



The Works

Summer Edition 2015 / 2016

McMAHON
SERVICES

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'Our people are central to what we do'

The PREFACE

'Tough time's don't
last, tough people do.'

This edition of 'The Works' showcases just a snapshot of some of the amazing projects delivered by McMahon Services over the past 12 months. Despite the tough times we are experiencing throughout industries across the board, we have proven our resilience.

Due to the hard work, determination and focus demonstrated by our people, we have shown resilience in the face of adversity. We continue to deliver high performance outcomes for our clients and strive to improve what we do and how we do it.

We are a 'people' business and our people are tough.



Directors' MESSAGE



Above: Managing Director, David McMahon and Director, Andrew McMahon

25 Year Milestone - Resilience Inspires Growth

February 9, 2015 was a special day for McMahon Services. It was the day we celebrated our 25th year of operations. Despite the challenges faced in the construction industry over recent times, we have never been busier. The Company has recently accounted for a record \$200 million annual turnover in 2015 and has achieved an expansion in service offerings.

Together, Andrew and I have seen the growth of McMahon Services from a modest 12 person Adelaide based operation in 1990, to a truly national business employing over 500 staff today.

The Company has been aggressive with growth plans in recent times having opened offices in Gladstone, Whyalla, Alice Springs, Sydney and Townsville, but we have been careful to achieve this sustainably. We have managed to accomplish most of this growth organically, expanding geographically to meet the demands of our existing customer base. Our new offices are all being run by long-term employees who have relocated as part of their career development and promotion.

I firmly believe that McMahon Services' formula for success is due to the culture of our people. People are central to who we are and what we do. Traditional values of respect, family first, career development, and valued contributions are the central platforms to this culture. The Company has nine core divisions operating as independent business units where management is given autonomy and is empowered to perform and make decisions.

It has been incredibly important that we have maintained our cost competitiveness. We strive to offer our clients significant cost benefits over competitors, through smarter approaches, efficient delivery methods and providing people who are focussed on efficiency and delivering value.

The 25 year milestone has provided us with an opportunity to reflect on what we have achieved and also to focus on the future and where we want the Company to be 25 years from now. We think there are some exciting times ahead.

Our newly formed Industrial and Resources Construction division is continuing to go from strength to strength. This business is successfully delivering projects for Santos and Lion in South Australia and securing new work with Port Bonython Fuels and TNG Limited - demonstrating significant value through our self-delivery model.

Groundwater Treatment Solutions is an exciting new initiative that we have established to deliver practical and cost effective treatment solutions for groundwater and vapour contamination. The new business unit complements our wide range of existing environmental services and offers our clients a complete solution for site remediation.

I hope you enjoy reading more about our latest projects and achievements in the spring 2015 edition of The Works.

Here's to the next 25 years!

David McMahon
Managing Director

Andrew McMahon
Director

MCMAHON SERVICES HEADS DUE NORTH TO MELVILLE ISLAND



COMPLEX PROJECT COMPLETING REMOTE CONSTRUCTION WORKS ON MELVILLE ISLAND'S NEW BULK FUEL FACILITY

McMahon Services headed 80 kilometres north from Darwin, out across the Timor Sea to the Tiwi Islands to complete vital work on the Melville Island Bulk Fuel Facility. Our multi-skilled workforce was engaged to complete early works on the new Bulk Fuel Facility, which included the construction of an accommodation village as well as the civil and concreting works in preparation for the new fuel tanks.

The facility will become part of the ongoing development of Melville Port, which will include a 200 person camp, office complex, waste and hazardous material storage facilities, workshops and warehousing. This complex project required a number of our in-house service divisions including, civil, concreting, building, electrical, plumbing, hydraulics, carpentry, roofing, data and communications and craneage. By using extensive pre-planning and

effective management, all materials and equipment were transported to Darwin and then barged onto Melville Island.

The number of personnel required on site varied from 14 up to 32 workers at the project's peak. This included general labour, skilled tradespeople, WHSEQ site safety, supervisors and management. The McMahon Services team took every opportunity to engage with the local Purlingimpi community and the Tiwi Land Council, (a representative body for Aboriginal Land Rights). To maximise the Indigenous employment outcomes, The Tiwi Islands Training and Employment Board provided local Indigenous workers for the project.

The accommodation village and ancillary infrastructure components of the project consisted of the delivery of 60 building modules, including a 200 person commercial kitchen, consisting of 10 building modules, two laundry buildings with linen stores, chemical storage and ablution, 30 accommodation buildings with 120 ensuite rooms, an administration block comprising of four

building modules, a climate controlled data room, a first-aid meeting room and ablution block, commercial ice and cold water supply/storage, an active recreation and movie room, a wet mess/recreation room as well as outdoor table settings.

One of the unique features that McMahon Services used in the design was a galvanized screw pile footing system to eliminate the need for concrete, which is typically used in these projects. McMahon Services purchased a specialist Compact Rotary Drill to install the screw piles on this project. The light and compact drill rig worked perfectly in the remote environment. Over 1,000 screw piles were installed over the duration of the works. Seventy-five percent of the plant and equipment used on the project was McMahon Services' own in-house equipment. This was supplemented by third party plant hire equipment from local Darwin-based businesses.

For the civil package, McMahon Services was engaged to construct three in-situ ring beams, as a base for three fuel tanks,

with a circumference of 100 metres, and requiring a total of 150 cubic metres of concrete. Prior to pouring the ring beams the McMahon Services team earthed them, and following the construction of the ring beams McMahon Services backfilled the inside with conditioned fill, which had to be transported to the work area from other parts of the island.

Following the construction of the three tank sump structures, a 100 metre thick sand bedding layer was placed over the compacted fill to the inside of all the ring beams, mobilising over 600 bulk bags of sand to use as a bedding layer for the HDPE liner and concrete bund slab floor.

Once the fuel tanks were installed on top of the ring beams, McMahon Services constructed a bund slab and walls around them. The bund slab spanned over 4,000 square metres and was constructed over 35 separate pours, requiring over 500 cubic metres of 40 megapascal (MPa) concrete, which was self-batched on site using the Fiori mobile batching plant.

We were flexible and innovative in providing solutions to deliver this

complex project, the challenges faced by our project team included working around Northern Territory's weather conditions, logistics of transporting equipment, supplies and specialist personnel to the island, the Christmas break period and shipping schedules. Our successful management of these logistical challenges was paramount to ensuring the construction program was maintained.

'Over 1,000 screw piles installed with our new specialised compact Rotary Drill'







HI-TECH DEMOLITION GIANTS BUILT IN SOUTH AUSTRALIA

EARLIER THIS YEAR, MCMAHON SERVICES' ENGINEERING AND FABRICATION DIVISION PUT THE FINISHING TOUCHES ON TWO OF THE LARGEST SPECIALIST DEMOLITION EXCAVATORS EVER BUILT IN AUSTRALIA

The machines were specifically designed and manufactured to mechanically shear large industrial steel structures for the industrial and resources sector. David McMahon, McMahon Services Managing Director, said, "There has been strong demand throughout Australia for the Company's expertise in these sectors in recent times."

