The WORKS

Summer Edition 2018 - 2019

McMAHON SERVICES

CONTENTS

05 DIRECTOR'S MESSAGE

06 McMAHON SERVICES WEIGHS IN WITH A 3000T SILO DESIGN AND CONSTRUCT

08 TRANSFORMATION FOR ST MARK'S COLLEGE

10 McMAHON SERVICES DELIVERS 26,000M2 OF ROOFING AND WALL CLADDING

11 McMAHON SERVICES KICKING GOALS AT FORMER FOOTBALL PARK

12 HISTORY IN THE MAKING AT LOT FOURTEEN

14 MULTI-FACETED PROJECT UNDERTAKEN IN THE HEART OF THE ADELAIDE CBD

16 BIG STEPS FORWARD FOR WESTERN AUSTRALIA

18 INTRACT-McMAHON SERVICES JOINT VENTURE DELIVERING CIVIL INFRASTRUCTURE WORKS AT OSBORNE NAVAL SHIPYARDS

19 INTRACT MEANS BUSINESS

20 WOOMERA RANGE SAFETY AND CONTROL REMEDIATION SITE WORKS

21 MOUNT BUNDEY TRAINING AREA ROAD MAINTENANCE REPAIRS

22 RAAF BASE TINDAL TREE REMOVAL AND REPLACEMENT

23 INAUGRAL IN-HOUSE NAIDOC EVENT

24 CIVIL ENGINEERING GROUP EXPANSION

25 NEW GENERAL MANAGER FOR BALLESTRIN CONSTRUCTION SERVICES

25 SOMERO S-485 LASER SCREED IMPROVES THE PRODUCTION AND SAFETY OF CONCRETE DELIVERY

26 CHRISTMAS ISLAND PHOSPHATES ASBESTOS REMEDIATION AND STRUCTURAL WORKS

28 AUGUSTA POWER STATIONS DECOMMISSIONING - SCAFFOLDING AND METAL SCRAPPING

29 WORLD DEMOLITION AWARDS

30 McMAHON SERVICES HEADS UP SCHOOL REFURBISHMENT FOR STEM WORKS PROGRAM

31 RAIL FACILITY ASBESTOS REMEDIATION WORKS

32 NATIONAL ENVIRONMENTAL INCIDENT AND SPILL RESPONSE SERVICES

33 CRUSHING DEMOLITION AT OLYMPIC DAM

34 ROAD TO ANOTHER SUCCESSFUL PROJECT

36 McMAHON SERVICES NT SHOWS THEIR SUPPORT FOR THE HAYDEN REYNOLDS TIWI COLLEGE GARDEN PROJECT

37 LAND 121 STAGE TWO UNIT SUSTAINMENT FACILITIES

38 NEW ADDITIONS TO FLEET

40 McMAHON SERVICES MAKES THE MOVE ACROSS THE TASMAN SEA

41 McMAHON SERVICES OPENS PORT AUGUSTA OFFICE

41 HEALTH & SAFETY UPDATE

42 ADELAIDE FESTIVAL CENTRE DRIVE UPGRADE

44 McMAHON SERVICES SHOWS SUPPORT FOR THE WOMEN'S & CHILDREN'S HOSPITAL BEACH HOUSE PROJECT

45 CHARLES STURT INDUSTRIAL ESTATE DEMOLITION WORKS

46 MULTI-DISCIPLINARY PROJECT LEAVES BROADCAST AUSTRALIA HOPEFUL

47 NEW SENIOR APPOINTMENTS


ST MARK'S
COLLEGE


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Director's MESSAGE

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

Looking back on 2018 it has been a year of diversification. We have delivered a number of projects that have required a change in how we deliver our service capabilities and approach to high-risk works. Those challenges have proved to be positive, increasing the breadth and depth of our capabilities in multidisciplinary project delivery.

An example of this is our work we have undertaken in the heart of Adelaide for the Lot Fourteen Redevelopment, completing the first stage of demolition works at the former Royal Adelaide Hospital site. This was a complex and challenging project for many reasons including the restricted access of the site, environmental sensitivity of the works due to the site being adjacent to the Adelaide Botanic Gardens and local residents, scaffolding and encapsulation requirements, community and stakeholder engagement, and the management of asbestos and other hazardous materials on site.

One of the more complex construction projects undertaken by the Company was completed this year, the design and construction of a 3000t fully bolted steel silo at Morgan Cement's Port Kembla cement clinker grinding facility. The 26m silo was erected using a synchronised jacking process allowing it to be built from ground level significantly reducing working at heights risks.

Delivery of the silo required complex trucking, rail and shipping logistics from Kansas in the United States where the component parts of the silo were manufactured. High risk crane works were required to install two 30t conveyor galleries linking a 40m access tower and the existing plant during a tight weekend shutdown window.

2018 saw our Building Services team expand their capabilities delivering a significant number of high-quality architectural finish projects for a variety of clients in the Defence and education sectors. Their standout project this year was the New Indoor Sports Centre and Science Centre Refurbishment for St Mark's College in Port Pirie comprising of indoor courts, learning areas, glass facades, a mezzanine level and a single court gymnasium.

We completed several multidisciplinary projects that brought together the expertise of our various service offering teams. The Adelaide Botanic High School Redevelopment project is a good example of this with personnel from our Demolition, Asbestos, Civil and Scaffolding teams aiding client Lendlease in their delivery of South Australia's first vertical high school in the heart of Adelaide's central business district.

Demolition had another productive year completing projects at Olympic Dam mine site, the Charles Sturt Industrial Estate, the Former Football Park and thr Augusta Power Stations Decommissioning project. With the latter proving to be a complex and challenging project, which was recognised globally with a shortlist in the World Demolition Awards for our collaborative partnership with client Flinders Power.

Intract had an impressive 2018 delivering some of their largest projects to date. Two key projects were remote road remediation works at both Woomera, South Australia and Mount Bundey in the Northern Territory. In Adelaide, Intract and McMahon Services are working collaboratively on our largest jointly delivered project yet, the civil infrastructure package of works for the Osborne South Development Project, which when completed will support current and future naval ship development, operations and maintenance programs in South Australia.

Our Roofing team has had an excellent year delivering some of the most difficult and high-risk projects they have undertaken to date. Roof replacement at Downer Rail's facility in Port Augusta not only dealt with asbestos contaminated materials requiring full encapsulation of the work site, but also required works over operational rail infrastructure. Our long-term relationship with Christmas Island Phosphates saw the completion of additional large-scale roof replacement works over operating processing plants, silos, conveyor belts, ship loading stacks, and over the ocean – all on a remote island in the Indian Ocean. In Victoria we delivered roof replacement works for two supersheds at Incitec Pivot superphosphates plant facing similar operational plant challenges.

Our plant and equipment fleet capability also diversified this year. Our new plant acquisitions now allows for wider service offerings such as a laser screed increasing our capabilities in monolithic concrete pours, a mobile crushing plant that transforms demolition waste into site won fill material reducing haulage costs, and high pressure pumps for rapid industrial cleaning and hydro-demolition of concrete.

We made big steps toward gender equality with several women taking up management roles across the Company, both through external recruitment and promotion internally. We continue to take practical steps to combat our industry's gender inequality challenges as we strive to create a diverse and inclusive work culture.

We thank our loyal staff for the hard work throughout the year. We challenge everyday what McMahon Services can achieve. We put our collective minds to a task, see projects through to completion and strive for continuous improvement and client satisfaction.

We thank our clients for their support and ongoing opportunities to delivery infrastructure enabling works across multiple industry sectors. We look forward to strengthening our relationships and continuing to achieve great things in the year ahead.

David McMahon
Managing Director

Andrew McMahon
Director

McMAHON SERVICES WEIGHS IN WITH A 3000T SILO DESIGN AND CONSTRUCT

3000T SILO CONSTRUCTED WITH 565 CARBON STEEL PLATES AND 72,882 BOLTS

ADELAIDE BRIGHTON GROUP PRODUCES AND MARKETS CLINKER, CEMENT AND LIME PRODUCTS UNDER THE ADELAIDE BRIGHTON CEMENT AND COCKBURN CEMENT BRANDS.

Morgan Cement International is a subsidiary of the Adelaide Brighton Group operating a cement clinker grinding facility in Port Kembla, New South Wales. The facility was first constructed in the 1920s and underwent major capital upgrades in the 1950s and the 1990s.

The original site had two cement storage silos which each held 400t of cement. Two additional storage silos, holding 1000t of cement each were constructed in 2008. An additional 400t silo was constructed in 2014 providing a total site storage capability of 3200t for both general purpose and shrinkage limited cements.

Morgan Cement International was seeking to increase the productivity at their Port Kembla site and engaged McMahon Services to design and construct an additional 3000t silo to achieve this outcome.

Scope of Work

McMahon Services led the design and construct project to deliver the 3000t fully bolted steel silo 26m in height and 14m in diameter, with associated mechanical equipment including air slide conveyors and a 40m bucket elevator. The silo was erected using a synchronised jacking process that allowed it to be built from ground level. This process receives the highest safety ratings by significantly reducing working at heights and bringing cost savings to the overall project delivery.

Preliminary site works included asbestos removal and demolition on the existing slag shed where the silo was to be erected. All asbestos containing material was wrapped in double layer 200μm plastic and disposed of at EPA licenced stations. Other preliminary works included bulk excavation, backfilling and a piled foundation consisting of fourteen bored piles of 1.2m diameter socketed into 4m of hard rock into geotechnically challenging ground conditions.

Structural works included design and construction of the access tower, stairs, galleries for air slides and walkways amounting to over 180t of structural steel.

The 3000t silo was manufactured in Kansas, United States and transported in fourteen shipping containers to Australia. Logistics included trucking and rail from Kansas to Los Angeles, shipping across the Pacific Ocean to Sydney, then trucking to the project site in Port Kembla. McMahon Services managed the entire logistics process including customs and statutory requirements and clearance applications.

565 carbon steel plates and 72,882 bolts were used to construct the silo. 38,690 nuts on exposed surfaces were covered with plastic caps to eliminate corrosion in the harsh marine environment.

Water leak tests were performed during construction of the silo ensuring each section was leak proof prior to commencing to the succeeding section.

Piping works included PVC cement pipelines, electrical conduits, instrument air piping and all associated valves.

Electrical and instrumentation works included design and construction of the complete electrical and controls system for the entire plant, switch room, lighting, power supply, cabling, grounding, process control system, PLCs and SCADA including air controls and alarm systems.

Wallbridge Gilbert Aztec were engaged as the design consultants who prepared 3D design models of the silo and associated plant. All works were undertaken within a constrained site inside an operational industrial facility with shutdown works being minimised to perform tie ins to the existing plant. The plant was designed and constructed to simplify maintenance and serviceability of equipment including interchangeability of spare parts with existing plant material.

'27,000 work hours lost time injury (LTI) and medical treatment injury (MTI) free.'

The silo design and construction was compliant to Australian and European standards, undergoing two independent third party design reviews as well as several reviews by specialist engineering consultants during construction.

High Risk Cranage

A major challenge on the project was lifting two double deck conveyor galleries each weighing 30t between the top of the new 40m access tower and the existing plant. McMahon Services worked closely with Morgan Cement International to ensure nil hold ups to plant operations and to reduce health and safety risks inherent in the lifting works.

Installation was achieved using a 450t crane in heavy lift configuration. Works were completed within a tight weekend shutdown window outside of cement trucking times resulting in nil impacts of plant logistics. Wind monitoring was conducted at all times to ensure safety with all crane operations.


ST MARK'S
COLLEGE

TRANSFORMATION
FOR ST MARK'S COLLEGE

ST MARK'S COLLEGE IS LOCATED ON THE SOUTHERN FRINGE IN THE CITY OF PORT PIRIE AND CATERS FOR STUDENTS FROM RECEPTION TO YEAR 12.

