboard included a reduction in area of platform and container berth as well as optimisation of the shiploader to a smaller unit. The result allowed for both direct and indirect savings on both machines and the support structure.



Marina Bay Sands Retail Space, Singapore

Construction of a Watertight Cofferdam

Offsite Staging Area



The Marina Bay Sands (MBS) project involved demolition of the south crystal pavilion to basement level and the reconstruction of a new concrete structure. The new structure will be the regional flagship store for a multinational company. The main scope of works included:

- Design and construction of the temporary water retaining Cofferdam;
- Demolition of the existing South Crystal Pavilion glass, steel and concrete structure to seabed;
- Seabed tunnel connecting to Basement 2 to MBS mall;
- Design and construction of a new three-story concrete building, including widened tunnel to the tenant's specification;
- Construction of a waterproofing multistory reinforced concrete structure;
- Construction of a sheet piled water retaining cofferdam around an existing structure



OUR PROJECTS

**Amrun Chith Export Facility,
Australia**

0 LTIs
624 m Jetty
299 m Wharf



McConnell Dowell constructed a bauxite export facility with a 624 m jetty and a 299 m wharf in remote North Queensland. The scope also included the onshore construction of conveyor and transfer stations works linking into the reclaim conveyor. McConnell Dowell self-performed much of the construction.

The jetty comprised 26 spans with roadway bridge and conveyor trusses bridging the 24 m span. The jetty is a two pile bent of two 1,200 mm steel piles with steel headstock, there are three four pile longitudinal anchor bents.

The roadway has a steel sub-structure (24.5 T) with precast concrete wearing deck, 10 panels at 8 T each. The conveyor is supported within a truss frame structure (26 T). The wharf scope included seven steel jacket structures with integrated mooring dolphin structures. Each jacket weighed approximately 680 T and were 18 m x 24 m x 30 m tall. The jackets were fully integrated with all major components pre-installed.

The second phase was principally focused on three major elements: design completion, procurement and preparation for site works.

McConnell Dowell engaged with a selection of our Chinese partners to prefabricate all the major components in Shanghai. Prefabrication had significant benefits to the project as it increased safety as inherently constructing in a controlled yard environment with land based equipment is safer than marine based construction on site. The final phase was site construction works.



AWARDS

Brunel Medal
2018 Queensland CCF Earth Award
2019 Australian Construction Achievement Award

Roy Hill, Australia

4.5 km of Conveyor Steelwork

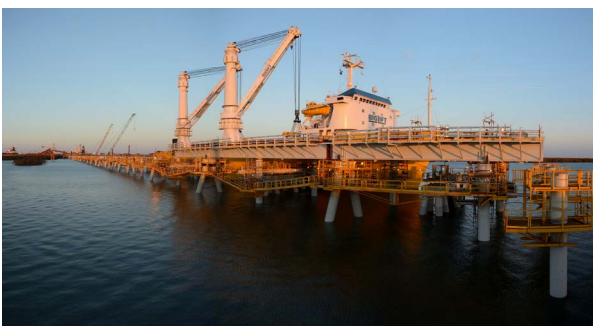
1,000 T Wharf Modules Lifted into Place on Piles

3,600 m elevated overland conveyor



The Roy Hill project is the latest major iron ore development in the Pilbara and is a fully integrated, pit to port solution with its own rail and port assets. Building 10 out of the 14 load out wharves in Port Hedland (the world's largest bulk export port), McConnell Dowell was the obvious choice to deliver the Roy Hill marine package of works. Roy Hill is a dual-berth load out wharf connected to a 93 m long, transfer platform and ore handling system. Also included in McConnell Dowell's package of works is the 3,600 m long elevated overland conveyor to carry ore from the stockyard to the wharf.

An early focus on the construction methodology and equipment resulted in the delivery of this complex project on time with minimal impact on the environment and adjacent existing infrastructure. Substantial pre-fabrication reduced on-site construction time and cost while minimizing safety risks.



OUR PROJECTS

Barangaroo Ferry Hub, Australia



Transport for New South Wales awarded McConnell Dowell with the contract to construct the Barangaroo Ferry Hub in Sydney. Barangaroo is an ambitious urban renewal project and showcases Sydney as Australia's gateway to the world. The \$6 billion, 22 hectares development is expected to accommodate up to 23,000 office workers and attract up to 33,000 visitors per day.

The ferry hub is a vital connection to this key destination, increasing public transport options and helping ease pressure on Circular Quay. The project included the construction of two ferry wharves featuring fully accessible pontoons, seated waiting areas, weather protection, real-time service information and electronic ticketing using the Opal card.