"We have seen the growth of large industrial demolition projects with the rationalisation of the manufacturing and mining industries, and companies today have policies of rehabilitating sites that are no longer economically viable. We offer a unique turn-key solution, asset value realisation, demolition, remediation, and site rehabilitation which have fuelled our growth in this sector," David explained.

In response to the demand for these services, McMahon Services is continuing to build on our existing

fleet of equipment, and is planning to have the most diverse, powerful and efficient group of heavy demolition machinery in Australia.

The new machines that we have manufactured are impressive, with one weighing 150 tonnes and the other, 110 tonnes. The mechanical shears that are fitted to these machines are capable of cutting through 70 millimetre steel plate and 1.5 metre steel beams, and can also reach to heights of 24 metres.

McMahon Services designed and built these machines in-house using a small team of expert tradesmen working around the clock over a four month period. Reflecting on the achievement, David McMahon said that he was proud of what our team had been able to achieve and insisted their design and fabrication capabilities matched anything that was available in the world today.

Both machines headed to Western Australia in February for a large demolition project for an iron-ore major in the Pilbara. The project was a massive undertaking and involved the recycling of over 6,000 tonnes of industrial structures into scrap metal.

'Mechanical shears capable of cutting through 70mm steel plate and 1.5m steel beams'

MASTERS ARRIVE IN SOUTH AUSTRALIA



LARGE SCALE PROJECT UNDERTAKEN ADJACENT ADELAIDE AIRPORT

McMahon Services was contracted by Construction Engineering to undertake extensive works for the new Masters Home Improvement store at Adelaide Airport. The project site, encompassing 13,700 square metres, utilised many of our in-house trades and divisions, including: Civil Engineering, Surveying, Demolition and Decommissioning and Asbestos Removal.

To make way for Masters' first hardware store in Adelaide, McMahon Services cleared existing trees, asphalt, concrete car parks, footpaths, kerbing, fencing, gates, and underground services. The team demolished two

fire pump tanks, a bowling club, various structures and buildings, and also including the removal of asbestos within the bowling club eaves. There was extensive removal of underground asbestos piping, as well as the decommissioning of some live services within the pipes.

This project included the construction of the building plateau to house the new building, and the installation of a new roundabout adjacent to the IKEA car park entrance. As the project neared completion kerbing, ramps, asphalt car parks, footpaths and roads, were constructed, with the McMahon Services crew adding the final touches installing street lighting, line marking and landscaping. This project site was located just outside Adelaide Airport - an area

with a high volume of vehicle and pedestrian traffic. Detailed planning and thorough project management was crucial for the project's success. To ensure minimal impact on IKEA trading, traffic management was undertaken by the McMahon Services team, resulting in a temporary, revised traffic flow so that the new roundabout could be built. The project was also split into stages to allow the IKEA car park to stay open for trading.

McMahon Services worked collaboratively with Construction Engineering to keep the project moving forward at all times and achieved all early project milestones, ensuring that there was no initial delay with the master program.



**13,700 SQUARE METRE
SITE TO HOST THE FIRST
OF SEVERAL MASTERS
HOME IMPROVEMENT
STORES IN ADELAIDE**



BREAKING NEW GROUND IN SITE REMEDIATION



GROUNDWATER
TREATMENT SOLUTIONS

GROUNDWATER TREATMENT SOLUTIONS (GTS) IS AN EXCITING NEW INITIATIVE ESTABLISHED BY MCMAHON SERVICES TO DELIVER PRACTICAL AND COST EFFECTIVE TREATMENT SOLUTIONS FOR GROUNDWATER AND VAPOUR CONTAMINATION

The new business unit complements the wide range of existing environmental services provided by McMahon Services and offers our clients a complete solution for site remediation.

McMahon Services has recruited Brendan Ebzery to head up the new business unit. Brendan is highly regarded in the industry having worked in this sector for over 20 years. He has undertaken a number of major environmental projects, including remediation of hydrocarbon contamination, pesticide contamination, acid sulphate soil treatment, metal contamination, gas works waste and mining chemicals. He has practical experience managing projects on a variety of facilities and sites involving petroleum, mining, industrial, manufacturing, infrastructure, maritime, construction and agriculture.

Brendan has a strong track record in the design and installation of remediation systems and has worked successfully with clients to gain regulatory site closure for numerous projects with complex contaminations issues.

Groundwater Treatment Solutions has the combined resources to provide a complete treatment solution with expert personnel, in-house laboratory facilities, engineering workshops and state-of-the-art treatment systems and equipment.

TREATMENT SOLUTIONS

- ▶ In-situ chemical oxidation or reduction
- ▶ Multi-phase extraction (mobile and semi-permanent)
- ▶ Soil vapour extraction
- ▶ Bioremediation
- ▶ Chemical fixation
- ▶ Neutralisation (PASS/ASS)
- ▶ Suspended solids and sediment removal
- ▶ Air sparging
- ▶ Ion exchange
- ▶ Reverse osmosis
- ▶ Permeable reactive barriers
- ▶ Flocculation/precipitation





**DELIVERING PRACTICAL
AND COST EFFECTIVE
TREATMENT SOLUTIONS
FOR GROUNDWATER AND
VAPOUR CONTAMINATION.**



AWARD WINNING PROJECT ON ICONIC GROUND

THE MCMAHON SERVICES TEAM HAVE SHOWCASED OUR STRONG DECOMMISSIONING CAPABILITY BY WINNING CATEGORY A AT THE CRANE INDUSTRY COUNCIL OF AUSTRALIA (CICA) LIFT OF THE YEAR AWARDS FOR WORK COMPLETED ON THE \$350 MILLION ADELAIDE CONVENTION CENTRE REDEVELOPMENT

The huge project, which is set to transform The Adelaide Convention Centre, is being delivered in two stages. Stage one, where the new building was expanded westwards over the railway lines to link with the Morphett Street Bridge, is complete and opened to the public in March 2015.

Stage two involved the demolition of the existing Plenary Building - Australia's first Convention Centre, built in 1987, and construction of a new state-of-the-art Convention Centre scheduled for completion in 2017.

Lend Lease, the principal managing contractor for the project, engaged McMahon Services' demolition experts and opted for a staged approach when it came to the demolition works.

Demolition of the former Plenary Building formed the first part of stage two and was undertaken over a six month period to make way for the new Plenary facility. However before our team could raze the old building, we had to complete the technically demanding demolition of the Rose Garden, then demolishing the offices, landscaping, paving, vegetation, trees and removing the fill material.

The team removed a floor slab, approximately 374 square metres in size, and supporting walls directly under paving to the Rose Garden. Careful removal of main suspended floor slab grids, supporting beams and columns including propping was successfully undertaken by our experienced demolition team.