In 2017 the College identified an opportunity to strategically invest in the existing secondary school campus to facilitate its teaching and learning requirements as well as provide sport and recreation opportunities for the wider Port Pirie community.

The project works included new purpose-built buildings, refurbishment of existing buildings and associated external works. McMahon Services were engaged by the college as the Principal Contractor to deliver the works through a competitive tendering process.

The project work comprised of a new Sports Centre with indoor courts, learning areas totalling 2720m^2 and a new Science Centre comprising of the refurbishment and mezzanine level from an existing single court gymnasium for a total of 1080m^2, and with the installation of an eight passenger 630kg capacity lift.

Demolition works included a detailed deconstruction of the existing gymnasium building with a new Science, Technology, Engineering and Math (STEM) Building and site preparation for the new indoor sports centre with civil works including stormwater installation.

Building works included reinforced concrete footings, concrete topping slab and suspended slab finishes, 37m long structural steel roof truss with partial onsite fabrication to the sports centre, with differing painted finishes or fire protective coatings, blockwork and brick construction, architectural roofing and cladding finishes.

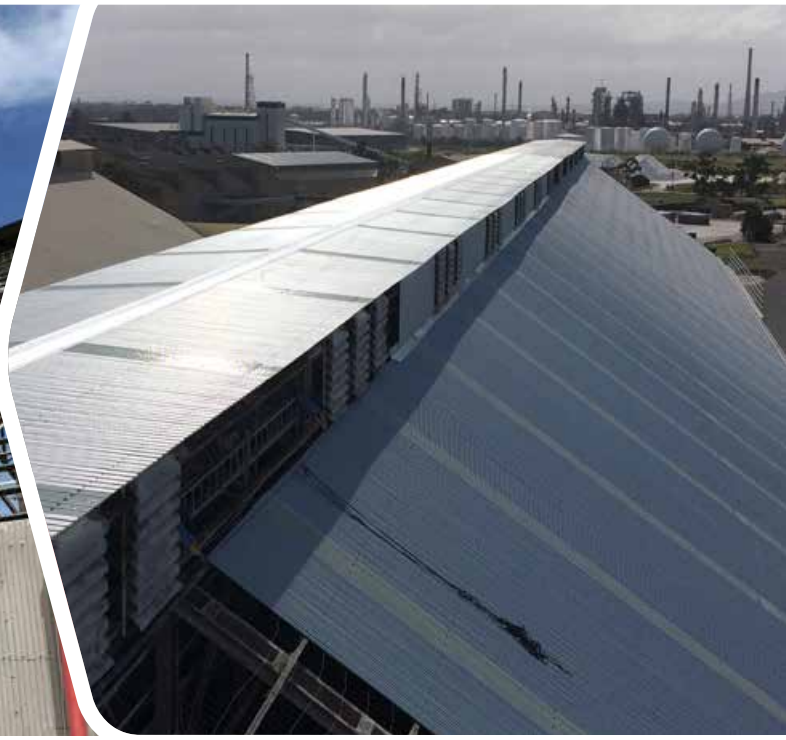
Specialist trade works included installation of a timber sprung floor to the sports centre, installation of gym equipment including retractable basketball back boards, sports netting and a dividing curtain, stage seating, installation of a glass façade to the STEM entrance, Vitra panel cladding, prefinished Ariaply plywood linings in external and internal finishes with feature perforated and fire rated requirements, Everbright roofing and cladding, acoustic sliding doors, perforated panel balustrades and sunshade finishes, external specific insignia school signage, Maxline profiled cladding, artificial sporting surface, classroom laboratory installations with chemical resistance joinery and incorporated gas, electrical, mechanical and water services.

Delivery Performance

Due to value management design changes during construction, the team were required to fast track the program through altering the sequences of works to meet the overall program objectives. Electrical and hydraulic works were managed outside the construction area and coordinated around school operations to assist in achieving the program.

Works were undertaken within an operational school environment. Project personnel received appropriate Department of Communities and Social Inclusion (DCIS) and Catholic Education clearances with regards to working around children before commencing on site. Work zones were segregated and protected with security fencing to ensure no permissible student entry to occur. Daily activities were planned to ensure site ingress and egress activities do not occur around peak student pick-up and drop-off times.

'49,000 work hours completed'



McMAHON SERVICES

DELIVERS 26,000M² OF ROOFING AND WALL CLADDING

INCITEC PIVOT IS A GLOBAL DIVERSIFIED INDUSTRIAL CHEMICALS COMPANY. THEIR FERTILISER BUSINESS IS THE LARGEST IN AUSTRALIA AND DISPATCHES TWO MILLION TONNES EACH YEAR FOR THE USE IN AUSTRALIAN GRAIN, COTTON, PASTURE, DIARY, SUGAR AND HORTICULTURE INDUSTRIES.

Incitec Pivot's North Shore Geelong facility produces superphosphates, the most commonly used fertiliser for improving pastures. The facility includes a superphosphate manufacturing plant, fertiliser blends storage and dispatch centre, liquid fertiliser blending plant, fluorosillcic acid manufacturing plant, storage and dispatch, sulphuric acid storage and dispatch, and a production chemical testing laboratory.

Scope of Work

The scope included the re-roof of super sheds 1 and 2 at the North Shore Geelong fertiliser facility, delivered in a staged work sequence.

Works included the removal and installation of 26,000m² of new roof cladding, gallery roof and wall cladding. Additional works included the replacement of existing damaged deteriorated purlins, a full-length skylight using translucent sheeting ran from the ridge to the gutter line with a 60ft boom lift providing additional access to the structure, and supporting the roofing and cladding removal and replacement process.

All roof sections were removed by a crane with a drop box utilising 100t and 200t cranes. Two work crews installed roofing and cladding using hand tools and battery drills. Crews ensured that at the end of each work day no section of the roof was ever left uncovered. Safety mesh and harnesses protected crews from the risks of working at heights on the 35° pitch roof.

Roof and wall sheeting consisted of 0.48 Zincalume Custom Orb and Ampelite Webglas GC, with opal translucent skylights in Custom Orb profile to match Zincalume roof sheeting. Flashing installation works ensured a watertight roof system.

Stormwater upgrade works included 500m of new gutters and 150mm and 300mm PVC flying downpipes. Protective coatings were applied to all protective purlins before reinstatement to form a liquid membrane. Stainless safety mesh was fitted to the roof.

Scaffolding Works

A major challenge on the project was the erection of scaffolding between the two super sheds in a width of only 1.4m between sheds. Complicating the scaffolding erection was that one roof was higher than the other requiring the installation of two access platforms, one on top of the other. All scaffolding materials had to be brought in by hand and erected as there was no access for cranes or other support equipment.

Scaffolding had to be staged working around operational requirements of the fertiliser plant. Therefore, a full time scaffolding crew remained on site at all times erecting and dismantling sections of the scaffolds to meet client operational requirements and the roof team's delivery program. The scaffolding was constructed along the length of the two 322m long buildings to a height of 19.5m.

McMAHON SERVICES KICKING GOALS AT FORMER FOOTBALL PARK

ON TUESDAY 21ST AUGUST, McMAHON SERVICES ACHIEVED A MAJOR MILESTONE FOR THE DEMOLITION WORKS AT THE WEST DEVELOPMENT OF THE FORMER FOOTBALL PARK IN WEST LAKES 14KM FROM ADELAIDE, WITH THE SUCCESSFUL DISMANTLING OF THE FIRST OF FOUR 63M LIGHT TOWERS, ACHIEVED THROUGH A SERIES OF COMPLEX CRANE LIFTS AND OXY-LPG CUTTING WORKS.

Using a combination of a 250t Liebherr hydraulic crane with a reach of 72 vertical meters and guide plates welded inside the structure, the light tower was held in place while one tradesperson cut the metal frame and another tradesperson acted as a spotter.

Once cutting was complete, the 9t section was then lifted vertically and carefully lowered to the ground adjacent to the remaining tower structure. A 25t Franna crane ensured that the light tower could be laid horizontally to minimise damage to the tower and maximise the salvageability of its component parts.

The process was then successfully repeated two more times through the various tower levels, with ground level deconstruction being achieved.

This was the first of four light towers to be dismantled at the former Football Park ground, which once had a seating capacity of 62,000.

McMahon Services has since completed the remaining light tower deconstructions and have also completed other demolition works on site including service disconnections, asbestos removal and remediation, structural works around the separation of the Checkside Tavern (which will be remaining) and the internal strip out and mechanical demolition of stadiums and grandstands.

Over 2000t of steel and 70,000t of concrete and brick will be demolished and recycled by project completion.

The demolition of the original members grandstand will be occurring in January 2019, with the project completion date to be March 2019. The former site will be utilised for the future WEST development, offering an array of residential and retail offerings.

'Four 63m light towers demolished with a 250t Liebherr crane with a reach of 72m.'

HISTORY IN THE MAKING AT LOT FOURTEEN

THE REDEVELOPMENT OF LOT FOURTEEN, THE FORMER ROYAL ADELAIDE HOSPITAL SITE, AS AUSTRALIA'S FIRST CREATION AND INNOVATION NEIGHBOURHOOD, IS A MAJOR ECONOMIC DEVELOPMENT OPPORTUNITY FOR SOUTH AUSTRALIA.

The first stage of this redevelopment is the demolition and remediation work for the 6m high Cobalt Wing, 9m high Hone Wing and 28m high East Wing buildings, as well as the former Emergency Carpark on North Terrace.

Renewal SA engaged McMahon Services to undertake the Stage 1 works, which included self-performing all scaffolding works, based on our past track record in similar projects, and on the breadth and depth of our systems, people, plant and equipment.

Scope of Work

Demolition and remediation works included:

- 6m high Cobalt Wing,
- 9m high Hone Wing, and
- 28m high East Wing.

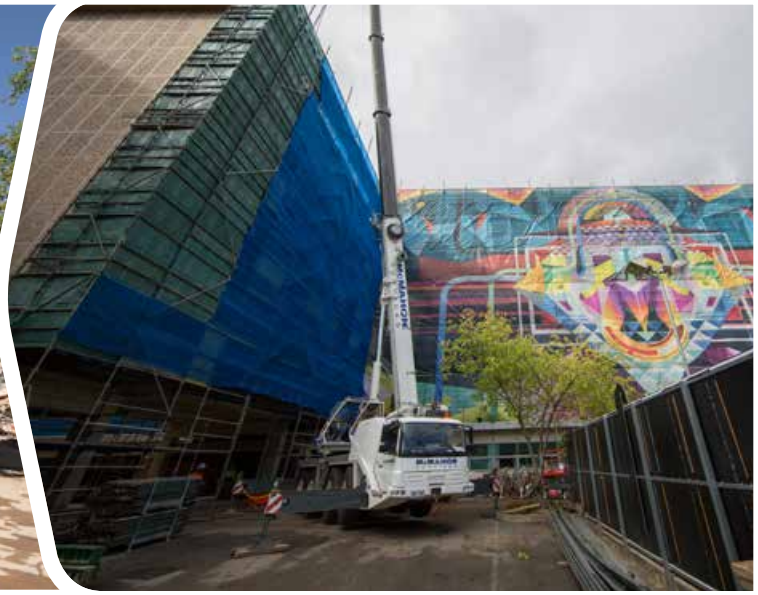
All medical, chemical and other hazardous materials associated with the hospital were removed and relocated to the new Royal Adelaide Hospital prior to works commencing. Early works included erecting hoarding and isolating and decommissioning services including electrical, communications, water, medical gases and wet and dry fire systems.

McMahon Services utilised its high-pressure Hammelmann Pump to produce 140MPa pressure at 70L/m using a Conjet Nalta 101 attachment to create sufficient pressure to hydro-demolish asbestos containing fire-rated materials, coating steel beams within sealed sections of the buildings. The Hammelmann Pump demonstrated that it could completely strip away asbestos containing coatings at the rate of ten labourers or more, creating a perfectly cleaned metal surface.