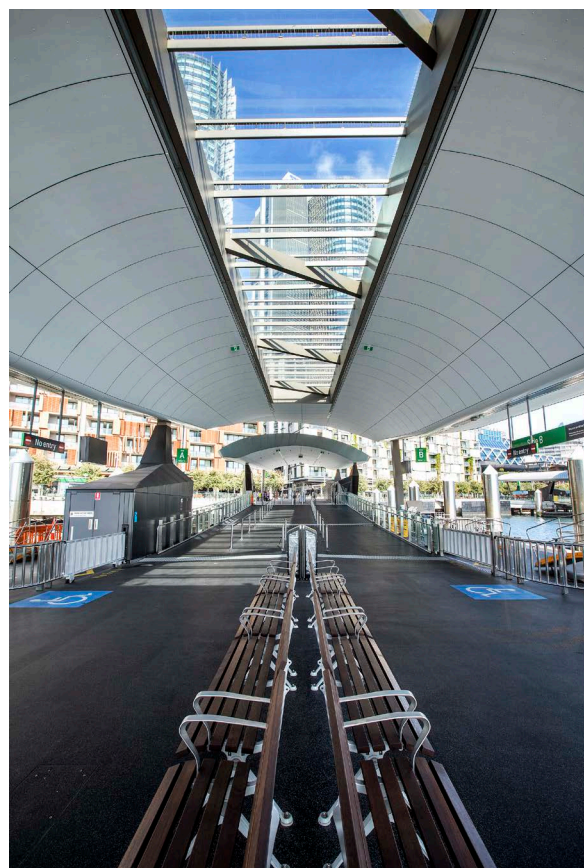
The project works included the installation and commissioning of all potable, sullage and firewater piping, electrical and control instrumentation, communication and security/CCTV services, cathodic protection, PA system, electronic signage and ticketing for each of the two ferry wharfs.

Access limitations within this city project limited construction and logistics to marine based activities only. Construction activities within Darling Harbour were undertaken within an operational environment throughout in close consultation with the port harbour master and stakeholder ferry operators. The eco sensitive marine environment was carefully managed with a high degree of construction planning and control.

92 Steel Piles

8 Arrestor Structures

2 Sets of Steel Pontoons and Gangways



Port Nelson, New Zealand

100 m Wharf Extension

14,000 m³ Seabed Dredged

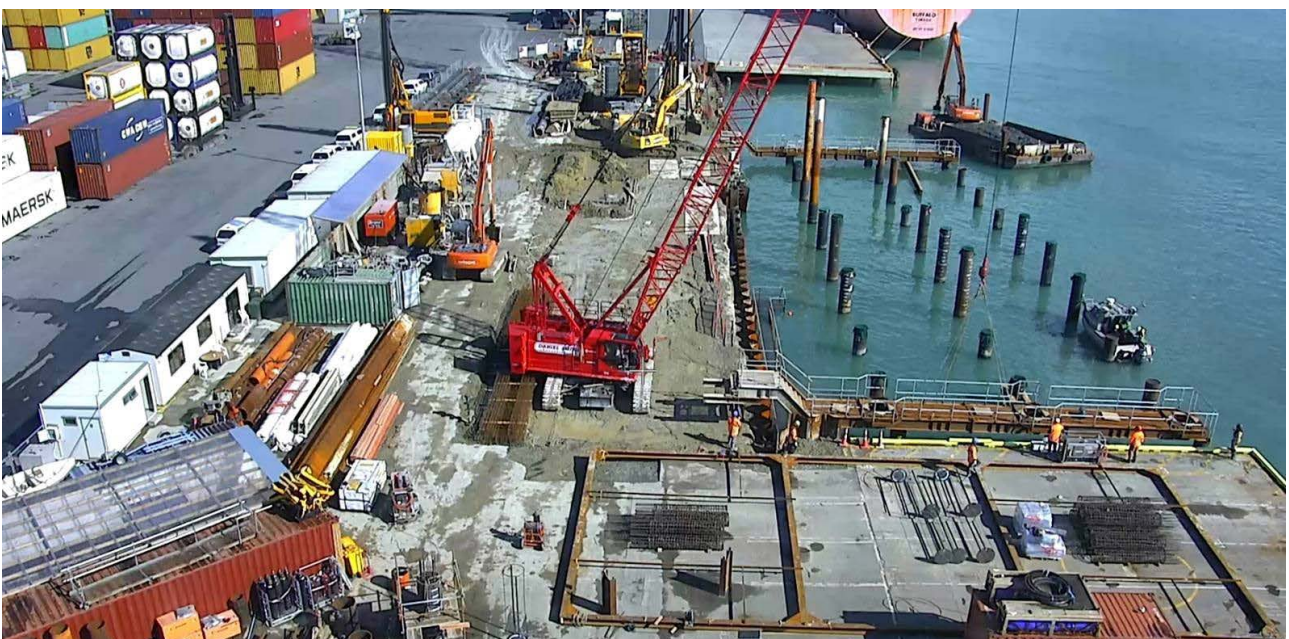
Removal of 148 Timber Piles which are 100 Years Old



Port Nelson project comprises the design and construction of 100 m wharf extension and associated works at Main Wharf North. Minimizing the impact on port operations, the marine environment and wider Port Nelson stakeholders and community is essential. The team work together to ensure this there is minimal disruption during the demolition of the 100 year existing structure and the construction of the new wharf and associated works.

Works include:

- Demolition of a 100 m section of the existing wharf
- Removal of 148 timber piles which are 100 years old
- Dredging 14,000 m³ of the seabed
- 100 linear meters of sheet piles used to build retaining wall – driven to 17 m deep
- 48 x 762 mm dia tubular piles driven using an IHC S 200 piling hammer
- Five marine floating plants accommodated in live marine environment while completing work