The demolition proved challenging as it required the removal of concrete slabs from a two-storey structure supported by band beams. The Rose Garden

could not be safely and adequately accessed using cranes positioned at ground level. To manage the potential risks and to develop engineering solutions for the demolition works, McMahon Services engaged a third party engineering consultant.

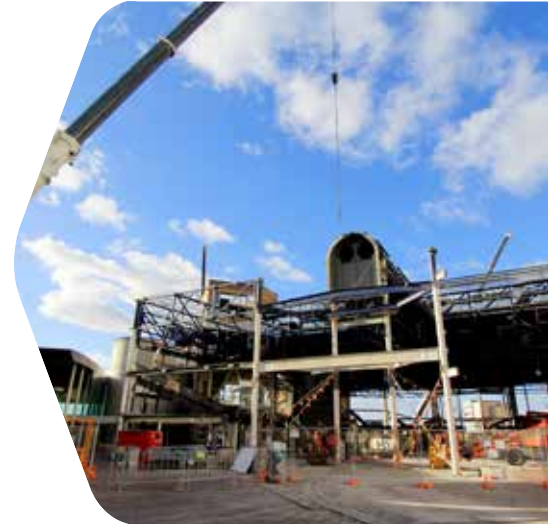
INNOVATIVE SOLUTIONS

We installed a purpose-built bridge to spread the load across the three Kilopascal (kPa) first floor of the Plaza structure. A purpose-built jacking frame was then positioned on this bridge, on the first floor, directly under the Rose Garden concrete slab, which was to be demolished and removed.

The jacking frame was designed and manufactured in-house by McMahon Services' Engineering and Fabrication division. Our Crane and Rigging division had considerable input into the design and manufacture of the jacking frame system, ensuring it would operate seamlessly alongside the 100 tonne crane.

An in-house 100 tonne crane was set up at ground level adjacent to the Rose Garden. The five kPa concrete slab under the Rose Garden was then cut into sections, while being supported by the jacking frame. Once the cutting was complete, each concrete section was raised above the level of five kPa slab by the concrete jacking frame on the first floor level. It was then positioned onto a specially designed trolley and towed back by a bobcat to a point where it could be fitted to and lifted by the 100 tonne crane, then removed from the site for disposal.

For the next step of this redevelopment, our team had to construct the crane pad, hardstand and lay-down area





49,057 MAN HOURS

"From the outset the careful "deconstruction" of the original 1987 ACC Plenary Building, was identified as a particularly complex and challenging assignment that would require the closest of attention to planning and execution. In response to those challenges your team have set new industry benchmarks in relation to the quality of demolition planning, work method development and documentation produced. Throughout the project, your team consistently applied and maintained a high standard of occupation work place safety. These outcomes are testament to the attention to detail, persistence and professionalism of your project management team, dedicated field crews and engineering support teams."

Dan Shaw, Managing Contractor, Lend Lease Building Contractors Pty Ltd

needed to support the demolition and new construction work, while deconstructing the Plenary Building at the same time.

The existing three-storey Plenary Building, was built using a structural steel frame clad with 350 precast panels, sitting on a suspended slab. This ruled out traditional mechanical demolition methods and our team used a number of cranes to complete most of the deconstruction work.

COLLABORATIVE APPROACH

Due to the intricacy of this project, McMahon Services was engaged to provide expert advice on suitable demolition methods during the conception and feasibility stage, early

involvement by McMahon Services as a contractor resulted in a genuinely collaborative approach by all parties. This meant that the scope, stakeholder expectations, program and budgets were identified at the outset and appropriate work methods were clearly defined. McMahon Services engaged Aztec Analysis as temporary works engineer to conduct over 50 critical lift studies to verify the impact of our proposed work methods on the Plaza structure and surrounding buildings. This independent verification process was critical, due the suspended slab construction of the Plenary Building and close proximity to neighbouring buildings.

The project involved over 5,200 lifts in total, 4,620 crane hours and 49,057 man hours with five teams of three

full-time riggers, five full-time crane operators and two senior rigging supervisors. Enforcing and maintaining Active Demolition Zones for all workers and keeping the plant and equipment separated by exclusion zones, in order to minimise overloading of the floor slabs, was crucial for the management of the safety of our site personnel. Community relations between our client and key stakeholders were pivotal to the project's success and called for a highly collaborative approach by the McMahon Services team.

'Over 5,200 crane lifts and 4,620 crane hours'



SKILLFUL CLOSE-OUT FOR BOTANY TERMINAL

**IN DECEMBER 2014
MCMAHON SERVICES
WAS COMMISSIONED TO
DEMOLISH AND REMOVE
ABOVE GROUND STORAGE
TANKS AND ASBESTOS
CLAD BUILDINGS AT A
MOTHBALLED TERMINAL
SITE, LOCATED IN BOTANY,
NEW SOUTH WALES**

It had been used to store petroleum products before it was decommissioned in 2012. McMahon Services was contracted for the demolition works which entailed the removal of asbestos, redundant electrical services and demolition of a number of structures, including above ground storage tanks and buildings.

Prior to the building demolition, the team carried out extensive asbestos and hazardous waste removal works

including removal and disposal of significant volumes of asbestos cement roof sheeting. Demolition of the ground slab level of eight buildings then commenced, concluding with the demolition and removal of 33 above ground tanks and above ground pipework. McMahon Services disposed of all building rubble, general rubbish and concrete rubble off-site.

Throughout the nine month program, McMahon Services provided all in-house supervision, labour, plant and equipment to carry out asbestos removal and demolition works at the former Terminal. The works were carried out in strict accordance with the client's demolition guidelines and management system requirements, with detailed Work Method Statements and Critical Crane Lift Plans developed and presented for approval prior to the commencement of works.

The demolition of 33 above-ground storage tanks resulted in the processing of approximately 2,000 tonnes of scrap steel, and a specific demolition sequence had to be developed to accommodate both the conical and floating roofs of these tanks.

The tank demolition was undertaken by a Komatsu PC1250 and PC450 excavator featuring a Bis-Alloy Cutting Tyne. A Komatsu PC450 excavator, fitted with a mechanical grapple, was used to process tank scrap steel.

**'Demolition and
removal of 33 above
ground tanks and
pipework'**



MCMAHON SERVICES PRESCRIBES A STAGED APPROACH

**MCMAHON SERVICES
WAS ENGAGED BY
CONSTRUCTION MANAGER
COOMBS BAREI TO
UNDERTAKE THE SAFE
REMOVAL OF OVER
12,000 SQUARE METRES
OF ASBESTOS ROOF
SHEETING FROM THE
SYMBION PHARMACEUTICAL
WAREHOUSE IN UNDERDALE,
SOUTH AUSTRALIA**

Completed over a seven month period, the saw-tooth warehouse consisted of 13 individual bays that required careful programming, in order to complete the remediation in a staged approach. To ensure minimal disruption to the fully operational warehouse during normal working hours, the asbestos removal works were undertaken every third weekend throughout the duration of the project. Not only did this ensure the safety of warehouse personnel, it also provided an asbestos free work zone for the upcoming working week, enabling other trades to continue their works safely.