Over 2579 drums of predominately friable asbestos contaminated materials totalling approximately 298t were sealed and removed from site. Asbestos was discovered in many unexpected locations and was 50% greater than first expected. The project team took on the risk of remediating all discovered asbestos and despite the additional works required, kept the project to program.

Other works included the installation of reinforced blockwork infill walls in supply tunnels, link corridors and services tunnels to other operational buildings within the hospital precinct. Mechanical demolition was undertaken by deconstruction excavators with high reach booms and a variety of attachments including shears, hammers and grabs.

Detailed 3D demolition staging plans were developed for the project in conjunction with our design partner Wallbridge Gilbert Aztec.



'6000t of bricks and concrete and 1747t of steel was demolished and recycled. With 95% of the materials being recycled into new products through our sister company ResourceCo.'

Civil reinstatement works occurred toward the end of the project and included reconnection of sewer pipes, backing and compacting earthworks, paving footpaths, and capping and sealing stormwater infrastructure.

Plant and equipment utilised on the tightly constrained site included PC1250, PC850 and PC450 demolition excavators, a PC320 excavator, skid steers, 25t Franna crane, 100t boom crane and a dust suppression system that hooks directly into the local water mains network reducing the need for water trucks which would otherwise congest the worksite unnecessarily. The PC1250 demolished structures at a rate of 200t per day and the PC850 at 50t per day.

Workforce peaked at 80 personnel achieving 89,860 workhours over the life of the project.

Stringent environmental and noise controls, community and stakeholder engagement, and traffic management strategies were implemented for the project due to the site's close vicinity of commercial, Government and residential properties, as well as the Adelaide Botanic Gardens only a matter of metres from the main demolition works. Significant effort was expended in minimising the impact of our operations for site tenants, local stakeholders and members of the public.

Scaffolding Works

The scaffolding works required the provision of 9600m^2 of containment scaffolding constructed to a height of 30m around selected structures. Decks and frames were constructed to encapsulate asbestos and other hazardous materials works inside the three buildings.

Included in the scope of works was the construction of a 25m or seven storey chute for materials removal, installation of a major temporary artwork (designed by Vans the Omega) as part of the scaffold wrap and the construction of a temporary emergency access bridge scaffold structure to replace a demolished gantry bridge previously linking two buildings.

Scaffolding work was ongoing for the duration of the works, catering to the work programs of the internal strip-out, hazardous materials and demolition crews' requirements. Workforce peaked at 10 personnel delivering 7500 workhours without incurring a single work health, safety or environmental incident.

The East Wing was transformed with a large-scale art piece by South Australian artist Vans the Omega, which was printed on shade cloth to encapsulate the building. The artwork was 50m long and 25m high making it one of Adelaide's largest temporary outdoor art pieces. The art piece also provided shade for the construction workers as well as minimising dust and debris, while delivering activation to Adelaide's prominent East End. The artwork changed and developed over time as it came down piece by piece in conjunction with the demolition.

Community and Stakeholder Engagement

The project delivery team included dedicated community and stakeholder specialists to work closely with Renewal SA, ensuring all parties affected by the works received regular and appropriate communications. Such communications included a project website, a 1300 number, an email address, fact sheets and timelines for the works, as well as regular and an-needed updates and activity notifications. The project team regularly provided Renewal SA with advice noting any upcoming demolition, asbestos removals or other works that had the potential to impact stakeholders.

The project team supported various Renewal SA public engagement projects, including a major community open day in July 2018, with McMahon Services providing a 25t excavator and 3t bobcat for attendees to climb on board and have their photo taken. McMahon Services also assisted in establishing a viewing platform on site to enable the general public to watch the demolition and redevelopment works in progress at set viewing times.

MULTI-FACETED PROJECT

UNDERTAKEN IN THE HEART OF THE ADELAIDE CBD

THE $100 MILLION ADELAIDE BOTANIC HIGH SCHOOL WILL OPEN FROM TERM 1 2019, PROVIDING STUDENTS FROM INNER-CITY SUBURBS WITH GREATER ACCESS TO HIGH QUALITY SECONDARY LEARNING. THE SCHOOL WILL START WITH YEAR 8 AND 9 STUDENTS INITIALLY, GROWING TO 1,250 STUDENTS BY 2021.

Adelaide Botanic High School is the first vertical school in South Australia. The design features the completely refurbished Reid building which has six learning levels plus a basement and open-planned plaza space at ground level. This building is linked by a glass atrium to a brand new seven-storey building also with a basement and rooftop terrace.

Leadlease as the Principal Contractor for the project engaged McMahon Services to undertake various works on site including asbestos remediation and internal strip out demolition of the Reid building, scaffolding and access solutions and site earthworks and stormwater works.

Demolition and Asbestos Remediation

The demolition scope included external plant enclosure, external façades, ground floor northern balcony and link-way floor penetrations, internal basement and ground demolition and internal demolition of level 1 to 5, removal of a slab and retaining wall on the northern and eastern sides of the site, and coring and cutting of penetrations for new services. Over 730t of brick and concrete, 140t of construction and demolition waste and 90t of scrap metal were removed and sent offsite for recycling. The project achieved a 95% recycling for demolished materials.

Asbestos remediation included internal sheeting, floor and vinyl tiles, removal of windows and sealants containing asbestos, grinding and infill of existing concrete floors to remove asbestos adhesives and removal of cement sheeting. Over 50t of asbestos containing materials were remediated from site, double wrapped in encapsulating 200μm plastic sheeting then trucked to EPA licenced asbestos receiving stations.

Due to the restricted access within the Reid building, all works were undertaken by hand using manual demolition techniques.

Scaffolding

Scaffolding works included full height scaffold to the north and south elevations, building encapsulations for asbestos removal works, construction of a 30m drop chute for removal of demolition waste and scaffolding on the internal atrium levels. Over 3000m^2 of scaffolding was erected across the construction phases utilising McMahon Services Layher Modular and Ringlock scaffolding systems. Building Code of Australia compliant edge protection was installed with all scaffolding.

Bulk Earthworks and Stormwater

Civil works included all services identification, isolation and disconnections, diversion of the existing stormwater system, pavement and underground tank demolition, clear and grub, bulk earthworks, construction of a temporary access road, construction of all hardstands comprised of compacted subgrade and 150mm crushed rock, earthworks to prepare for piling platforms with a 400kPa bearing capacity, basement earthworks, temporary retaining wall construction, excavation of pile caps and footings, landscaping earthworks, stormwater and drainage.

Civil demolition works included stripping grass and disposal, stripping 100mm of topsoil and stockpiling for reuse, removal of existing kerbing, asphalt and concrete, tree removal, removal of existing street furniture such as fencing, benches and bike racks, and the removal of two concrete tanks.

Bulk earthworks for the basement included preparing piled platform for piling rig, removal of the platform and stockpiling surplus material on site, bulk excavation to bench level for basement and stockpiling surplus material on site, trim and compaction of basement, supply and placement of 150mm PM 2/20 for basement, backfilling basement around the retaining wall with site won material, Agri pipe and screenings, and retrimming and compacting basement ready for detailed excavation.

Stormwater system works included the supply and installation of pits, pipes and hydro-system, backfill with Sa-C sand and site won material, supply and installation of two pump stations including rising main system.

Other works included the construction of access roads with concrete and spray seal, the construction of access paths, excavation of pile caps and all footings in the basement, backfilling pipe caps and dewatering.

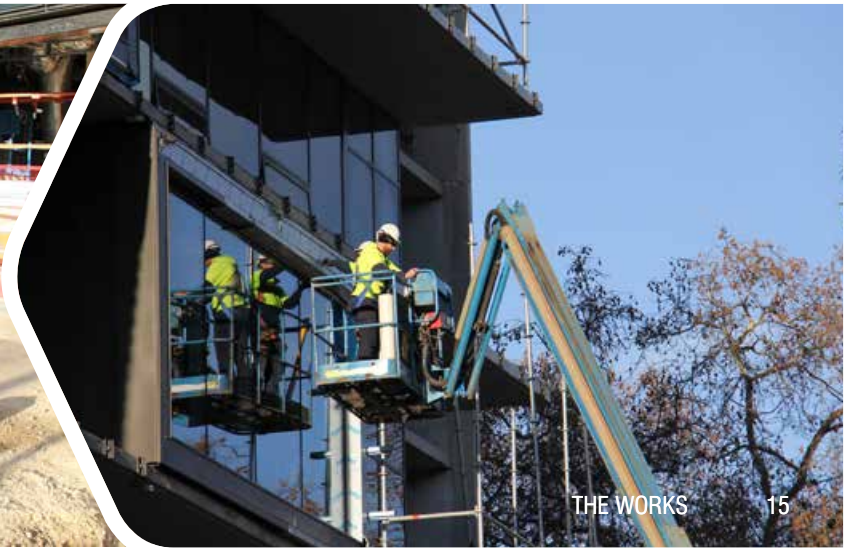
Earthworks totalled 22,000m^2 and stormwater totalled 300m of reinforced concrete and uPVC pipe installed. The project required extensive traffic management and the detailed application of staged works in a restricted and tight workspace.

‘95% recycling for demolished materials’

22,000M²
OF EARTHWORKS

3,000M²
OF SCAFFOLDING

44,000
WORK HOURS COMPLETED



BIG STEPS FORWARD
FOR WESTERN AUSTRALIA

IN 2018 McMAHON SERVICES INVESTED IN AND EXPANDED THE OPERATIONS OF OUR WESTERN AUSTRALIAN BUSINESS ALONG WITH A RESTRUCTURE OF OUR MANAGEMENT TEAM.

Austin McWilliams, a 10-year veteran with McMahon Services who has delivered some of our largest projects including the $24 million Nelson Point North Yard Decommissioning was appointed as Manager – Western Australia. Austin brings to the company a wealth of experience in the mining, shutdown and statutory compliance industry sectors and has a strong 15-year track record managing projects throughout Western Australia.

Phil Bubner, our former Western Australia Manager and McMahon Services 40-year expert veteran took on the important role of Manager – Northern Western Australia. Phil was instrumental to the successful delivery of several of our most complex projects including the $24 million Nelson Point North Yard Decommissioning, the $672 million Strategic Indigenous Housing and Infrastructure Program and the Airlie Island Hydrocarbon Storage Tanks and Infrastructure Deconstruction to name a few.

Adam Keenan accepted an expanded role of Manager – Scrap Metal Recycling, responsible for all Australian scrap metal recycling, operations, trading and business development. Adam has project managed our largest scrap metal projects including the 50,000t of steel for the Augusta Power Stations Decommissioning and the Rio Tinto Scrap Rail Project which processed up to 30,000t tonnes of obsolete rail per annum over 15 years.

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Pilbara Expansion – What it entails?

In 2018 McMahon Services clocked over 14 years of continuous operations in the Pilbara and committed to increase our presence, and range of services we offer to clients throughout Northern Western Australia.

This decision was made on the back of the tremendous effort and achievements by the team at Metalcom in Karratha along with the successful demolition, remediation and decommissioning projects carried out for BHP, Rio Tinto and other industry leaders.

These achievements coupled with a resurgence of investment in the iron ore, oil and gas and the mining sectors have been the drivers behind the company's decision to strengthen our Pilbara business.

SafeCheck Acquirement

An important part of the new Western Australia structure was the purchase of SafeCheck, a statutory compliance inspection, risk management and consultation business.

The SafeCheck business has a successful track record since commencing operations in Kalgoorlie in 2008. SafeCheck was founded by Austin and Kate McWilliams with a team today of three employees and over ten subcontractors.

McMahon Services believe SafeCheck presents a strategic opportunity for the company, whereby we will be able to expand on the services SafeCheck offer to their existing customer base and in turn, we can immediately offer all SafeCheck services to the existing McMahon Services and Metalcom clients. Eventually McMahon Services will expand SafeCheck into other States and Territories across Australia.