OUR PROJECTS

International Cruise Terminal, Singapore

800 Driven Piles

1,000 m Current Training Wall

6 m Wide Concrete Deck



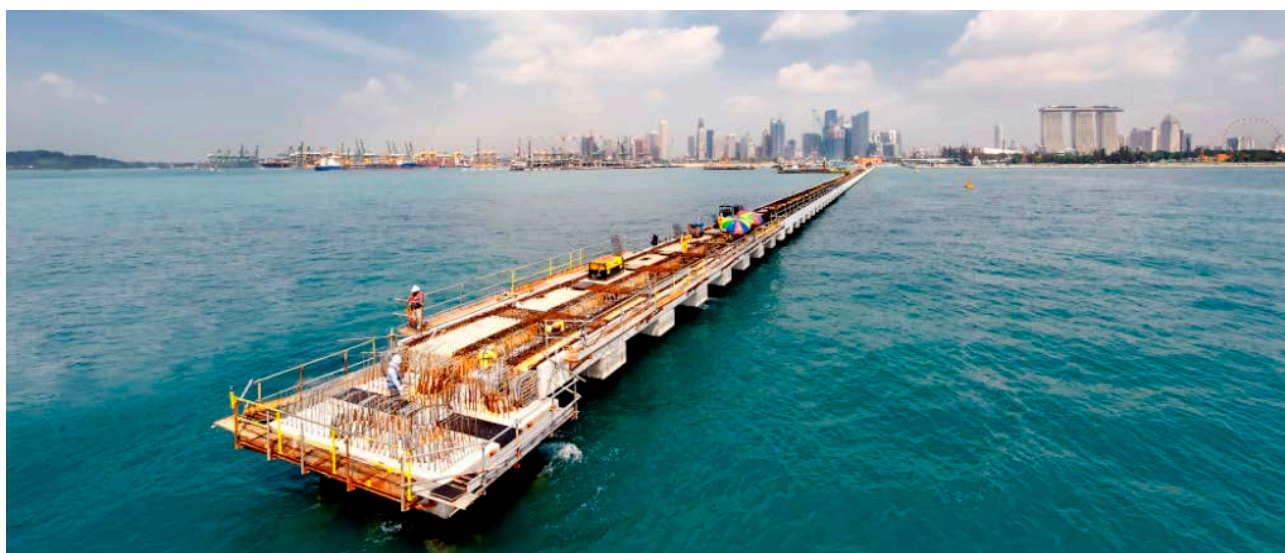
The Singapore Tourism Board awarded McConnell Dowell SEA, in joint venture, the design and construct contract for two new berths, a terminal deck, car park deck, mooring dolphins, a 1,000 m long current training wall, dredging for navigation passage and land reclamation, road access, services and miscellaneous ancillary works. As part of the non-integrated joint venture, we had primary responsibility for the 1 km long training wall, installing 800 driven piles (diameter 1200 mm, up to 65 m long), a 6 m wide concrete deck, as well as an interface deck of 45 m x 36 m.

This project experienced significant logistical challenges, with over 50 vessels simultaneously engaged in dredging and reclamation, piling, concrete and revetment works.

The construction time and cost was optimised by changing the in-situ concrete design to a precast solution. Further optimisation was achieved where the precast could act as temporary guides for pile installation before the in-situ stitch joints were poured. The client commended our smart engineering solution in response to a specification change to the piling halfway through the project. Our solution was cost effective and despite this change, the project was completed on time in December 2011.

Success of this project was largely due to managing the high degree of vessel movements internally between the partners of the joint venture and externally with the Port Authorities controlling the busy shipping lane.

The new terminal replaces the existing terminal at Harbour Front and has deep waters, a large turning basin and no height restrictions, enabling it to accommodate the largest cruise ships being built. The facility is able to berth ships of up to 220,000 GRT and measuring up to 360 m in length with a draft of up to 11.5 m.



Avatiu Port, Cook Islands

270 m Long Wharf

80,000 m³ of Dredging

92 m Extension of Breakwater

9,000 m² of Concrete Pavement

In December 2010, the Cook Islands Port Authority engaged McConnell Dowell to deliver the Avatiu Port Redevelopment project, aimed at expanding the existing port facilities. The port's infrastructure was aging and unable to accommodate large scale cargo and cruise ships, limiting economic growth in the Cook Islands. Our work scope included construction of a new straight 270 m long wharf; dredging and widening of the main harbour to increase the turning bay available to ships; and removal of the existing wharf structure.

The port needed to remain fully operational during the construction period, as all food and fuel into the island group comes through this wharf. Maintaining shipping access was essential to the ongoing economic success of the island. Consequently, the wharf was built in three stages, with each section fully completed before commencing the next.

The new wharf face was constructed from a mixed wall of steel tubes and sheet piles with a concrete capping beam and 40 m wide structural pavement behind the wall. The deck was constructed in three parts as a total of 270 m long x 30 m wide x 500 mm thick reinforced concrete slabs, plus additional aprons and turning areas to access the new slabs and existing port facilities. We employed a number of initiatives to expedite works, including altering piling techniques and the construction methodology for the tremie concrete for the reclamation work.