McMahon Services provided an innovative solution for the client. An asbestos buffer wall was constructed between the bay sections, completely sealing off the asbestos work zone from the operational warehouse, and allowing the facility to continue to operate. The 200 metre lined stud wall was erected, dismantled and re-erected for each of the 13 work zones throughout the project.

On the Monday morning following the weekend asbestos removal, the asbestos contaminated waste would be removed and disposed of into a certified landfill, before a thorough cleaning and decontamination process would commence. This included detailed vacuuming and wet wiping of all surfaces.

Following decontamination, the reinstatement works could be completed for that particular bay including the installation of safety mesh, 50 millimetre foil backed insulation blanket, True Oak Zincalume roof sheeting, external Colourbond wall cladding, box gutters and rotary vents.



During the early phase of the project, all key stakeholders identified the need to further strengthen the roof structure. Cross bracing across the purlins was installed, and this ultimately increased the cyclone rating of the building. It was also discovered that the external lighting needed to be upgraded to increase security at the warehouse.

McMahon Services utilised in-house plant and equipment on the project including a 220 tonne crane with fly jib, 45 foot all-terrain scissor lift and an 80 foot straight boom for access over garden beds and other obstructions during recladding works. Four electric scissor lifts were used inside the building as diesel powered equipment was unsuitable due to the fumes that this equipment would have generated.

**'Removal of over
12,000 square metres
of asbestos roof
sheeting'**



WEST END BREWERY GETS TOPPED UP



EXTENSIVE CONSTRUCTION MANAGEMENT WORKS TRANSFORMING THE ICONIC WEST END BREWERY

The closure of the Swan Brewery in Western Australia signalled that an extensive redevelopment was required at South Australia's West End Brewery, in Hyde Park. McMahon Services Industrial and Resources Construction division was engaged by Lion to undertake the role of Construction Manager and implement significant upgrade works. The Construction Management contracting model provided Lion with a single point of contact to execute the wide range of projects, across the entire

infrastructure upgrade and shutdown. The client owner's team was made up of McMahon Services' key personnel, Process Design Consultants and Lion Representatives who provided a steering committee that worked collaboratively to demonstrate quality and best value for program outcomes.

The rolling project consisted of a number of stages that have been completed over almost 24 months. The redevelopment was required to accommodate increased capacity and

production, including the upgrade of infrastructure and coordination of the shutdown works to assist the transition and the upgrade process.

**'Over 700 site
personnel inductions
completed'**



BREWHOUSE AND ENGINE ROOM FAÇADE

Arguably the biggest challenge of the Hype Park Upgrade was the design and construction of the Brewhouse and Engine Room Façade upgrades. Facing the heaving traffic on Port Road, the site works were constantly under the watchful eye of the public with tens of thousands of cars passing by each day.

The site works on the Port Road boundary also provided challenges with restricted access due to the location of the main entry into the brewery. High volumes of vehicles and large trucks had to enter the site through this main access driveway to pass through security, and traffic management was required throughout the works, to safely manage incoming and outgoing traffic whilst also allowing site activities to continue.

McMahon Services worked closely with the project consultants and steering committee to develop the design which included the feature glass wall structure that revealed the internal brewhouse and engine room, highlighting the 85 year old kettle which was refurbished at our head office facility.

It was important for Lion to keep the refurbishment of the façade under wraps until it was ready to be unveiled, so McMahon Services constructed a completely enclosed scaffold system and wrapped the external surface with a life-size, 3D rendered image of the façade to illustrate what was being built behind the scaffold.

The visually impressive façade incorporates large 3000mm x 1500mm glass panels, alucabond cladding and recycled red bricks to reflect the heritage nature and history of the West End site.

Consideration and integration of the upcoming Shutdown was a driving factor in the construction process. As the Shutdown included structural roof modifications and bracing to facilitate the roof removal, engineering considerations were given to safeguard against the possibility of the glazing cracking due to movement within the building. This included additional steel bracing to the main structural frame in a systematic process to accommodate our works.

The food grade environment also provided challenges on site as ongoing brewing operations continued, meaning internal and external scaffolding was carefully encapsulated in order to protect the existing brewhouse from external environmental elements.



SHUTDOWN

Throughout the duration of the project works, the coordination of the shutdown works was also required. Lion provided a Master Schedule Program for the shutdown works, which planned out the full seven week shutdown to coordinate pre-works, demolition, building, installation and commissioning of the new brew house. McMahon Services supplied the scope of works with time durations for inclusion into the Master Schedule. Key subcontractors TFG and Kone also provided their schedule of works into the schedule for the installation of various infrastructure items.

McMahon Services was also involved in the design and construction component of various project scopes, throughout the shutdown involving scope definition and generation. Due to the flexible, technical nature and the unknown capacity of existing infrastructure, the project scope was continually evolving. This was to accommodate the removal, supply and installation of the new brew house brewing vessels and associated equipment. The introduction of new information, additional equipment requirements and structural modifications meant that the McMahon Services' team were able to demonstrate flexibility and provide a quick response with minimal disruption to the overall project.

'Over 83,000 man hours and zero loss time injuries to date'





CONTROL ROOM UPGRADE

When McMahon Services commenced on site, the new brewery and associated process equipment plant had been designed with equipment already on the way from Germany. It was a case of “make it fit and make it work” meaning many scope items were amended, changed or introduced as new to accommodate the decommissioning and removal of existing equipment and infrastructure, before the new plant and infrastructure were installed and commissioned.

The first project works undertaken was the Control Room Upgrade, which involved the demolition of a redundant legacy bar, to make way for a new control room for the operations of brewing production.

All works were conducted whilst keg packaging was being undertaken less than five metres away within the same building. Given that it was a food grade area, any dust or debris had to be strictly controlled by encapsulating the work area and completing the work out of hours where possible. The adjoining control room was being used, so that meant noise also needed to be controlled and kept to a minimum.

Exact production requirements that related to data and communications specifications were not confirmed until the project was well underway, so we needed to have the flexibility to alter the works each day. Internal sound requirements were established in-situ with the client and then designed accordingly.

BREW HOUSE WATER STORAGE TANKS

As part of the overall project upgrade works, five new Brew House water storage tanks were to be installed incorporating extensive civil and concrete works. With delivery in a four stage process, McMahon Services completed this project in a tight access area with limited space due to the surrounding infrastructure. Working around the existing infrastructure allowed the brewing production to continue throughout the project.

Before the excavation works began on the first two foundations, the soil was tested in accordance with the new EPA legislation. The soil testing confirmed that there were contamination issues and the soil was removed.