Manager Kate McWilliams took on responsibility of the SafeCheck business as an integral component of the purchase and we are excited to have Kate and the SafeCheck staff onboard and wish them a warm welcome to the McMahon Services family. Along with Kate we are joined by Operations Manager Kira Burnie, Supervisor Goldfields Region Brad Nicklin and Statutory Inspection Technician Adina Newman.

Both the SafeCheck and Metalcom business names will continue trading as they are. However, the company entity will be McMahon Services Australia Pty Ltd.

These new investment initiatives have been made on the back of all the hard work and achievements made by the Western Australian team members and we sincerely thank all those involved to date and ask everyone to embrace the new expansion plans and the opportunities they will present to us all.

SAFECHECK

INTRACT-McMAHON SERVICES JOINT VENTURE DELIVERING CIVIL INFRASTRUCTURE WORKS AT OSBORNE NAVAL SHIPYARDS

SINCE EARLY 2018, INTRACT AUSTRALIA AND McMAHON SERVICES HAVE WORKED COLLABORATIVELY ON THEIR LARGEST JOINTLY DELIVERED PROJECT, THE DELIVERY OF CIVIL INFRASTRUCTURE PACKAGE OF WORKS AT FOR THE OSBORNE SOUTH DEVELOPMENT PROJECT.

To date the Intract-McMahon Services team has delivered a variety of civil infrastructure works across the 185,000m^2 site including bulk earthworks, detailed earthworks, piling pads, demolition works, pile trimming, heavy-duty pavement construction, asbestos remediation, soil management, stormwater management, common services trenching and temporary site facilities including haul roads, carparks, and hardstands for a temporary site precast yard.

The project is currently delivering a 18% Indigenous participation result, with the majority of Indigenous personnel on site being made up of plant operators and site labourers who are receiving ongoing on the job training.

The project's Indigenous trainee safety advisor, James Fry, has progressed in his skills development whilst on the project and is now a fully qualified Site Safety Advisor leading safety management for the project team across the project.

The opportunity for this jointly delivered project came about when the Osborne South Development Project Managing Contractor, Lendlease Building, were looking to engage with an Indigenous business in a meaningful way that would go above and beyond the mandatory contract requirements set by Government. The Intract-McMahon Services team provided the optimal outcome for Leadlease as Intract could provide Indigenous 'boots on the ground' while McMahon Services were able to mobilise quickly and utilise their civil construction expertise and track record to deliver the civil infrastructure works.

With the current works under contract, the Intract-McMahon Services delivery team will continue on site well into 2019.

When complete, the Osborne Naval Shipyards will support current and future naval ship development, operations and maintenance programs.

intract
ndigenous Contractors

INTRACT MEANS BUSINESS

ON WEDNESDAY 26TH SEPTEMBER, JOHN BRIGGS WAS FORTUNATE ENOUGH TO BE INTERVIEWED BY INDIGENOUS LEADER WARREN MUNDINE, FOR HIS SKY NEWS TV SHOW, MUNDINE MEANS BUSINESS.

Mundine Means Business highlights the success and entrepreneurship of Australia's Indigenous society and examines where potential for improvement lies.

John and Warren discussed numerous topics including the services we provide our clients, our mission for our Indigenous work force and how Intract maximise the use of local Indigenous goods and services.

Warren Mundine is an Australian Aboriginal leader and the former National President of the Australian Labor Party.

For his entire life, Warren has been fighting racism and discrimination and is one of Australia's most recognised, respected and revered activists and agents for improving his people's standing.

Warren is currently a columnist for The Australian and hosts his own show on Sky News Australia, Mundine Means Business, which airs on Sky News at 4.30pm ACST and 5.00pm AEST each Sunday.

You can watch the informative interview with Mundine and John on the Intract website.

www.intract.com.au/intract-means-business/

19KM
OF ROADWORKS

WOOMERA RANGE SAFETY AND CONTROL REMEDIATION SITE WORKS

THE DEPARTMENT OF DEFENCE'S WOOMERA RANGE COMPLEX IS LOCATED IN SOUTH AUSTRALIA, APPROXIMATELY 500KM NORTHWEST OF ADELAIDE, AND COMPRISES OF BOTH THE WOOMERA TEST RANGE AND THE NURRUNGAR TEST RANGE.

The function of the Woomera Test Range is to provide a specialised operations environment in support of directed whole-of-Defence activities for the testing of war materiel and other activities in the wider national interest. The range also supports a wide variety of trials covering many Defence related technologies including ground based weapons systems, explosive ordnance and hazardous materials, and specialised force preparation activities.

The Woomera Test Range is managed by Air Force Test Ranges Squadron, a command unit of the Air Warfare Centre.

Due to the ageing systems for aerospace test, evaluation and development trials at the Woomera Test Range, Defence operators were restricted in their ability to execute complex activities from using obsolete range equipment.

National Aboriginal Construction Partners Projects (NACP Projects) were engaged by the Department of Defence to deliver the Woomera Range Safety and Control System Remediation project. Four of the civil work packages for the project were awarded by NACP Projects to Intract Australia.

Project works included the delivery of building hardstand plateaus, spray seal pavement areas, concrete footpaths, wastewater lagoons, stormwater, reinforced concrete box culverts, swales and ponds, access roads and compounds using 150mm thick PM 2/20 rubble materials and security fencing in several remote outback locations in the Woomera Defence Range.

Plant and equipment utilised included a D6 dozer, 22t excavator, 140M and 14M graders, two 10t rollers, two 40t articulated dump trucks, three 15,000L and two 26,000L water trucks and two W380 loaders.

Works totalled 137,700m^2 of road base materials approximating 19km of roadworks, 10,400m^2 of hardstand pavements and two wastewater lagoons. Workforce peaked at 14 personnel completing 16,800 work hours across all sites.

137,700m^2 of road base materials

10,400m^2 of hardstand pavements

25% OF ALL EMPLOYEES ON SITE WERE FEMALES

INDIGENOUS PARTICIPATION OF 30% ACROSS THE PROJECT

MOUNT BUNDEY TRAINING AREA ROAD MAINTENANCE REPAIRS

THE MOUNT BUNDEY TRAINING AREA IS A LARGE DEFENCE TRAINING AREA LOCATED APPROXIMATELY 120KM EAST SOUTHEAST OF DARWIN AND SPREAD OVER 117,300HA.

In accordance with the Federal Government's Indigenous Procurement Policy, Intract were invited to tender for and were ultimately awarded the project to undertake road repair and upgrade works across the Mount Bundey Training Area.

Scope of Work

The scope of works required the delivery of 27km of road construction comprising of 145,000m^3 of detailed earth works over a large geographic area. Several project teams were mobilised at various sites to deliver the works on multiple fronts.

Road repair works across all locations followed a consistent methodology that included light reformation grading and stabilising, ripping and reformation up to 150mm deep, medium reformation, grading and stabilising, ripping and reformation up to 300mm deep, heavy reforming, grading and stabilising, and ripping and reformation up to 500mm deep.

Rock drop dams were placed along drainage lines to dissipate runoff water, reduce flow velocities and capture sediment and nutrients that would otherwise be lost from the site.

Several concrete floodways were constructed at various intervals to prevent erosion of the roadway during weather event. Construction included all associated ground preparation, formwork, concrete construction totalling 120m^3, curing and the installation of road signage. Other works included the installation of road furniture and signage.

Indigenous Participation

Indigenous participation for the project was 30% with three full time Indigenous personnel on the Intract delivery team.

An Indigenous Junior Project Indigenous Junior Project Manager Nicole Brown supported the Project Manager through the delivery of the works. She was provided with upskilling and on the job training and was responsible for subcontractor engagement, progress claims, client deliverables, scheduling, inspection and test plan development, and Hand Over Take Over (HOTO) documentation.

Nicole concurrently undertook tertiary study in project management during the works.

RAAF BASE
TINDAL TREE REMOVAL AND REPLACEMENT

43% INDIGENOUS PARTICIPATION

75 AUSTRALIAN NATIVE MILKWOOD TREES PLANTED

ROYAL AUSTRALIAN AIR FORCE'S BASE TINDAL IS 15KM OUTSIDE KATHERINE AND 320KM BY ROAD SOUTHEAST OF DARWIN IN THE NORTHERN TERRITORY. ALTHOUGH THE AIRFIELD WAS CONSTRUCTED IN 1942, IT IS THE AIR FORCE'S YOUNGEST MAJOR OPERATIONAL BASE AND ONE OF AUSTRALIA'S MOST IMPORTANT DEFENCE INSTALLATIONS.

Two species of flying fox prominent in the Katherine region, the little red fruit bat (Pteropus scapulatus) and black flying fox (Pteropus alecto), had become prevalent on the Base with numbers reaching as high as 500,000. Although the risks were small, the density of fruit bats on the Base presented a collision risk potentially damaging aircraft engines during take-off and landing.

A secondary risk was that 1% of flying foxes carried Australian Bat Lyssavirus (ABLV). If the virus is transferred to humans through bites or scratches and not treated before symptoms set in, it causes serious illness which results in paralysis, delirium, convulsions and death.

The Department of Defence identified that the majority of the fruit bats nested in 52 African Mahogany trees across the base. The African Mahogany is also considered an invasive species in Australia and therefore it was decided that the trees should be replaced with native trees, simultaneously sending the flying foxes off the Base to find elsewhere away from human habitation. elsewhere away from human habitation.

Through a competitive tendering process managed by Aurecon, Intract Australia was awarded the project to remove the African Mahoganies and plant new native trees across the Base in their place.

Scope of Work

The scope of works included felling 52 African Mahogany trees spread across the Base including trees adjacent to operation Base buildings, removing stumps and root balls and storing all timber in a designated area. The wood was then mulched producing over 1000t of wood chips. The second component of the works was the excavation of planter holes then planting and irrigating 75 Australian native Northern Territory Milkwood trees *(Alstonia actinophylla)* across the Base. The project team established and implemented a maintenance program for the new trees for a period of 18 months following completion of the works.

Other works included service detections, sediment control, implementing safety barriers to protect the Milkwood trees, traffic management, laying and commissioning irrigation lines, watering, fertilizing, pruning, weeding and applying pesticides. A local arborist was consulted during the works to ensure maximised tree propagation.

INAUGRAL IN-HOUSE NAIDOC EVENT

ON THURSDAY 12TH JULY INTRACT AUSTRALIA AND McMAHON SERVICES CELEBRATED THEIR FIRST INAUGURAL IN-HOUSE NAIDOC EVENT, HELD AT THE ADELAIDE OFFICE.

Aboriginal Elders Uncle Fred Aguis and Aunty Georgina Williams opened the event with a traditional Welcome to Country and Smoking Ceremony.

Staff participated in the painting of our 'Spirit of One' transportation vehicle, designed by proud female Aboriginal artists Susan Betts and Gabriel Stengle.

All personnel were lucky enough to indulge in some delicious bush tucker provided by Tauondi College – a post-secondary Indigenous school, and a beautiful music performance by proud Anangu woman Bianca Leicester.

It was great to bring the Adelaide office personnel together and celebrate NAIDOC Week. Thank you to all staff and site personnel who participated in this event, we look forward to celebrating again next year!

CIVIL ENGINEERING GROUP EXPANSION

2018 HAS SEEN A SIGNIFICANT INVESTMENT IN NEW PEOPLE IN THE CIVIL ENGINEERING GROUP FOR SOUTH AUSTRALIA. AS PART OF OUR STRATEGY IN ESTABLISHING THE INFRASTRUCTURE AND TRANSPORT DIVISION UNDER MEHDI JAVANMARD, WE HAVE A SECURED NUMBER OF CIVIL CONSTRUCTION LEADERS TO BRING ADDITIONAL ENGINEERING AND CONSTRUCTION EXPERTISE INTO THE GROUP.