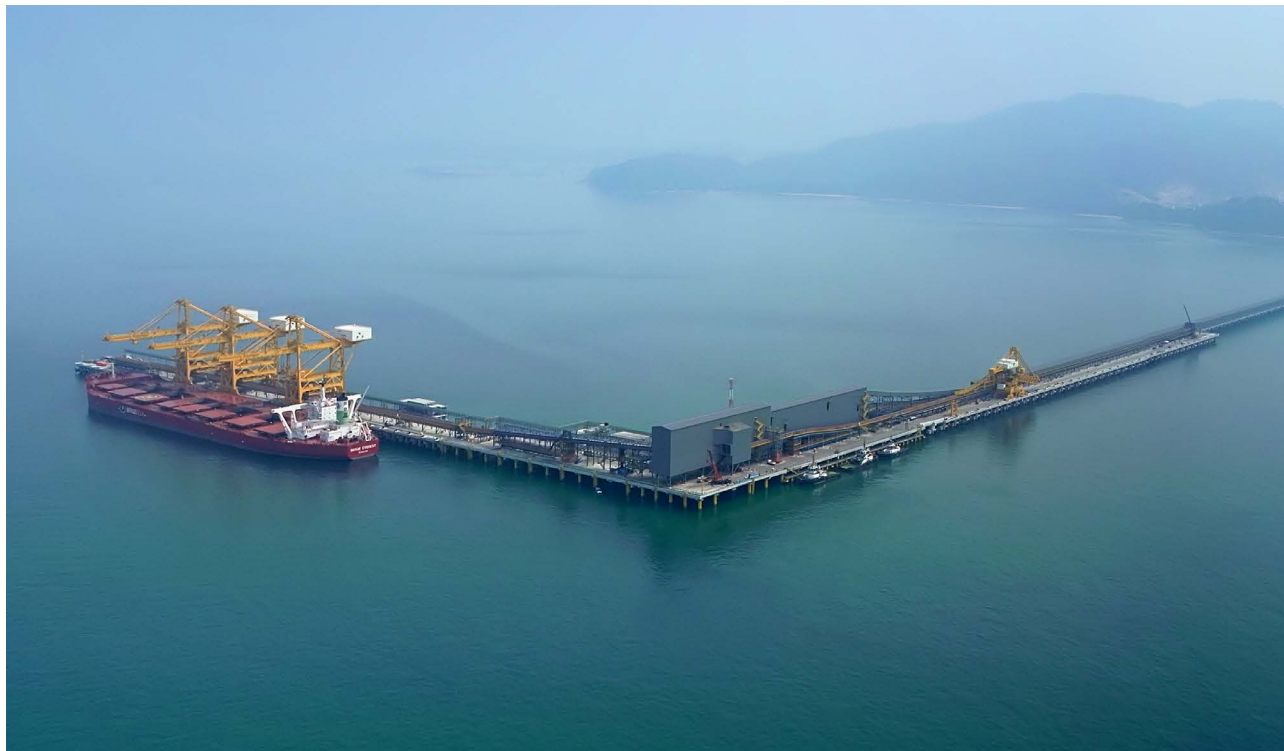
OUR PROJECTS

Vale, Malaysia

2 km Access Trestle

1 km Transfer Platform

800 m Long Operational Jetty



The Vale Malaysia Manufacturing Project (VMMP) is a development plan to create an iron ore distribution centre and pelletizing facility to facilitate the distribution of Brazilian iron ore to the world. The JV's scope of works involved the engineering, procurement and construction of berthing facilities to cater for the world's largest bulk carriers, including the 400,000 DWT ValeMax. The berth is located 2 km offshore and was constructed in 25 m of water, with an access trestle of 2,200 m, and an operation jetty head 800 m long.

The project involved land reclamation at the start of the jetty, requiring significant interface management between the offshore topsides and onshore contractors. An additional challenge to operating amongst multiple work fronts was managing the volume of deliveries and logistics into a high security zone, and the scale of plant and vessel movements associated with construction activities.

McConnell Dowell's expertise in complex marine works and project management skills, enabled the team to plan and execute the works safely and efficiently. The project achieved 2.5 million man hours Lost Time Injury Free in July 2013 and was successfully completed and handed over on schedule.



CASG/SHIP Infrastructure Works, Pacific Islands

O LTIs or MTIs

Working across 9 Islands



McConnell Dowell were awarded a design and construct contract by the Commonwealth of Australia for marine infrastructure works in the Pacific Islands. The work involves upgrades to ports in Tuvalu, Tonga, Samoa, Fiji, Cook Islands, Kiribati, Vanuatu, Solomon Islands and Palau to accommodate a new Guardian Class Patrol Boat (GCPB). The GCPB will enable these Pacific Islands nations to continue patrolling their own exclusive economic zones (EEZs), improving regional security cooperation, and contributing to South Pacific nation-building.

The infrastructure works are split across seven separate packages, each subject to their own scope and requirements. The works consist of infrastructure upgrades to provide safe berthing and mooring facilities, and wharf access for maintenance and provisioning. Each location will also have refueling, storing of supplies and discharge of sewage of the GCPB.

The project aligns with our capability of delivering innovative solutions for logistically challenging marine projects across Australasia and builds on McConnell Dowell's strong legacy delivering resilient infrastructure in the Pacific Islands. We have worked with Pacific communities for over 50 years to deliver a broad range of significant marine, transport, defence, and water projects. This project provides another opportunity for us to support the ongoing development of the region by improving marine security.



OUR PROJECTS

Swanson Dock East Berth 1, Australia

195 m of Fender Beam Rehabilitation

2,150 m² of Concrete Deck Relevelled

500 m of Crane Rail Removal and Replacement



McConnell Dowell was engaged to remediate and strengthen the Swanson Dock East Berths 1 and 2 within the Port of Melbourne.

The project was let in a series of ECI stages, with McConnell Dowell involved in the design and constructibility phase which included development of price, program and construction methodologies for approval by the Port of Melbourne board.

The wharves included installation of new steel piling and reconstruction of sections of the existing reinforced concrete deck, and wharf deck repairs including replacement of existing crane rail. Bollard installation involved new 150T bollards on Swanson Dock East Berth 3-4 and Swanson Dock West Berth 3-4 including on-shore bollards on new steel piled foundations.