Stage one involved some minor demolition of redundant pump and pipe structures to make room for the first two German manufactured tanks and concrete foundations. Programming and collaboration with all project stakeholders was crucial in providing continuous brewery production, particularly Total Food Group, the company responsible for the installation of the new tanks. The one-and-a-half metre foundations were completed, and the first two tanks were installed. Once the tanks were commissioned and tested, the next three stages were undertaken in the same process as stage one.

WASTE WATER TREATMENT PROGRAM

The next project was managed under the Waste Water Treatment Program and specifically involved the installation of a Carbon Odour Extraction System and modification to the existing Waste Water Collection Tank. Due to public complaints in relation to pungent odours escaping from the existing Waste Water Collection Tank, a suitable control mechanism was installed.

McMahon Services worked collaboratively with the Head of Engineering at Lion to come up with an innovative solution to effectively eliminate the odour escaping. The result was modifying an existing solution implemented at one of Lion's other brewery sites. The Carbon Odour Extraction System required the design, fabrication and installation of a steel lid that would sit above the existing water tank. Total Food Group was responsible for the design, manufacture and installation of the lid and Odour Control Systems designed, manufactured and installed the extraction component.





HIGH PRAISE FOR SAFE ROOF REPLACEMENT

**REMOVAL OF 3,980
SQUARE METRES
OF ASBESTOS ROOF
SHEETING**

A DETERIORATED ASBESTOS ROOF POSED A SAFETY RISK TO WORKERS AT THE ONE STEEL PELLET PLANT IN WHYALLA, ARRIUM CALLED IN MCMAHON SERVICES TO UNDERTAKE THE HIGH-RISK ROOF REPLACEMENT

Safety was the top priority for Arrium and McMahon Services, so the entire roof replacement exercise was completed utilising McMahon Services custom designed 130 tonne Crane Workbox. The Crane Workbox was built to allow asbestos technicians to safely remove asbestos cement material sheets when working at heights. The Workbox was suspended by the crane and allowed up to four personnel to work safely without having to stand on the roof. Our experienced roofing team wore harnesses attached to an inertia reel and removed the asbestos

roof sheets while remaining on the working box platform.

Exclusion zones were implemented, sometimes on three levels of the six storey building to ensure that plant workers were kept safe at all times. Arrium was kept regularly informed of work movements to coordinate staff and maintain pellet plant operations.

The wind conditions at this high level and time of the year were a challenge for the roofing team, works were scheduled early in the day to get the most out of the calmer weather conditions and to ensure the safety of our personnel.

The team were also required to work around two emergency gas stacks, which had a 20 metre exclusion zone. Our personnel worked in close consultation with the client and it was decided that work on these areas of

the roof should be completed at a later stage, during a cold shutdown.

The roofing team removed 3,980 square metres of asbestos roof sheeting and 598 square metres of wall cladding during the project, all of the deteriorated roof purlins, wall girts and wall cladding were removed and replaced as required.

One Steel and Arrium were highly impressed with the team's innovative approach and strong attention to safety throughout the project, showcasing our ability to deliver high risk projects that present significant challenges.



INTRACT AUSTRALIA DELIVER COMMUNITY FOOTBALL CLINICS IN THE NT

HUNDREDS OF COMMUNITY CHILDREN WERE TREATED TO A VISIT FROM FOOTBALL ROYALTY WHEN INTRACT AUSTRALIA DIRECTOR AND AFL HALL OF FAMER ANDREW MCLEOD JOINED TERRITORY THUNDER, AND PREMIER PARTNER INTRACT AT TWO COMMUNITY CLINICS IN ARNEHAM LAND

Intract Australia joined forces with Territory Thunder to deliver skills sessions and promote healthy lifestyle and employment messages to school children in Gunbalanya and Maningrida. Andrew McLeod was joined by fellow Intract Australia Director Michael Rotumah, NT Thunder Head coach and former AFL star Xavier Clarke and a number of NT Thunder players on the three-day trip.

Principal of Gunbalanya School, Sue Trimble said that the chance to meet a



Territory icon 'in the flesh' meant a lot to the kids. "For the children, it means seeing a real, live role model that they look up to and aspire to be. Football is a really strong sport here, so to have someone that you have actually watched on TV come to visit them is awesome," she said.

McLeod relished the opportunity to return home to the Northern Territory and give back. "This is a chance for me, through my role with Intract, to use football as the vehicle for off-field change in remote communities in the Northern Territory," he said.

"I love coming home and giving my time to what I love doing, which is community work," he said.

"To be able to deliver some of the messages Intract and NT Thunder are both trying to promote in the community has been a great opportunity.

"We can see what footy does for remote communities and the opportunities it creates for people and what it exposes them to.

"Everyone talks about closing the gap and Indigenous disadvantage and that's what it's all about – having Indigenous businesses and enterprises providing pathways."

Intract Australia General Manager – Northern Australia, Michael Rotumah outlined how Intract Australia and the Territory Thunder share many similar objectives. "There are some very strong comparisons in terms of the cultural challenges that we have as an employer, as Thunder has as a football club trying to get players from some of the most remote places in Australia," he said.

"The clinics are very important. It gives some of the youth who aspire to be footballers an opportunity to be a part of something special."



HOTEL RESTORATION

ASIAN PACIFIC GROUP CALLED ON MCMAHON SERVICES TO REMOVE ASBESTOS AT THE HERITAGE LISTED ART SERIES HOTEL IN SPRING HILL, QUEENSLAND

The hotel which was constructed in the 1960's and designed by architect Karl Langer is one of the few examples of its type remaining in the Brisbane CBD.

The hotel, which was also once home to the former Department of Main Roads, Registration and Licensing will eventually include a mix of short-term residential apartments, retail and office accommodation.

The project involved a full internal strip out of 15 floors, most of which had to be completed by hand. The team removed all furniture and fixtures, internal walls, ceilings and floor coverings in preparation for the demolition of walls, partitions and wet areas. The demolition of the

loading dock area with rear roof structure attached to a heritage wall had to be undertaken with extreme care, following heritage listed guidelines. The low density asbestos board, friable asbestos pipe lagging and bonded sheeting were taken away by our specialist team. A total of 13,000 square metres of vinyl asbestos tiles was removed using a ride-on floor stripper, allowing a more efficient and safer removal process that reduced manual labour requirements.

Some of the challenges throughout the project included two major storm cells, the first storm bringing large hail stones, shattering several glass windows in the building. The threat of storm water inundating and damaging the hotel had to be managed by ensuring that all storm water systems were working to optimum levels. Pumping systems such as those in the lift pits were kept operational, as flooding in the building was unavoidable.

Project planning was phased to maximise the crew deployment with friable and

bonded asbestos removal occurring simultaneously to the demolition works to accelerate the program. The debris which was removed manually had to be reduced in size to fit into the hotel lifts. The McMahon Services team used 660 litre wheelie bins with a specialist forklift attachment to deposit the debris into a receptacle on the ground floor.