With an existing strong engineering base within the Civil Division and completed projects bolstering our track record we are ready to take our next steps in our planned strategic growth.

Steve Kochergen
Manager, Infrastructure and Transport

Steve Kochergen has joined McMahon Services as our new Manager - Infrastructure and Transport. Steve will be responsible for driving new business opportunities in the utilities, major infrastructure and transportation sectors. He assists with strategic business development across the company and aligns our client account management processes to ensure the full breadth of our capabilities are communicated to our client base.

Steve has over 20 years of experience in engineering design, project management, construction management, strategic business development and state management roles in the civil construction industry.

Charles Hatcher
Business Manager

Charles has 18 years of experience in contract management, business development, biosecurity, resource planning and logistics in locations as diverse as the Cook Islands, East Timor, the United States, New Zealand and Australia.

He joins the Civil Engineering team taking up management of the estimating team and leading business development activities for civil projects, focused predominately on local government and developers.

Carmine Pastore
Senior Estimator

Carmine joins the Civil Engineering team as a Senior Estimator, bringing over 35 years of experience in civil estimating, with experience across earthworks, concrete works, roads, bridges and water infrastructure.

He has led major tender estimates for a variety of civil construction projects delivered across South Australia and nationally for a variety of government and private sector infrastructure asset developers and owners including the Department of Planning, Transport and Infrastructure and SA Water.

Alan Pollitt
Pre-Contracts Manager

Alan joins the Civil Engineering team bringing to our company more than 15 years of experience in engineering construction in both project delivery and estimating. His expertise in tendering including developing win strategies and first principles estimating. Alan has led and won major civil infrastructure projects for clients as diverse as the Department of Planning, Transport and Infrastructure, SA Water and AGL.

Alan is responsible for managing cross-divisional proposals and provides bid management leadership for major projects across all operations. Alan's attention to client needs is born from understanding operational requirements of assets and developing engineering methods and innovations to deliver maximum value for money to clients.

Adam Polkinghorne
Programmer / Scheduler

Adam has over 16 years of programming, scheduling, cash flows, resource histograms and staging plan experience in a variety of industries including rail, construction, services, power, resources, transport and water sectors. His qualifications include a Certificate IV in Business Human Resources.

This team has been responsible for the tendering and successful delivery of many construction projects around Australia.

The Civil Engineering Group including the addition of the new team members will assist in our strategic growth in infrastructure, nationally targeting projects in transport (roads, bridges, rail, and intermodal), water and power and will also work strategically to assist our other divisions, states and regional operations.

NEW GENERAL MANAGER FOR BALLESTRIN CONSTRUCTION SERVICES

IN ADDITION TO OUR NEWEST TEAM MEMBERS WE ALSO WELCOME MICHAEL HYDE TO THE McMAHON SERVICES FAMILY!

Michael joins us from York Civil, and brings over 20 years' experience in the civil industry, delivering a wide range of infrastructure projects including transport (roads, bridges and rail), water, power, marine, resources and mining and has a strong focus on major concrete structures.

With Michael's leadership we see this as a significant opportunity to capitalise on Ballestrin's expertise and apply it to growing the business with the significant infrastructure spend forecast for South Australia and nationally.

Michael will also provide support to the Civil Engineering Group leveraging his experience and existing relationships to maximise current and future opportunities

SOMERO S-485 LASER SCREED IMPROVES THE PRODUCTION AND SAFETY OF CONCRETE DELIVERY

During the early planning stages of a major Department of Defence project which required significant concrete works, the Ballestrin team identified that the use of a laser screed would significantly reduce labour costs, improve safety through minimised manual handling, dramatically improve quality and accuracy of finished concrete levels and tolerances, and allow for a series of continuous monolithic, joint-free pour for the slab that is over 5000m^2.

Together with McMahon Service's Plant and Equipment team and the Work, Health, Safety, Environmental and Safety team, Ballestrin identified that the best laser screed on the market was the Somero S-485. Only developed and released to the market in 2017, the Somero S-485 offered many advantages that would put Ballestrin at the forefront of floor slabs concrete.

Advantages of the Somero S-485 include:

- Reducing labour costs on larger pours: instead of two rakers and one shovel behind a hand screed, one operator can work the machine
- Easily overcomes difficulties posed by hand screeding fibre reinforced concrete
- Quality and accuracy of levels and tolerances is dramatically improved through laser guiding technology
- Safety is dramatically improved by minimising the risks of back or other injury caused by hand screeding such as sprains, strains and factures, and skin irritation and chemical burns from prolonged contact between fresh concrete and skin surfaces and eyes
- The Somero S-485 has the capacity to screed in two planes, and can be upgraded to three-dimensional operation
- Can operate on fabric reinforcement, bar reinforcement and fibre.

McMahon Services purchased the laser screed in mid-2018 making it one of the first Somero S-485 to operate in South Australia. Ballestrin have successfully used the S-485 on the remote Defence site in outback South Australia, and will also deliver concrete slab works at McMahon Services' head office in Adelaide.

CHRISTMAS ISLAND
PHOSPHATES ASBESTOS REMEDIATION AND STRUCTURAL WORKS

CHRISTMAS ISLAND IS LOCATED IN THE INDIAN OCEAN 3,400KM FROM AUSTRALIA WITH A LOCAL POPULATION OF 2,000 RESIDENTS. CHRISTMAS ISLAND PHOSPHATES MINES AND EXPORTS APPROXIMATELY 650,000T OF BULK PHOSPHATE ROCK AND 72,000T OF BAGGED PHOSPHATE PER ANNUM.

After the success of McMahon Services first asbestos removal and remediation of several warehouses and workshops on the mine, Christmas Island Phosphates reengaged McMahon Services to undertake additional works of a similar nature on site.

Scope of Work

The project involved removing roofing materials containing asbestos and replacing with iron roofs and purlin replacements. Works included 3000m^2 of roof replacement for the Drier and Transfer Hut, 600m^2 for the Wet Bin roof, 8500m^2 of roofing and 2000m^2 of cladding for the Rock Bin and Ship Loading roof, 2000m^2 of roofing for the Upgraded Warehouse, 5000m^2 for the Sample Shed, two Transfer Sheds totalling 300m^2, 24 houses including timber repairs totalling 5800m^2, and 2000m^2 of roofing for conveyor belts and walkways. Over 30,000m^2 of roof was replaced across the mine.

Many of the structures were situated on ship loading infrastructure over water or on buildings construction on top of silos requiring works to be undertaken at heights of up to 40m. Many roofs were constructed at up to 35° to the horizon. These challenging conditions required stringent safe work method statements including the use of safety harness, cranes and scaffolding with edge protection which progressively followed work fronts. Over a 100t of scaffolding was utilised on the project on a continuous basis.

Mine operations were temporarily shut down in roof remediation work areas as required. Due to the humidity and the heavy and often unpredictable rainfall, all roofing works were completed at the end of each work day. On days of high likelihood of rain works were postponed. Tarpaulin covers were used as an additional measure to keep rain out of mine buildings. These practices ensured that no rain event impacted mine operations at any time.

Project peaked at 14 personnel with an average workforce of 10 delivering the works over an almost continuous three-year period. 98,000 work hours were completed without a single Lost Time Injury (LTI), Medical Treatment Injury (MTI) or environmental incident recorded against the project.

Plant and equipment utilised on the project included two 45ft boom lifts and a 100t crane. All three items were purchased by Christmas Island Phosphates. McMahon Services personnel trained local mine personnel on how to safely operate and maintain each item. The high humidity on the island occasionally affected the electrics on the crane requiring a full-time electrician onsite to ensure all plant and equipment operated at capacity at all times. Works were undertaken on a fly in fly out roster of five weeks on site and one week offsite.

Asbestos containing roofing materials totalled 30,000m^2 which were wrapped in 200μm plastic in 15 sheet lots and disposed of under asbestos conditions at the local waste receiving station. Replacement roofing materials were procured in Perth with a six-week lead time for delivery. Complicating procurement were the swells in Christmas Island's harbor which sometimes resulted in ships being unable to berth for up to two weeks until swells calmed. This risk was incorporated into all delivery programs.

OVER 30,000M^2 OF ROOF WAS REPLACED ACROSS THE MINE.

'98,000 work hours without a single LTI or MTI'

AUGUSTA POWER STATIONS

DECOMMISSIONING - SCAFFOLDING AND METAL SCRAPPING

THE AUGUSTA POWER STATIONS ARE LOCATED ON THE TIP OF THE SPENCER GULF, AND HAVE PROVIDED THE SOUTH AUSTRALIAN AND NATIONAL ELECTRICITY MARKET WITH POWER SINCE 1954.

The stations included the 90MW Playford A Power Station, the 240MW Playford B Power Station, and the 544MW Northern Power Station. Generation was secured through the sole supply of coal from the Leigh Creek Coalfields. Coal was delivered to the power stations via a 250km dedicated rail line.

On 9th May 2016, the Augusta Power Stations generated power for the last time and was then disconnected from the power network, ready to commence the demolition and decommissioning of the facilities.

The decision to close the Augusta Power Stations was made at the conclusion of a detailed Alinta Energy Board strategic review. During this process Flinders Power consulted extensively and investigated a range of options with key stakeholders, including the South Australian Government.

In September 2015, Flinders Power entered into an eight month collaborative planning period with McMahon Services on how best to demolish, asset salvage and decommission the three power stations and associated assets. A key objective was the development of a methodology that ensured a safe and effective demolition process whilst maintaining a strong legacy for the business in the region.

The two companies then entered into a formal alliance contracting arrangement to create a single team working unanimously, collaboratively, cooperatively and acting in good faith to make best-for-project decisions. Early works documentation and planning was undertaken between October 2015 and May 2016 working with Flinders Power during the final operations and shutdown period. Detailed programs and cost plans were developed during this period which complemented a full suite of project plans endorsed by client, regulator and independent consultants.

Scaffolding

McMahon Services mobilised to site in June 2016 and the first demolition works commenced shortly thereafter. A key component of the work was scaffolding, delivered internally by McMahon Services Events and Scaffolding team.

Scaffolding works were ongoing and constantly changing during the life of the project. Scaffolding was erected for manual internal demolition works and for hazardous materials containment, especially for asbestos remediation works. Over 400t of steel or 22,000^{m2} of scaffolding was continuously erected and dismantled following the work crews for the various stages of the works. Scaffolding crews were equipped with full hazardous materials personnel protective equipment during the cleaning of and dismantling of scaffolds for contained work areas.

'22,000m^2 of scaffolding was erected'

Major risks for the project were working at heights, hot weather, working adjacent to mechanical demolition works undertaken by demolition excavators and hazardous materials. Despite these risks, works were completed to schedule with the main demolition works and were completed without incident. Workforce peaked at 10 and performed 10,000 work hours over the life of the project.

Metal Scrapping

A significant outcome of the project was the 50,000t of ferrous and non-ferrous scrap metals generated during the demolition works, which was sold as lotted assets on open national and international markets.

All scrap was sold under Institute of Scrap Recycling Industries (ISRI) Specification. Processed scrap was transported in 10,000t lots to a wharf at Port Pirie 80km from the project site. This loading process was completed using nine semi tippers and road-trains over a 17-day period for each lot. Shipping vessels were loaded over a 72-hour continuous period before shipping to South East Asia for re-use resulting in 100% recycling of the materials.

At Port Pirie, Sennebogen material handlers loaded scrap at a rate of 142t/hour into bin trucks. When the bins were full they were lifted with four chains and a spreader bar. The back hooks on the bins were fixed and the front were j hooks, which allowed for the bin's contents to be easily tipped into the cargo holds.

Once the scrap arrived at port in South East Asia, excavators with grapples were craned into the cargo holds to load the scrap into similar bins for transport. Once bins reached capacity they were craned out and loaded onto barges with 1200t capacity per barge. The barges then proceeded up river to the steel mill. Scrap was discharged at the mill using a similar method used at the port.