The project was conducted within Australia's busiest container terminal facility directly adjacent to fully functioning stevedoring activities. This resulted in the works being confined to a small footprint in order to minimise any impacts to the terminal operator. The works involved daily coordination with port operations and facility users and performance of works in agreed / short windows between vessel schedule.



AWARDS

2019 Worksafe Victoria "Best Solution to a Specific Workplace Health and Safety Issue" (award for fender access platform development)

Hin Leong Marine Facilities, Singapore

12 Berths up to 320,000 DWT

Singapore's Largest Marine Terminal



Part of Hin Leong Trading (Pte.) Ltd's Universal Terminal development of a 2.3 million m³ oil storage terminal on Jurong Island; the largest single marine terminal to be constructed in Singapore. McConnell Dowell in JV with POC were awarded the design and construction marine works component

The marine works package is the largest single marine terminal constructed in Singapore and involved 12 jetties, ranging in size from 500 DWT to 320,000 DWT, as well as dredging works and 1 km long seawall.

McConnell Dowell constructed two VLCC (Very Long Crude Carrier) berths which were built side-by-side and can accommodate vessels up to 320,00 DWT along with four other berths. The unique side-by-side feature allows for active bulking breaking of larger cargoes into smaller parcels. In order to expedite the works and construct in the safest way possible, McConnell Dowell implemented over 6,000 m³ of pre-cast into the design. Due to the large amount of pre-cast which was installed there was a yard located near the site set-up for storage.

The project was completed ahead of schedule, on budget and with an impeccable safety record.



OUR PROJECTS

Marina Bay Sands Integrated Resort, Singapore



A design and construct contract for marine works as part of the 40 acre Marina Bay development in Singapore. The project was completed in 2010 and included a promenade deck, a purpose-built 5,000 m² Events Plaza superstructure, and two submerged concrete structures with underwater tunnels for a new retail concept called the Crystal Pavilions.

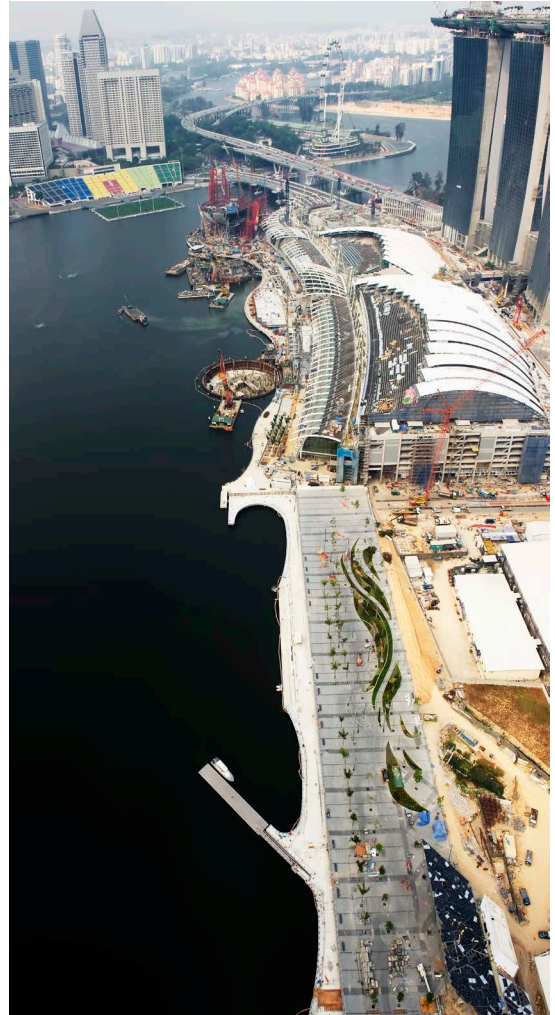
Due to the size of the overall development, numerous ongoing activities, and rapid development timeline, space on-site was at a premium. Marine works within the bay were also challenging, as access to the bay was blocked by the Marina Barrage. All elements of marine construction required heavy lifting for piling, reinforced concrete works, temporary works, and dredging.

McConnell Dowell mobilised purpose-built modular crane barges and cranes to carry out the marine works. We also provided innovative solutions to offshore logistical constraints by incorporating static pile tests for the marine piles. For the onshore works we redesigned the original in-situ elements of the promenade headstocks and deck planks into transportable and manageable precast units. This enabled units to be fabricated and stored offsite and delivered “just in time”. The amount of in-situ concrete required was reduced by using intricate overwater formwork. This eliminated the need for bulky temporary work structures within the Bay as well as avoiding the logistics involved in setting up a traditional kentledge pile test system. The methods worked so effectively, the Events Plaza superstructure was also re-designed into precast elements to achieve similarly great results.