The McMahon Services team successfully liaised with Local Government and the Department of Heritage and Conservation on a number of heritage issues throughout the project.

**'Full internal strip
out of 15 floors and
removal of 13,000
square metres of
vinyl asbestos tiles'**



TANK DECOMMISSIONING AN UNINTERRUPTED SUCCESS



**McMAHON SERVICES
WAS COMMISSIONED ON
THIS HIGH-RISK PROJECT
TO DEMOLISH AND
REMOVE APPROXIMATELY
96 ABOVE GROUND
STORAGE TANKS AND
ASSOCIATED BUILDINGS
AT A MOTHBALLED
LUBRICANTS PRODUCTION
AND DISTRIBUTION FACILITY,
LOCATED WITHIN AN
OPERATIONAL PETROLEUM
TERMINAL, IN MELBOURNE,
VICTORIA**

Some of the demolition work had to be undertaken near high value terminal assets, such as high voltage substations, product pipelines and terminal fire systems. Before the works commenced, all 14 members of McMahon Services' team completed site specific safety training and inductions, which included our client's safety system known as the Loss Prevention System (LPS). The training resulted in a full appreciation, implementation and incorporation of LPS principles, creating a safety focused culture across the site.

Prior to the demolition works, 9,000 square metres of asbestos roof sheeting was removed from four buildings. Additional asbestos removal work, which included the removal of bituminous floor coatings, pipe gaskets and wall cladding, was also completed by the team.

Ninety six above ground storage tanks were removed and demolished using a combination of excavators and cranes. Any residual hydrocarbons were removed from the tanks; ACM gaskets and Synthetic Mineral Fibres (SMF) lagging were segregated and disposed of before the tanks were validated as hydrocarbon free.

This phase of the works also involved the high-risk lifting of the redundant terminal tanks over the high voltage substation next to high voltage power lines.

As part of the building scope of works, 15,000 square metres of buildings were demolished ranging from single storey to multi-storey buildings, up to 15 metres in height. Demolition of a 25 metre high-rise packaging hall was completed using our specialised PC1250 excavator with hydraulic

shear. The high-rise building was demolished adjacent to an active pipe rack supporting product pump lines, fire water ring main and pigging lines. To mitigate the risks, our team constructed customised scaffold protection for the pipe racks during demolition works.

The termination of services and area handover provided the greatest challenges on the project. However, a well-defined terminal communication and reporting structure was the cornerstone of the project's success. Active communication between the demolition team and the terminal employees overcame these issues with little or no impact to the demolition schedule. Commitment on both sides to achieve common project outcomes allowed for creative and timely changes to work schedules when faced with possible delays.

**'Removal of 9,000
square metres
of asbestos roof
sheeting'**

EARLY WORKS DELIVERED IN THE COOPER BASIN

McMAHON SERVICES DELIVER CRITICAL EARLY WORKS PACKAGE FOR THE SANTOS COOPER INFRASTRUCTURE EXPANSION PROJECT (CIEP) IN MOOMBA, SOUTH AUSTRALIA

McMahon Services was contracted by Santos Limited to undertake the Site Preparation Works at the Moomba Plant located in the Cooper Basin. This challenging early works contract was critical for the overall delivery of the CO2 Removal & Utilities Expansion.

The multifaceted contract was undertaken within an existing brownfield site that required extreme caution working in and around the fully operational oil and gas facility. High levels of communication was critical between Santos operational staff and the McMahon Services team to ensure that the facility's operations were maintained at all times.

The scope of works included the following:

- ▶ Bulk earthworks including winning material from nearby borrow pit
- ▶ Road construction including floodway and tie-ins to internal plant roads
- ▶ Off-site and on-site welding of fire water line, Big Lake Bypass gas line
- ▶ Installation of new Glass Reinforced Epoxy (GRE) raw water line including horizontal boring under live gas transmission pipelines and tie-ins to live critical infrastructure
- ▶ Construction of a new Potable Water load out facility to service the Cooper Basin
- ▶ Installation and redirection of an underground high voltage transmission line
- ▶ Deconstruction, relocation, and reconstruction of the blast proof Operators Building
- ▶ Construction of the CIEP Compound including footings, stormwater drainage and other underground infrastructure
- ▶ Demolition of redundant infrastructure within the operational Moomba Plant

The 12-month project was completed entirely by McMahon Services' in-house trades and personnel, and over 250 personnel were inducted throughout the duration of the project, with an average of over 55 workers on site each day.

Intract Indigenous Contractors - McMahon Services' Indigenous labour division, played a significant part in the delivery of the project providing labour and resources. Of the 66,000 man hours undertaken on the project, 27% Indigenous engagement was achieved.

A key challenge on this project was the execution of all excavation activities across the site in accordance with Santos' strict excavation procedure. This was particularly challenging due to the large amount of excavations required, the location within the operational facility and the numerous underground services encountered. McMahon Services' dedicated Excavation Coordinators worked closely with Santos to develop approved Excavation Plans and obtain the necessary permits.

Fatigue management and logistics were also significant challenges to overcome in order to successfully deliver the project in a remote location under extreme conditions. During the summer months, the temperature on site regularly exceeded 45 degrees Celsius.



PROJECT DELIVERED
in approx
66,000
MAN HOURS,
WITH 27%
INDIGENOUS
ENGAGEMENT





ADDING VALUE TO THE SUPPLY CHAIN

DESIGN AND CONSTRUCT PROJECT FOR RAILROAD TRANSPORT'S NEW FREIGHT TERMINAL

Undertaken over 12 weeks, Railroad Transport's new 'Logistics Hub', located within the Kewdale Freight Terminal has been designed to store and process a broad range of freight, from small packages to large, ready-to-freight containerised goods. The new facility comprises a 6,000 square metre warehouse and 15,000 square metres of hardstand for the long and short term storage of containers and heavy haulage vehicles.

The terminal facility incorporates an impressive administration office that has been fitted with the latest digital video conferencing technology in the main meeting room, as well as an extensive mezzanine storage area and provides modern facilities for the team. The facility also includes dual loading docks that provide concurrent rear and side loading

capability for two semi-trailers, and self-levelling docks to the rear of each vehicle. It is illuminated by a combination of energy efficient LED high-bay lighting, and translucent roof sheeting to ensure high visibility whilst reducing power usage.

The surrounding hardstand is a combination of concrete and asphalt paving, created using GPS guided excavation and grading equipment as well as digital modelling for the site. The hardstand construction also includes a certified weighbridge and a specialist glass processing area.

The McMahon Services team completed the demolition of existing structures, in preparation for the new warehouse. The construction of the warehouse base structure and warehouse slab incorporated fibre reinforced concrete technology with an automated laser screed to ensure accuracy across the vast expanse of the warehouse floor.