At the mill, scrap was tipped into a storage bay then charged direct into the induction furnaces using a magnet. Once scrap was melted it was continuously cast into billets 100mm by 100mm and cut into 12m lengths. Billets were then sold to rolling mills, were sold as construction reinforcement bars or passed through a series of rollers to become 40m lengths of wire rod and then sold.

Non-ferrous metals were separated from ferrous mental then classified by metal type and sold separately.

'50,000t of scrap metals generated during demolition works'

WORLD DEMOLITION AWARDS

McMahon Services is pleased to announce that in collaboration with Flinders Power and Precision Demolition, we were shortlisted for this year's World Demolition Award for the Augusta Power Stations Decommissioning project in the 'Collaboration in Demolition' category.

The project committed 330,000 work hours with only one variation in the two years due to unforeseen asbestos. The use of the world's largest demolition excavator significantly reduced the risks of manual demolition crews working inside the plant. Thirty-five local employees were engaged on the project and still work for McMahon Services today. Project key performance lead and lag indicators for health, safety, environmental and quality control were met or exceeded.

The World Demolition Awards are presented by Demolition & Recycling International magazine in co-operation with the European Demolition Association and with the support of the National Demolition Association of the United States.

This year's event was held in Dublin, Ireland on 8th November 2018 and was attended by key personnel from the project.

Whilst we didn't win the award, we are extremely proud of being shortlisted and having the chance to attend and meet with demolition industry companies from around the globe.

WORLD DEMOLITION AWARDS 2018 SHORTLISTED
COLLABORATION IN DEMOLITION AWARD

McMAHON SERVICES

HEADS UP SCHOOL REFURBISHMENT FOR STEM WORKS PROGRAM

THE DEPARTMENT OF PLANNING, TRANSPORT AND INFRASTRUCTURE'S SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM) WORKS PROGRAM PROVIDES $250 MILLION FUNDING OVER THREE YEARS TO REFURBISH AND REDEVELOP 139 PRIMARY AND SECONDARY SCHOOL FACILITIES FOR THE PROVISION OF CONTEMPORARY STEM PROGRAMS. THE NEW LEARNING FACILITIES WILL SUPPORT AND ENHANCE STUDENT ENGAGEMENT IN STEM RELATED AREAS TO ENCOURAGE FUTURE INNOVATION AND PRODUCTIVITY.

McMahon Services were contracted by the Department of Planning, Transport and Infrastructure as part of the STEM program to undertake design completion and refurbishment works for existing buildings at Surrey Downs R-7 School.

Demolition works included the removal of doors and frames, suspended ceiling tiles, floor coverings, landings, steps and a ramp to front entry to allow for a new entrance to be constructed. Additional removal and disposal work included removal of dividing walls and air conditioning bulkheads.

The civil and earthworks included the cut and preparation of the entrance area to allow ramp and step installation, importation of new rubble for compaction, detailed excavation for internal footings, concrete pour for pad footings and the placement and finishing of concrete slabs.

Structural steel supply and construction works included columns, roof beams, operable wall beams, tie beams, wall braces and steel to steel fasteners. A new floor was fitted within the retained structures.

Partition, ceiling and lining works included supply and install of new WA:02 walls which contained 76mm steel track and stud framing, 70mm thick R2.0 insulations batts, 12mm high impact plasterboard up to 1200mm high and 13mm plasterboard 1200mm high, all flushed and sanded ready for painting.

Other works included the demolition and reinstallation of hydraulic services, mechanical services, fire services, security services and electrical services, as well as the supply and installation of a new 10kW solar system. The building was completed with new joinery, painting and signage.

RAIL FACILITY ASBESTOS REMEDIATION WORKS

DOWNER RAIL IS A FULL RAIL SERVICE PROVIDER COVERING ALL SECTORS FROM ROLLING STOCK TO INFRASTRUCTURE AND IN EVERY PROJECT PHASE, FROM MANUFACTURING TO THROUGH-LIFE-SUPPORT AND OPERATIONS.

Downer's track record spans project management services, engineering design, systems engineering, supply chain engagement, systems integration, manufacturing, logistics, testing, commissioning, asset management, fleet maintenance, rail infrastructure design and construction.

In November 2017 Downer announced it was selling its freight rail business to Progress Rail, the sale included facilities located at Malaga, Port Augusta and Clyde as well as other licensed facilities, and associated assets and liabilities.

McMahon Services were engaged by Downer Rail to replace asbestos containing roofing and other infrastructure at the Port Augusta facility, completing the work ready for the transfer to Progress Rail ownership.

Scope of Work

The project team undertook the remediation of asbestos and associated contamination at the Downer Rail Facility on Carlton Parade in Port Augusta. Asbestos containing materials included switchboards, cupboards, structural beams, dirt outside the facility and window sills of the main workshop building. Roofing materials included sheeting, guttering, downpipes, ridge capping, barge capping eaves and facia on the main workshop building, the majority of which bonded asbestos material. Comprehensive decontamination of all areas was undertaken on a full-time basis during the works within full encapsulated work areas.

Over 8910m^2 of roofing was replaced equating to 142t of asbestos containing materials remediated. All asbestos containing materials were encapsulated in protective 200μm plastic sheeting and transported to EPA licenced asbestos receiving stations. 2600m^2 of wonder glass sheeting was installed in 18 bays to provide natural lighting to the interior of the facility.

Scaffolding was used extensively on the project to significantly reduce the risks of working at heights up to 16m, working over rail and to fully encapsulate the asbestos remediation areas. A total of 2300m^2 of scaffolding was erected on site and was progressively moved to different work areas as the program of works progressed. Scaffolding was also erected with waterproofing materials to protect all plant and equipment inside the facility during the works.

The project team faced various challenges during the works including working over operational and electrified rail, working on steep saw-tooth roof configurations and working in strong winds blowing off the nearby Spencer Gulf Ocean.

A major challenge was the heat. Daytime temperatures often reached 39^{0}C or more which was compounded by another 10^{0}C radiating off the roofs and an additional 12^{0}C from working in full encapsulated asbestos remediation suits. Despite these challenges, works were completed on time and without incident. A total of 19 personnel delivered the works. Plant and equipment utilised included a 200t and 250t cranes.

NATIONAL ENVIRONMENTAL
INCIDENT AND SPILL RESPONSE SERVICES

THE AUSTRALIAN RAIL TRACK CORPORATION (ARTC) IS A FEDERAL AUSTRALIAN GOVERNMENT OWNED STATUTORY CORPORATION, ESTABLISHED IN JULY 1998, THAT MANAGES, BUILDS, OPERATES, MAINTAINS, EXTENDS AND UPGRADES THE MAJORITY OF AUSTRALIA'S INTERSTATE RAIL NETWORK.

McMahon Services were contracted for a two-year period to deliver 24/7 call and environmental incident response and management services for the ARTC rail network across Queensland, Western Australia, New South Wales, Victoria and South Australia.

McMahon Services are contracted to support ARTC in metropolitan, regional and country locations along 8,500km of ARTC owned and operated track.

The contract was awarded in part because of McMahon Services' successful track record in providing similar oil spill emergency response services on a state-wide basis for SA Power Networks.

The incident response and management services are a national operation coordinating people, plant and equipment from McMahon Services offices in Adelaide, Perth, Brisbane, Sydney, Melbourne and Port Pirie.

McMahon Services also expanded its fleet of vacuum trucks with the purchase of two new Jamieson 8x4 Combo Isuzu vacuum trucks for use on the incident response and management services contract for the South Australian region.

The new vacuum trucks were selected in part for their shorter lengths which allows them to operate in constrained sites that our other models were not able to achieve. Despite their small sizes, they are still capable of transporting up to 10,000L of liquid waste materials from sites.

Each truck is fitted with dual 1500cfm (42m^3/min) liquid ring pumps that allows for variation in the vacuum to efficiently extract water, hydrocarbons, thick sludge and other liquid materials of varying density and viscosity. This feature saves on both fuel and time taken to complete remediation works. A 5000psi (34MPa) high-pressure hydro unit allows for fast and efficient site clean ups after vacuuming is complete.

The two units will services different regions. One will be active in the north operating between Port Pirie, Ceduna and Port Lincoln. The other will service Adelaide and the southern regions down to Mount Gambier.

The vacuum trucks have been co-branded as McMahon Services and Intract Australia.

'The units are capable of transporting up to 10,000L of liquid waste'

CRUSHING DEMOLITION AT OLYMPIC DAM

OLYMPIC DAM MINE LOCATED 560KM NORTH OF ADELAIDE, IS ONE OF THE WORLD'S LARGEST DEPOSITS OF COPPER, GOLD AND URANIUM AND ALSO HAS A SIGNIFICANT DEPOSIT OF SILVER. BHP'S OLYMPIC DAM MINE OPERATES AS A FULLY INTEGRATED PROCESSING FACILITY TRANSFORMING ORE TO METAL.

The Olympic Dam mine operation includes a Cement Aggregate Fill (CAF) plant which combines sands, aggregate, cement and other products to create CAF used to backfill mined stopes underground. Aggregate is crushed and stockpiled along with sand in the area surrounding the CAF to be used at a later point in time.

Part of this original plant used to crush rock and manage the stockpiles of sands and aggregate became redundant and required removal allowing BHP to better utilise the area for stockpile storage as well as make the area available for installation of new plant and equipment and other mine operations.

McMahon Services were selected by BHP, through a competitive tender process to undertake the demolition works.

Scope of Work

Demolition of all plant, equipment, steel, footings and other items which were associated with the Razorback Crushing Plant were removed, returning the area to bare compacted earth. This plant was located in the northern section of the existing CAF plant at the Olympic Dam mine site.

In-situ tertiary crushers were required to be removed from structures. Sections of plant and equipment which were to be removed from site include feeder tunnels, conveyor belts, all slabs and footings to depth, structural steelwork, substation shed and tyres. Remediation earthworks were required onsite to ensure it was returned to the correct reduced levels and compaction to the correct BHP Olympic Dam specifications. Works also included draining fluids from all equipment including gearboxes, air conditioner and their transport to BHP's onsite Resource Recovery Centre.

The redundant structures were mechanically demolished using demolition excavators to mitigate the risk of personnel being close to structures during majority of the demolition, which also meant utilising minimal manual labour to air gap the structures to be demolished to the structures that were to remain. The scrap steelwork and concrete were processed to minimise transport loads with maximum weight.

Over 200t of steel was scrapped and reclaimed, over 200L of oil and other fluids were drained from the infrastructure and 6600m^3 of earthworks were undertaken to remediate the site back to its original state. 13t of conveyor belts and 1460t of concrete rubble were also remediated on site.

Workforce peaked at 17 completing 10,000 work hours. Plant and equipment utilised on the project included a Komatsu PC850 demolition excavator with shear, Komatsu PC450 demolition excavator with shear, Komatsu PC300 excavator with various attachments, Komatsu WA200 loader, water truck, oxy/LPG cutting tools and equipment and a 40t Dump truck for carting materials to the Resource Recovery Centre.

ROAD TO ANOTHER SUCCESSFUL PROJECT

The workforce peaked at 20 and achieved 13,000 work hours.

IN 2018, BUNNINGS WAREHOUSE AND COLES SUPERMARKET COMMENCED THE $25 MILLION CONSTRUCTION OF NEW RETAIL FACILITIES ON THE CORNER OF ADELAIDE ROAD (NOARLUNGA-VICTOR HARBOR ROAD) AND HINDMARSH ROAD.

The works required upgrades to the roundabout at the crossover point of the new road and upgrades to the existing roads adjacent to the retail site.

Scope of Work

The scope of works for the roundabout and road upgrade project included 5000m^3 of bulk earthworks to construct new road batter and the detention basin, a new underground stormwater system, and the supply and install of road lighting totalling six poles and luminaires along Adelaide Road to improve the road safety.