92 Steel Piles

8 Arrestor Structures

2 Sets of Steel Pontoons and Gangways



Submarine Pipelines and Associated Facilities, Singapore

3.2 km Twin Submarine Gas Pipeline

1.1 km Long Onshore Gas Pipeline

Seawall Removal and Reinstatement

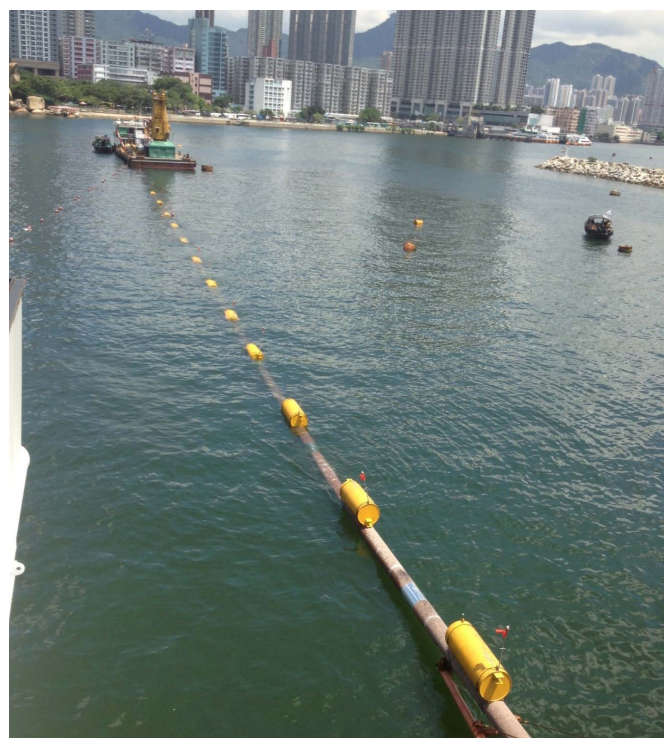
Main Gas Supply Link for Hong Kong



McConnell Dowell installed twin submarine gas pipelines and associated facilities from To Kwa Wan to North Point in Hong Kong to become the main gas supply link for Hong Kong Island.

A double-opposed curved 3.2 km section of twin submarine gas pipeline was laid across the bustling Victoria Harbour. Upon the pipelines arriving onshore, we removed and reinstated the concrete gravity block seawalls on both sides of the harbour.

A bottom pipe-pull methodology was used to install 2,700 m of twin pipeline with a heavy 76 mm diameter steel pull wire, minimising deviation from the design curve alignment. We then launched a float and sink methodology for the 200 m landfall sections on each side of the harbour.



Driving Progress in

Marine Outfalls

McConnell Dowell is a leading international pipeline contractor. We have constructed over 30,000 km of new pipe networks across more than 200 projects including gas, petroleum, water and slurry pipelines. These pipelines help drive economic and social progress across Australia, New Zealand and Asia. McConnell Dowell is the partner of choice for complex EPC and construction projects. We are experts in large diameter pipeline construction and have delivered gas pipelines up to 1300 mm (50") in diameter and water pipelines up to 1800 mm (70") in diameter.

Our in-house specialist skills and plant enable execution of Horizontal Directional Drilling (HDD), microtunnelling, marine pipe pulls, pipe bridges and other complex crossing solutions. Our sustained success in the pipeline industry is based on strong client collaboration and effective community consultation and environmental management. We have received over 30 industry awards for safety and environmental excellence.

Project Name: Snells Algies Outfall

Location: New Zealand

Summary: This project continues to build on McConnell Dowell's extensive track record in the construction of major marine outfall pipelines in New Zealand.

Works include approximately 4.3 km of 630 mm diameter pipeline from Snells Algies to South of Matins Bay, a 2.2 km of 1.2 diameter pipe installed using the Direct Pipe system and 230 m marine dig and lay section.



Project Name: Army Bay Outfall

Location: New Zealand

Summary: Install a new wastewater outfall, upgrade an ultraviolet disinfection facility and build a new pump station to increase the outfall capacity for Army Bay Treatment Plant at Shakespear Regional Park on the Whangaparaoa Peninsula.

Army Bay is a multi international award winning project and broke a world record longest Direct Pipe drive.



Project Name: Rosedale WWTP Ocean Outfall

Location: New Zealand

Summary: This challenging project required the design and construction of a new outfall to discharge high-quality treated effluent out at sea. The 2.6 km outfall route stretches from the treatment plant to tunnel 25 m below the streets, parks and reserves, commercial and residential properties and council owned land of Mairangi Bay. It then runs 2.8 km under the seabed into the Rangitoto Channel.

Five NZCF Awards & One ingenuity Excellence Award



Plant & Fabrication



Fabrication

McConnell Dowell delivers a comprehensive and integrated design, procurement construction and fabrication service through our four fully equipped steel fabrication facilities across the Group. Through our facilities, we provide structural steel and marine structures, steelwork and process piping, process modules and pre-assembled racks, concrete structures and concrete modules.

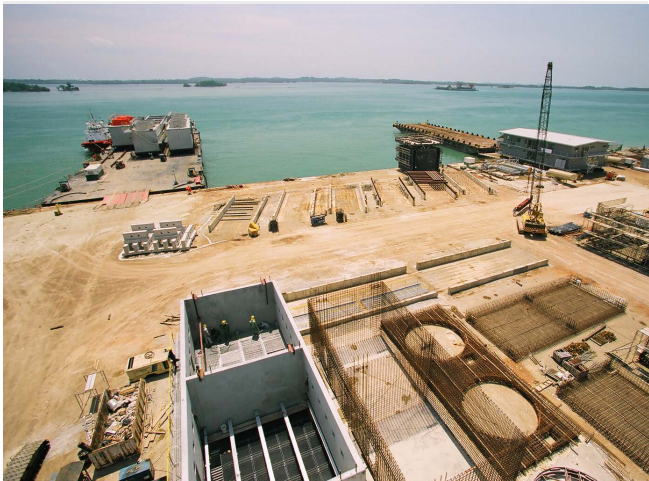
Our monthly production capacity is 3,400 tonnes of heavy structural steel, 1,700 tonnes of medium structural steel, 89,000 diameter inches of piping and 1,260 tonnes of plate work. Our large-scale wharf deck elements are used in the mining sector, while our pre-assembled racks (PARs) and modules (PAMs) are used in the oil and gas and power sectors.