A combination of garrison and chain-link fencing was installed around the perimeter of the property, with automated sliding gates for both the general and heavy vehicle entrances. The facility is protected by a comprehensive digital CCTV and advanced security system, as well as energy efficient LED external flood lighting surrounding the facility.

McMahon Services worked collaboratively with the client to deliver this project in an accelerated 12 week time frame, and were able to pass on cost savings due to the shared risk approach.

**'The new facility
comprises of a
6,000 square metre
warehouse and
15,000 square metre
hard stand'**



OLD TO NEW

TRANSFORMING SALISBURY HEIGHTS PRIMARY SCHOOL



McMAHON SERVICES COMPLETED AN EXTENSIVE REDEVELOPMENT PROJECT AT THE SALISBURY HEIGHTS PRIMARY SCHOOL IN SOUTH AUSTRALIA'S NORTHERN SUBURBS OVER A 12 MONTH PERIOD

Following the construction of the school's new administration centre and canteen facility, our team carefully demolished the existing buildings to make way for a landscaped outdoor amenity area

The two-stage project involved a number of McMahon Services' in-house disciplines demonstrating the benefits of our streamlined approach. During stage one construction of the new administration centre and canteen facility, we removed the existing bitumen play area, completed detailed earthworks including installation of stormwater and service trenching before pouring the concrete slab.

Building works then commenced on the structural elements including framework, erection of the structural steel, brickwork and installation of the roof. External wall cladding was then undertaken before internal plasterboard walls and ceiling linings could be installed. This enabled our team to complete the second fix for the electrical, communications, hydraulic and mechanical services and second fix carpentry.

Stage two required the demolition of the former redundant administration and canteen buildings and the associated civil and stormwater works. The new outdoor amenity was fully landscaped and featured shade shelters and curved seating areas.

There were strict requirements for the school to be fully operational at all times throughout the two-stage amalgamation project. Our project team worked closely with the school's management to ensure that access to the existing administration office and canteen was maintained

before school, at recess and during lunch throughout the construction period.

Throughout the project, our team took extensive safety precautions to ensure the safety of the students, teachers and visitors. Site fencing was erected with purpose-built gates that enabled canteen operations to continue and students to gain access, but also allowed for safe movement of construction plant and planned deliveries. All high risk work activities including asbestos removal and electrical changeovers were completed outside of school hours to minimise disruption to the school and ensure a safe working environment was maintained.

The completed building provided state-of-the-art administration and canteen facilities for the school, complemented with high-end finishes and fixtures.



McMAHON SERVICES GOES THE EXTRA MILE FOR CHRISTMAS ISLAND

FIVE MONTH LONG PROJECT TO REMOVE ASBESTOS AND REINSTATE ROOFING ON SEVERAL BUILDINGS AT CHRISTMAS ISLAND PHOSPHATES' FULLY OPERATIONAL PROCESSING PLANT

The phosphate plant is located on the remote Australian territory of Christmas Island, which lies in the Indian Ocean, 3,385 kilometres away from central Australia.

McMahon Services coordinated the mobilisation of equipment and materials, and shipped these from Fremantle to Christmas Island. The team removed

approximately 6,000 square metres of asbestos roof and wall sheeting from the Drumsite Warehouse and Workshops recladding the building with new materials. Around 2,400 square metres of asbestos was also removed and new cladding reinstated by our specialist team in several other buildings on the site.

The logistics of the project were a challenge for the team, but were overcome with extensive pre-planning which included the shipping of materials and sourcing of personnel from mainland Australia. This project was completed during the dry season when the Christmas Island red crabs migrate to the sea to spawn. This takes place each year during October and November

and makes travelling around the island difficult. Many of the roads are filled with the crabs and their tough exoskeletons can puncture tyres.

Completing this project utilising our own in-house divisions provided a seamless delivery and we received excellent feedback from our client. As a result, McMahon Services has been contracted for another project on the island.

'Removal of 6,000 square metres of asbestos roof and wall sheeting'

LARGE SCALE ASBESTOS CONTAMINATED SOIL CLEAN-UP

'Remediation of over 150,000 square metres through manual picking and machine scraping'

CHALLENGING PROJECT TO DECONTAMINATE OVER 150,000 SQUARE METRES OF CONTAMINATED SOIL WITHIN A HIGHLY RESTRICTED FACILITY ON CURTIS ISLAND, QUEENSLAND

An initial site visit by McMahon Services to inspect asbestos contaminated erosion control stockings, led to the development of a handling and disposal methodology approved by Workplace Health and Safety Queensland. Further environmental testing led to more areas of widespread mulch being deemed contaminated with both bonded and friable asbestos.

A team of up to 20 asbestos removal technicians completed the asbestos remediation works during the peak summer period, working 72 hours per week on a 4/1 roster.

This project involved the remediation of three asbestos contaminated soil stockpiles by a combination of manual picking and machine scraping on over 150,000 square metres of the island.

Two main methods were used:

- ▶ Manual picking of approximately 45,000 square metres was used on stockpiles one and three, with associated vacuuming and excavation of the friable asbestos
- ▶ Stockpile two involved wholesale machine scraping and excavation. Deterioration of the bonded asbestos meant that the top cover of the stockpile had become friable and required excavation and removal. Over 100,000 square metres were remediated in total from stockpile two.

Creation of dust in the excavation process was a major concern on-site. Asbestos removal technicians wore full asbestos suits, gloves and half mask respirators at all times. All machinery had negative pressure filtered air systems fitted to the cabins, and a full time water cart was operated on site to shadow the excavation process and suppress any dust generated. Five stage decontamination units were installed at the site at entry and exit points for McMahon Services' asbestos removal specialists.

Transport of asbestos contaminated soil was primarily undertaken in double lined bins, wrapped and transported to pre-approved council landfill facilities. McMahon Services worked closely with State and Local Government regarding the landfill options to dispose of the contaminated soil, it was decided to relocate the soil to the mainland on a managed post-closure landfill site, which provided a cost saving to the client.

The inclement weather conditions were a major challenge for the McMahon Services team throughout the project. Unpredictable rainfall was a high risk as previously cleared areas became weathered and created potential for water run-off into other asbestos contaminated stockpiles. Silt fencing was put in place to capture run-off and slow the progress of water down slope. Where the opportunity arose, cleared areas were re-hydro mulched and grass matting installed.

With an open communication approach and innovative solutions, McMahon Services worked in collaboration with the client to successfully deliver this sensitive project, with minimal disturbance.





NEW ADDITIONS TO FLEET

McMahon Services is always focused on having the right tools for the job. We invest heavily to ensure state-of-the-art, innovative plant and equipment is available to deliver projects across Australia. In 2015, we have added a number of new items to our fleet including access equipment, light vehicles, trucks, earthmoving equipment and specialised equipment.