Road works included concrete works for new kerbs and gutters, traffic islands and pram ramps, and construction of new road pavement for the road widening, left turn slip lanes and the new access to the site and upgrades to the existing road with the placement of new, thicker bitumen to improve pavement life and road rideability.

Additional scope included construct of a new 2.5m wide shared path along the new development, new signage and line marking. Tree removal was planned in advanced through early engagement with City of Victor Harbor council.

Over 30m of redundant asbestos piping were excavated, treated and disposed of at a licenced EPA receiving station. The project team delivered 500m of new road construction, 4500m^2 of new asphalt, 375m of new stormwater reinforced concrete pipes ranging from 375mmm to 450mm, 15 new stormwater pits and 7000m^2 of landscaping.

Traffic management strategies for Adelaide Road with a daily traffic of 4,900 vehicles per day were developed before construction works commenced and were implemented at all times during the works. Works were also undertaken adjacent to operating businesses requiring additional pedestrian and access traffic management strategies.

Variable message signs were set up for advanced notice of work commencement and to communicate traffic restrictions during the deep lift asphalt work. Letter drops and face to face communication with local businesses adjacent to the works were conducted prior to deep lift asphalt work.

Construction around live services

Overhead powerlines were present on site and this was a key risk during the bulk earthworks and road batter construction phases. Safe Work Method Statements were developed that limited the height excavators could raise their booms while spotters were in place at all times to ensure people, plant and equipment remained well outside the powerline exclusion zones.

An existing watermain and low voltage electrical conduits crossing the work site had not been identified during the design phase and conflicted with the new underground stormwater system. The project team developed a new design for the stormwater comprising of additional pits, pipe alignments and invert chambers to avoid the more-costly task of relocating the watermain.

Minor modifications to the lighting design allowed for a common service trench for stormwater and the electrical conduits, dramatically reduced trenching and backfilling works.

Fibre reinforced concrete

Fibre reinforced concrete was used for the construction of drainage structures. This improved productivity as the materials are 75% lighter than traditional concrete and the high strength of pipe sections allowed for stability over longer lengths during transport and placement, 4.0m versus 2.5m for steel reinforced concrete pipes. Fibre reinforced concrete also has better corrosive properties protecting the concrete in the long term from environmental damage compared to traditional concrete.

Deep lift asphalt

Changes to the Adelaide Road design from granular pavement to deep lift asphalt minimised impacts to traffic and local businesses, reducing this component of the works from 30 days to 3 days and eliminating the need to work through the night. The thickness of the new pavement was reduced from 365mm to 275mm significantly reducing the risks to break the existing watermain and risks related to wet weather delays.

McMAHON SERVICES NT SHOWS THEIR SUPPORT FOR THE HAYDEN REYNOLDS TIWI COLLEGE GARDEN PROJECT

INTRACT AUSTRALIA AND MCMAHON SERVICES HAVE ALWAYS BEEN A STRONG SUPPORTER OF THE MATTHEW HAYDEN AND GUY REYNOLDS TIWI COLLEGE GARDEN PROJECT.

Located at Pickataramoor on Melville Island, Tiwi College is an exciting and dynamic secondary boarding school initiated and governed by the local residents of the island, who provide well-being and quality education for the Tiwi Island youth and students.

The Matthew Hayden and Guy Reynolds Tiwi College Garden Project was achieved through the commitment and influence of positive role models from the sporting and entertainment sector, as well as a cross section of corporate executives, who share an interest in sharing their experiences and opportunities that will enhance social change.

Intract's involvement in the college has been one we are proud of and it has been inspiring to see the growth of the College and the development of the students through the Guides Program.

Over the past four years Intract and McMahon Services NT have been supporting the Tiwi College Project and for the past two years have been 'Centurion Club' sponsors, providing funding to sustain the fantastic work the Hayden and Reynolds team have been undertaking.

Every year, the Tiwi College brings between 10-20 male students aged 15-18 years into Darwin to complete work for one week in various industries to give the student some visibility across options for career pathways moving forward, and viable industry connections for employment post-secondary education.

Most recently, Intract Australia and McMahon Services NT hosted two students, John and Clinton, who undertook mandatory induction training in our Darwin office before commencing onsite at various job locations.

Skills acquired whilst with us included site clean-up for demobilisation, use of hand held power tools and trade assistant to carpenters installing the framework for wall panels.

Both John and Clinton have excelled over the placement with positive feedback from their supervisors about their eagerness to learn new things.

We look forward to replicating this on a yearly basis and we have thoroughly enjoyed having the boys join our team.

LAND 121 STAGE TWO UNIT SUSTAINMENT FACILITIES

LAND 121 IS A MULTI-PHASED NATIONAL AUSTRALIAN DEFENCE FORCE PROJECT TO DELIVER CURRENT-GENERATION, HIGH-CAPABILITY FIELD VEHICLES, MODULES AND TRAILERS.

Approximately 7,500 protected and unprotected vehicles to provide Defence with battlefield mobility, logistics support and tactical training will be procured during the project.

LAND 121 Unit Sustainment Facilities project will support the delivery of vehicles by providing new and upgraded facilities at nine Defence establishments nationally. These facilities will improve the maintenance, support and ongoing sustainment of the new vehicle capability.

Scope of Work

McMahon Services were engaged by Managing Contractor Lendlease to undertake LAND 121 works at Robertson Barracks and RAAF Base Darwin, in the Northern Territory. Scope included the demolition of existing buildings, structures and services, bulk earthworks, pavement works, stormwater drainage, and the installation of utility services to support future buildings. Other works included centralised vehicle facilities upgrades at Robertson Barracks with the installation of a new weighbridge facility and an AdBlue dispensing facility (which converts atmospheric polluting nitrogen oxides into harmless nitrogen and water steam), and a new hardstand storage area at RAAF Base Darwin.

Weighbridge and AdBlue tank works at Robertson Barracks included the demolition of existing infrastructure including the existing loading ramp and approaches, lighting upgrades, electrical switchboard upgrades, all associated electrical works including trenching, backfill and compaction of conduits, under boring for conduits, and service installation.

The 5300m^2 hardstand storage works at RAAF Base Darwin included demolition of existing infrastructure, asbestos remediation, stormwater upgrades, subsoil drainage, kerbing, spray seal, mechanical laying of concrete interlocking pavers, lighting works, electrical switchboard upgrade works including trenching, conduit and cable installation, and landscaping. The concrete interlocking pavement works were completed using a mechanical paving machine which increased efficiencies in labour and project delivery time.

A hazmat decontamination unit was set up in the early stages of the works while asbestos remediation was underway. All asbestos containing materials were removed by fully trained Class A qualified technicians and disposed of at an approved Environmental Protection Agency (EPA) receiving site.

Across both sites, 960t of asbestos containing materials, 2500m^3 of contaminated soils, 240t of concrete and 13t of steel were remediated, and were applicable, recycled off site. Over 14,500m^3 of earthworks, 5600m^2 of pavement works, 285m^3 of concrete works, 170m of electrical conduits and 1700m^2 of landscaping works were completed.

All project personnel, subcontractors and suppliers were source from the local Darwin area. Indigenous participation for the project was 15%, with Indigenous supervision and labour utilised on the weighbridge portion of the works.

NEW ADDITIONS TO FLEET

McMAHON SERVICES OPERATES AND MAINTAINS ONE OF AUSTRALIA'S LARGEST FLEETS OF CONSTRUCTION AND DEMOLITION PLANT AND EQUIPMENT. OUR $80 MILLION NETWORK OF COMPANY-OWNED PLANT AND EQUIPMENT IS CAPABLE OF SERVICING PROJECTS IN URBAN, RURAL AND REMOTE LOCATIONS ANYWHERE IN AUSTRALIA.

Over 400 major plant items comprise of dozers, demolition and civil excavators, graders, rollers, loaders, dump trucks, batching plants, service trucks, water trucks, soil blending machines, prime movers, hook lift bin trucks, low loaders, semi-tippers and cranes.

The list below is a summary of those items added in 2018.

Light Vehicles	
Hilux Utes	36
Hiace Vans	6

Trucks and Trailers	
Isuzu Flat Top	1
Volvo FM13 Rigid Tipper and 3 Axle Dog Trailer	2
Isuzu 6t Tipper	1
Custom Service trailer	1
Tandem Excavator trailer	1
Volvo FH 16 Prime Mover	1

Civil Earthmoving Equipment	
PC1250 Excavator	1
PC850 Excavator	1
PC750 Excavator	1
PC300 Excavator	1
Bobcat T450 Skidsteer loader	1
Bobcat E17 Excavator	1
Bobcat E32 Excavator	1
Bobcat E35 Excavator	1
Bobcat Sweeper attachments	2
Bobcat Grapple Bucket	2
Wheel wash	2
Powerscreen Premietrak 600 Cone Crusher	1

Materials Handling Equipment	
Hyster 3.0t Forklift	3
Sennebogen 830 Material Handler	1
Sennebogen 835 Material Handler	1
Smag Grab	2
Omega 45t Forklift	1

Specialised	
Somero S-438 Laser Screed	1
Hammelman High Pressure Pump and Conjet Jetframe Nalta 101	1
Kobelco Crawler Crane	1
Genesis GXT1555R Demolition Shear	1
Genesis GXT995 Demolition Shear	1
Copex CVM630 Scrap Shear/Baler	1
Doosan 500kVA Generator	1
Kohler 300kVA Generator	1
Kubota SQ3200 20kVA Generator	3
Isuzu 10,000L Vacuum Truck	2
Rammer City 777 Hydraulic Hammer	1
Salmon Pulveriser	1
PR Dust Suppression Unit	1
Siltbuster silt separator	1
E20 Bobcat Excavator	1
A45G Articulated Dump Truck	2
6t Swivel Site Dump Truck	2
216B Skidsteer Loader	3

Powerscreen Premiertrack 600 diverts demolition waste away from landfills

THIS YEAR McMAHON SERVICES INVESTED IN THE POWERSCREEN PREMIERTRACK 600, A MOBILE CRUSHING PLANT DESIGNED FOR LARGE AND MEDIUM SCALE OPERATION IN QUARRYING, DEMOLITION, RECYCLING AND MINING OPERATIONS.

With the Premiertrack 600, McMahon Services can now crush and transform demolition and construction waste into aggregates and fill material. This brings both cost and environmental savings to clients by significantly reducing quantities of construction and demolition waste otherwise transported and processed off site.

The 69t Premiertrack 600 is equipped with a single toggle jaw with an adjustable hydraulic setting able to crush materials with material strengths of up to 500kN, reducing materials into sizes between 75mm to 200mm. Materials are fed into the crusher through a 9.3m^3 hopper. A troughed conveyor belt deposits crushed materials at a discharge height of 4.0m to produce stockpile volumes of 136m^3.

The heavy-duty crawler tracks and a climb grade rate of 30° ensures that the Premiertrack 600 is mobile on site so it can be relocated continuously to adapt to staged works projects. It also features an inbuilt dust suppression system.

The Premiertrack 600 has provided significant savings to demolition projects across South Australia including the Charles Sturt Industrial Estate Demolition works, the Augusta Power Stations Decommissioning and the Former Football Park demolition project.

Hammelmann High Pressure Pump Cuts Straight through Concrete

McMAHON SERVICES HAS EXPANDED ITS SERVICE CAPABILITIES THROUGH THE PURCHASE OF A HIGH-PRESSURE HAMMELMANN PUMP THAT CAN PRODUCE 1000 BAR (10MPA) PRESSURE AT 100L/M OR CONVERTED TO PRODUCE 1400 BAR (140MPA) PRESSURE AT 70L/M.

The 1000 bar setting allows for cleaning of any type of industrial surface and the insides of tanks using a specialised cleaning head attachment.