Modularisation

Modularisation is now an industry standard for major project developments and McConnell Dowell leads the way. Reducing site labour and construction costs, Modularisation improves quality and safety, and expedites project delivery. Customers across various industries are seeing adding value through the use of using our large scale wharf deck elements, pre-assembled racks (PARs) and pre-assembled modules (PAMs).

Key Plant & Equipment

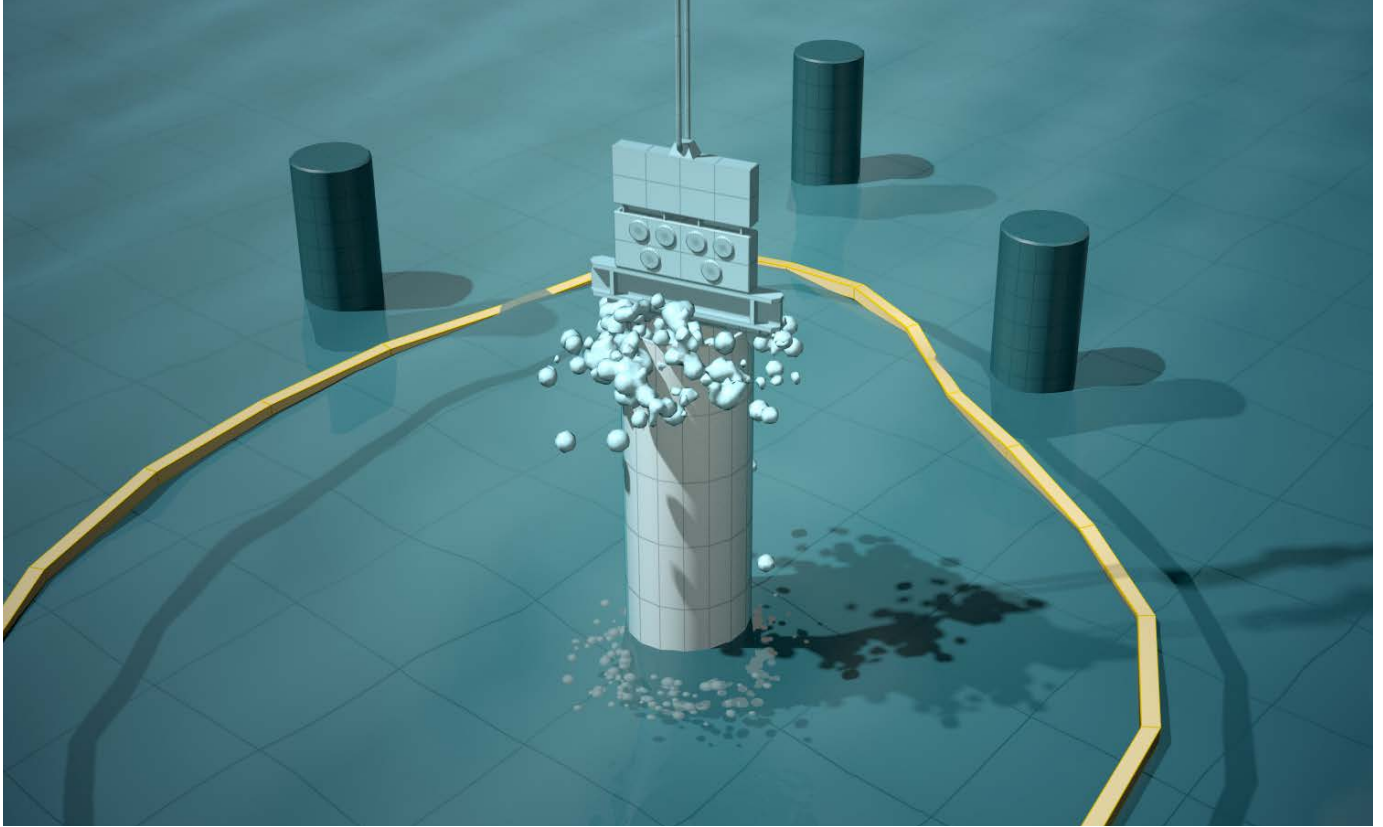
McConnell Dowell has one of the largest and well equipped maritime construction plant fleets in Australasia making it easy to deploy and supply projects across the entire region.