Light Vehicles

21 Seater Coaster Bus	1
Hilux Utes	25
Twin Cab Landcruiser Utes	4

Trucks

Volvo 8x4 Hooklift Trucks	3
15,000 Litre Mine Spec Water Trucks	2
Mine Spec Service Truck	1
10,000 Litre Isuzu Vacuum Truck	1
Western Star Prime Mover, Drake 2 rows of 8 dolly and 11 rows of 8 steerable platform low loaders	1

Access Equipment

25 Rough Terrain JLG Scissor Lift	1
CAT 414 Telehandler	1

Earthmoving Equipment

11E Dynapac Smooth Drum Roller (bolt on pad shells)	1
L250G Volvo Wheel Loader	1
259 Caterpillar Tracked Skidsteer Loaders	2
PC220 Excavator	1
PC130 Excavator	1
Kubota Mini Grader	1

Specialised Equipment

Hooklift Bins (various sizes)	9
25T Franna Tractor Cranes	2
PC1250 Excavator with Demolition Shear	1
Liebherr 954 Excavator with Demolition Shear	1
200 tonne Liebherr Mobile Crane	1
Ripamonti Birdie 500 Mobile Drill Rig	1



COMPACT ROTARY DRILL

McMAHON SERVICES' EXTENSIVE FLEET OF PLANT AND EQUIPMENT NOW INCLUDES THE RIPAMONTI BIRDIE COMPACT ROTARY DRILL

This innovative rotary drill is ideal for foundation work, civil engineering and drilling where a smaller, easily transportable drill is desired

The Birdie has stood up to tough and remote drilling conditions around the world, and is suitable for anchoring, micropiles, shallow water wells, restoration jobs as well as geotechnical and environmental investigations. Recently on the Melville Island accommodation project that McMahon Services completed in the Northern Territory over 1,200 piles were installed using the innovative and lightweight rotary drill.

This compact but powerful drill is suitable for drilling with three inch and four inch Down-the-hole (DTH hammers) and hydraulic light drifters. It can be disassembled into a few light and compact pieces, making this unit very versatile and easy to transport.



KEY FEATURES INCLUDE:

- ▶ Light and compact
- ▶ Capable of installing up to 100 piles per day
- ▶ Drill mast is detachable from the rig, allowing for use on scaffolds
- ▶ Truck mounted for rough terrain
- ▶ Extendable track base (760 - 1,160 millimetres wide) enabling access to tight areas
- ▶ Radio remote control panel
- ▶ Extension hose kit
- ▶ Clamping device and breaking up for up to 150 millimetre diameter piles

KEY APPLICATIONS:

- ▶ Full design and supply capability for screw piles
- ▶ Building foundations in lieu of cast in situ concrete footings
- ▶ Micropiles for bad ground stabilisation
- ▶ Geotechnical core sampling
- ▶ Water bore excavations
- ▶ Screw piles for cyclonic hold down (anchoring) up to three metres in length, with 10 tonne down force

NEW APPOINTMENTS



Rob Cicarello

ESTIMATING MANAGER

Industrial and Resources Construction

Rob Cicarello joined McMahon Services in June 2015 in the newly formed Industrial and Resources Construction division. Rob brings almost 20 years of experience in the engineering and construction sector, and as estimating manager has led a number of South Australia's iconic projects.

Rob is a diploma qualified Mechanical Engineer who advanced his career and became a Project Manager, before moving into the estimating field. With more than 10 years' experience in estimating, and an extensive construction background he brings a wealth of knowledge to the company.

Since Joining McMahon Services, Rob has been instrumental in the success of a number of projects and continues to grow the strength of the McMahon Services group.



PRIZE WIN FOR GARDEN ISLAND

**THE GARDEN ISLAND
LANDFILL CLOSURE &
REHABILITATION PROJECT
WON THE AWARD FOR
EXCELLENCE IN CIVIL
CONSTRUCTION, FOR
PROJECTS \$10 - \$30
MILLION, AT THE SA
CIVIL CONTRACTORS
FEDERATION AWARDS
NIGHT, HELD IN AUGUST
2015**

The project has been a collaborative effort between the Western Region Waste Management Authority, Leed Engineering & Construction, McMahon Services and Tonkin Consulting. Garden Island is part of the estuarine system formed by the Port Adelaide River and Barker Inlet. The landfill occupies 54 hectares of the island's 150 hectares and prior to its closure in 2000, served the domestic waste disposal needs for almost half of Adelaide.

The site is owned by the Land Management Corporation (now Renewal SA) and was operated as a landfill by several parties but most

recently the Western Region Waste Management Authority. The project has addressed several legacy and environmental issues at the site and has been staged over ten years. It is the largest landfill cap completed to date in South Australia.

McMahon Services was instrumental in completing the rehabilitation and reinstatement works on the site, which involved the design, construction and operation of a staged extraction and flaring system to safely control, collect and dispose of landfill gas emissions generated by the landfill that remained.





McMAHON SERVICES LIFTS CRANE AWARD

AT THE RECENT CICA (CRANE INDUSTRY COUNCIL OF AUSTRALIA) NATIONAL CONFERENCE HELD IN PERTH, McMAHON SERVICES WAS AWARDED THE MAIN AWARD FOR CATEGORY A - LIFT OF THE YEAR FOR CRANES OVER 130 TONNES

The accolade was given in recognition for our performance on the Adelaide Convention Centre Redevelopment Stage two project. The project was based around the deconstruction of the 1987 built Convention Hall called the Plenary Building, to make way for new construction, which forms part of the \$350 million Riverside Precinct Upgrade.

During a six-month intensive planning phase, a deconstruction process using cranes was identified as:

- ▶ The best method to minimise disturbance to stakeholders
- ▶ The best way to reduce risks associated with uncontrolled collapsing
- ▶ The best method to maintain integrity of the suspended plaza slab

The scope of works for the deconstruction lifts included the following:

- ▶ Pre-planning, engineering and scheduling
- ▶ Internal strip out of all interior linings, operable walls, insulation, seating, and glazing
- ▶ Removal of roof sheeting and

multiple acoustic insulation layers (compressed straw panels)

- ▶ Removal of all perimeter precast wall panels
- ▶ Removal of all secondary structural members
- ▶ Removal of all mechanical plant (air handling units) from high level plant rooms
- ▶ Removal of all external primary structural steel
- ▶ Removal of high level precast concrete cladding
- ▶ Removal of floor slabs from plant rooms
- ▶ Removal of main box truss structures
- ▶ Removal of remaining tower floor slabs
- ▶ Removal of northern lift shaft

The delivery of this project required over 5,000 crane lifts, and at its peak McMahon Services had five cranes operating in the same vicinity, on the suspended slab with very limited access.

KEY HIGHLIGHTS

- ▶ Over 5,000 individual crane lifts
- ▶ 4,620 crane hours
- ▶ 49,050 man hours
- ▶ No lost time injuries
- ▶ Incident free



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THE
WOODS
WORKS