Batam Fabrication Yard

20 hectares (50 acres)
10,000 m ² of covered workshop space
5,500 m ² of covered blast and painting space
2 hectares of precast yard area
15 hectares of open assembly area
1,800 m ² of office space

Engineering Excellence

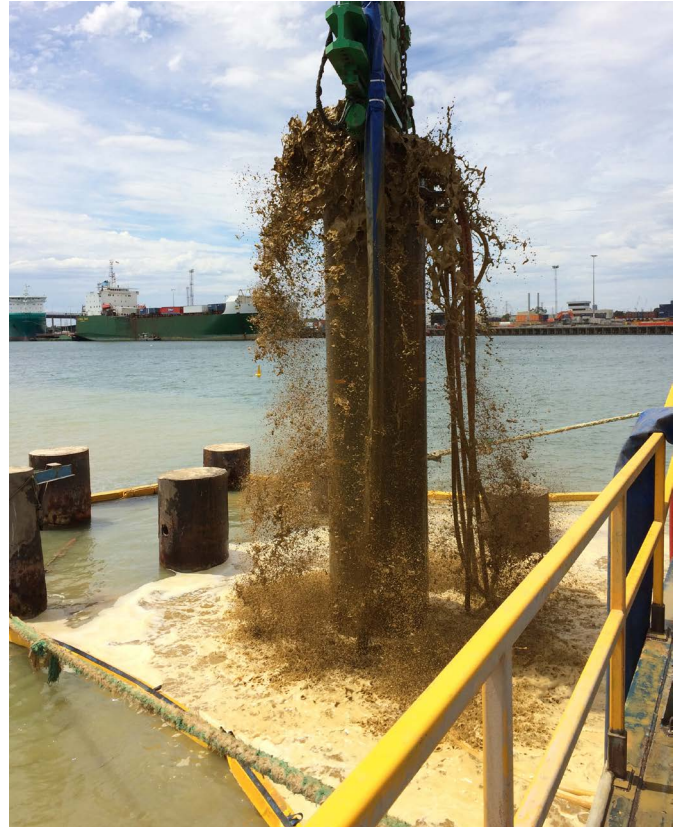


Engineering, Technology and Innovation

The Engineering, Technology and Innovation function within the McConnell Dowell Group drives engineering excellence, innovation and value creation by developing innovative technical solutions for our customers. One such innovative idea was replacing steel sheet piles with vinyl to mitigate marine corrosion on the award winning Webb Dock Redevelopment (above and right).

In-house design & engineering

Living our 'Creative Construction' brand by solving our customers complex project problems with new ideas the dedicated McConnell Dowell in-house Engineering Department has extensive experience in designing both permanent and temporary structures for our customers multi-disciplinary projects.



Group Brands

The McConnell Dowell Group has a long and proud history of commercialising projects and is widely respected for delivering 'Creative Construction' solutions.

The McConnell Dowell brand is well regarded for integrity, consistency in application, value for money and being a technology-driven company.



McConnell Dowell – The Creative Construction Company, building better communities through safe, smart, efficient infrastructure.

www.mcconnelldowell.com

Operating in: Australia, Asia, New Zealand and Pacific Islands



Built Environs – Provides multi-disciplinary capability in design and construction of commercial, industrial and institutional buildings.

www.builtenvirons.com.au

Operating in: Australia and New Zealand



Parent Company Aveng Limited, have a number of specialist operating groups.

www.aveng.co.za

Operating in: South Africa

Safety



The safety of our people is paramount to our success. Our customers demand a safe project, and we deliver. Our safety results place us in the top tier of contractors in our industry.

We nurture a culture of safety ownership. Every employee has a job description and set of safety obligations to meet. Our managers are visible safety leaders. In addition to traditional safety metrics, their performance is tracked in activities such as the number of safety audits they carry out personally, and how many 'SafeTalks' they deliver.

Our site safety teams are structured and resourced effectively. Every project maintains an HSE Risk Register and our teams work from a comprehensive set of Safe Operating Procedures, Safe Work Instructions, and JSEAs.

**HOME
WITHOUT
HARM**

Sustainability & Social Procurement



We act today with the future in mind.

Thinking creatively and sustainably is fundamental when building infrastructure and resources for our communities. Ensuring a sustainable tomorrow for our teams, customers and the environment, means we must perform to the best of our ability today.

We are a progressive company and believe in empowering our employees to drive improvement in all areas of our business. Establishing a learning culture is a key focus, helping us shape our systems in the areas of safety, environment and sustainability and ensure our accumulated knowledge is shared throughout our business.

We strive to positively impact economic, environmental, social and cultural well-being. This runs through McConnell Dowell's commitment to 'Providing a Better Life'.

Environment



We continue to grow our capabilities and performance.

Our environmental commitment is second to none; we believe it is everyone's responsibility, regardless of role or the nature or location of the project.

We lead by example promoting environmental management and empowering our people to be their best. Everyone is encouraged to be creative and innovative in how they approach the management of our local environments.

Our dedicated team of environmental professionals actively support our teams, helping them achieve our high environmental standards delivering exceptional results for our customers and communities.

We take a positive and collaborative approach towards environmental management and maintain our focus on: accountable leadership; reducing emissions; efficient use of energy, resources and project materials; minimising waste; and by responsibly managing the biodiversity of local flora and fauna. It's this 'one team' approach with our customers and partners that enables us to create a framework for our environmental standards which has been recognised throughout the industry.

Quality



Raising the bar for excellence and accountability.

We pride ourselves on the quality of our work and have raised the bar for corporate excellence and accountability.

Infrastructure assets have to stand the test of time so we ensure the highest quality result for every project. Our quality system is the result of over 50 years of project experience, and has been honed, improved and refined to meet today's exacting ISO standards. Since 2003, all our operations have been certified by Lloyds Register Quality Assurance (LRQA) to AS/NZS ISO 9001.

Our quality leaders are skilled in their craft to provide governance and assurance across all our projects. This means our customers have added confidence in the finished product. Most importantly, our people are passionate about getting it right. We provide them with the right tools, systems and training to ensure we deliver a quality project.



**DRIVING
PROGRESS**

mcconnelldowell.com