The 1400 bar setting uses a Conjet Nalta 101 attachment that creates sufficient pressure to hydro-demolish concrete. This is ideal for exposing corroded reinforced steel bars so they can be treated and then resurfaced.

The unit is confined within a 6.0m by 2.4m wide by 2.4m high container for easy transport on the back of a truck, making the unit highly mobile.

The first project were McMahon Services successfully used the Hammelmann High Pressure Pump was on was the Former Royal Adelaide Hospital Stage 1 Demolition Works.


Robert Tester


Anthony Woods


Tim Boys

McMAHON SERVICES MAKES THE MOVE ACROSS THE TASMAN SEA

McMAHON SERVICES HAS EXPANDED INTO THE NEW ZEALAND ENVIRONMENTAL AND INFRASTRUCTURE MARKETS, AND CONSEQUENTLY OPENED OUR FIRST OFFICE IN AUCKLAND IN AUGUST 2018.

Interest in New Zealand began in 2017 when McMahon Services were approached to provide asbestos remediation solutions for contaminated historical vehicles at Auckland's Museum of Technology and Transport (MOTAT). The opportunity resulted in McMahon Services remediating 14 antique cars, ambulances, fire engines and construction machinery dating from the 1910s to the 1960s after they had been contaminated by asbestos particles falling from the roof where they were stored.

The project gathered local interest and soon McMahon Services were approach by various consulting firms with an interest in servicing the growing remediation market and utilising McMahon Services as an industry partner. New Zealand was and still is going through the process of achieving higher compliance in asbestos remediation by adopting many elements of the Australian model of asbestos treatment and disposal.

Since MOTAT, McMahon Services have been provided with many opportunities to bring our expertise to the country and we see New Zealand as a growth opportunity for our business. We are already providing site remediation and demolition works for a major petrochemical company near Wellington.

Our Auckland operations has initially been managed by two veterans of the asbestos and roofing and cladding industries, and one new employee who has 25 years' experience in the commercial and residential property industries.

Anthony Woods, Construction Manager for McMahon Services' Asbestos and Hazardous Waste division will relocate on a temporary basis to Auckland to establish the office and take on a business development role locally. Tony brings his extensive Australian experience in asbestos removal and abatement works to the New Zealand market.

Supporting Tony is Robert Tester, with over 45 years of experience in the asbestos remediation, building and roofing industries. Transitioning from his role as Roofing and Cladding Manager in South Australia —where Robert has delivered more than a quarter of a million square meters of roofing — Robert will take up an operational role in New Zealand.

Tim Boys, a New Zealand local, has more than 25 years' professional experience in the commercial and residential property industries. Tim is an experienced Senior Project Manager, with experience in the design and management of demolition and remediation projects. He has proven success in meeting strategic deadlines, team leadership and motivation, operational planning, assessment and analysis reporting he brings a wealth of knowledge to the team.

McMahon Services New Zealand will initially concentrate on industry sectors where there is a demand for new and experienced operators. Service offerings will include asbestos and hazardous waste remediation, environmental remediation, demolition and decommissioning, civil construction, building construction and services, roofing and cladding, and scaffolding and access solutions.

McMAHON SERVICES OPENS PORT AUGUSTA OFFICE

IN JULY 2018, McMAHON SERVICES EXPANDED OUR OPERATIONS WITH THE OPENING OF A NEW OFFICE IN PORT AUGUSTA.

The new regional office is managed by Craig Cresp, a highly experienced Project Manager and design manager originally from Port Augusta who has spent many years managing major infrastructure upgrades, maintenance and shutdown projects at Olympic Dam.

Craig will continue to support existing relationships in the region including BHP, OZ Minerals, Flinders Power and Santos. He will also investigate opportunities in providing capital works, site remediation, maintenance and shutdown services for the $5 billion in energy projects expected to occur in the region in the next five years. These projects include solar thermal farms, windfarms, battery storage and pumped hydro projects offering opportunities to enter into the boom renewables market.

Craig and the Port Augusta team will be supported through our well-established Port Pirie and Whyalla offices and head office support from Adelaide.

From left to right: Craig Rutjens, Tim Cotton, Mel Milosevic, James Stockdale, Jess Desmond and Poshia Sulaimany.

HEALTH & SAFETY UPDATE

THE CONSTRUCTION INDUSTRY IS FRAUGHT WITH RISK AND THE POTENTIAL FOR SERIOUS HARM, AND IS CONSIDERED TO BE ONE OF THE MOST HAZARDOUS INDUSTRIES IN AUSTRALIA.

As an operator in the construction industry, McMahon Services takes the safety risks to our work seriously. We therefore operate a dedicated Work Health, Safety, Environmental and Quality (WHSEQ) Team to ensure that every task we undertake is completed in the safest possible way.

While safety is the responsibility of everyone in the company, the WHSEQ Team ensures that our workforce has access to the latest work health and safety information, tools, procedures and practices.

One of the team's major achievements in 2018 was obtaining national environmental and quality management systems certification to the new ISO14001:2015 and ISO9001:2015 standards, bringing the company up to date with legislative requirements.

Another safety achievement was the first stages implement development of a new WHSEQ Performance Management System, a scorecard management system that will track individual business groups performance in health, safety, environmental and quality tasks, rated from base compliance to world's industry best practice. It will be an evidence-based system that will be easily measurable to ensure we meet all legislative, industry, client and company requirements. The system will be subject to data analysis to identify trends and align work activities with company objectives.

Two new recruits joined WHSEQ Manager Craig Rutjens, WHSEQ Site Manager Tim Cotton and WHSEQ Advisor James Stockdale in 2018 to assist with the team's ever-growing workload. Return to Work Manager Mel Milosevic became the company's contact with respect to return to work issues and incidents as they occur, and to ensure they are correctly guided and mitigated as appropriate. Graduate Safety Advisor Poshia Sulaimany assists with the maintenance of the management system, meeting our accreditation requirements, researching legislation and performing auditing.

ADELAIDE FESTIVAL CENTRE DRIVE UPGRADE

WORKFORCE PEAKED AT 10 PERSONNEL WHO COMPLETED

20,000

WORKHOURS

IN MARCH 2015, RENEWAL SA EMBRACED AN OPPORTUNITY TO LEVERAGE OTHER DEVELOPMENTS HAPPENING IN AND AROUND THE ADELAIDE RIVERBANK BY DEVELOPING A PROPOSAL WITH WALKER GROUP HOLDINGS FOR THE INTEGRATED REDEVELOPMENT OF THE ADELAIDE FESTIVAL PLAZA SITE.

The plaza redevelopment envisioned would provide 16,500m^2 of public space established in the areas surrounding the Adelaide Festival Centre, Adelaide Railway Station, Adelaide Casino, Parliament House and Old Parliament House and Station Road.

Per the early works agreement construction began in November 2016 and involved the lowering of Festival Drive, separating vehicle and pedestrian movements and enabling direct on-foot access between the Riverbank Footbridge and Adelaide Railway Station. The scope included the early foundation work required to support the Adelaide Casino expansion and to drop the existing access road to allow new overhead building works.

Lendlease was awarded the contract and engaged McMahon Services to deliver the early works package. Based on the success of the

delivery for the first package, Lendlease then awarded McMahon Services the hydraulic package through Hindmarsh Plumbing who was also working for Lendlease, and main civil package of works for the overarching project.

Scope of Work

McMahon Services delivered the project in three stages. The first stage was the early works to alter traffic lights on Festival Drive connecting traffic to King William Road, installing bollards and preparing the site for the main construction works.

The second stage required locating watermains, sewers, electrical cable and stormwater, then relocating all services within 7m below the ground level as they would otherwise risk being damaged during latter construction stages. Over 150m of sewer lines and 150m of water mains were relocated.

The third stage comprised of the bulk of the works. Ground conditions proved challenging with former building structures including a retaining wall dating back to the 1920s requiring demolition and remediation. Over 15,000m^3 or 30,000t of bulk earth were transported offsite for treatment and recycling that ultimately ended up as fill material for the Northern Connector project concurrently underway in Adelaide's northern suburbs. An addition 1800t of asbestos containing and low level contaminated soils were removed and disposed of offsite at EPA licenced receiving stations.

Civil and road construction works included the construction of a piling platform for approximately 400 continuous flight auger piles (CFA) installed by another contractor, lowering construction works for 120m of the Festival Drive road including base course and 1000m^2 of bitumen asphalt, 200m^3 of concrete shotcreting, the construction of 400m of new stormwater lines, kerbing, signage and line marking. The road was constructed inside two pile derived retaining walls leading into a tunnel under the Festival Centre area. Portions of the road works were undertaken beneath a suspended concrete slab.

Project Challenges

The work site was extremely congested with operational and occupied buildings adjacent to the works on all sides including the casino, hotel, festival centre and train station. Environmental considerations were at the forefront of project planning and execution, and included noise and dust mitigation strategies to minimise impacts on adjacent buildings.

Sewer and other water lines required continual pumping to ensure flooding did not occur on site. Material stockpiles had to be carefully managed so not to further constrain the site. Many items of plant had to be lifted into and out of site via a 60t crane due to the highly restrictive access.

Another key congestion challenge was maintaining access to the loading dock for servicing the Adelaide Festival Centre, the Intercontinental Hotel and the Skycity Casino, which was located within and adjacent the construction site. The loading docks had to remain accessible and open at all times and often featured long lines of trucks loading and unloading goods.

McMAHON SERVICES SHOWS SUPPORT FOR THE WOMEN'S & CHILDREN'S HOSPITAL BEACH HOUSE PROJECT

IN SOUTH AUSTRALIA, THERE IS NO PURPOSE-BUILT ACCOMMODATION FOR FAMILIES OF CHILDREN WITH COMPLEX MEDICAL NEEDS.

The Women's and Children's Hospital (WCH), located in Adelaide, wanted to be able to provide children and their families with a space to unwind and forget about the four walls of the hospital, which is where many of them spend their days.

The WCH Foundation Beach House is a major project aiming to provide respite accommodation for families caring around-the-clock for children requiring significant care and support due to a long-term and / or life-limiting illnesses. The project aims to raise $2.5 million to construct a purpose-built holiday home and develop an ongoing support program for families to create special memories.

The Beach House will be the first holiday accommodation built especially for, and available to WCH families with these specialised needs. It will offer a welcoming, calm and peaceful environment far from the physical and emotional stresses of the hospital setting - yet strategically located near a hospital should the need arise.

The vision is that the WCH Foundation Beach House will provide an environment in which the whole family can rest, recharge and create special memories together, providing them with the break they need to continue their journey.

After hearing about this amazing foundation McMahon Services Managing Director David McMahon generously agreed to donate labour resources to assist Bella Build & Design with the contract process of the Beach House, located south of Adelaide, Encounter Lakes, Victor Harbor.

Building commenced September 2018, where a team from McMahon Services performed a scope of works consisting of steel fixing, formwork and pouring the concrete slab, contributing to the development of this beautiful home, ready for families by March 2019.

Make a Difference...

If you choose to donate, your donation will contribute to an ongoing endowment to maintain the house and support services once it's completed and well into the future, making the Beach House a lifelong sanctuary for some of the Women's and Children's Hospital's most deserving families.

Please join us on this journey and help us to make The Beach House a reality for the children and families of the Women's and Children's Hospital. A place where families can enjoy a beach side getaway where they can take a much needed break to share special experiences that will last a lifetime.

Donate here:

www.wchfoundation.org.au/projects/the-beach-house-project/

We commend all people involved in this project, and we cannot wait to see the finished product.

CHARLES STURT INDUSTRIAL ESTATE DEMOLITION WORKS

CHARLES STURT INDUSTRIAL ESTATE IS A NEW INDUSTRIAL AND BULKY GOODS ESTATE DEVELOPED BY ISPT ON THE SITE OF THE ORIGINAL GENERAL MOTORS HOLDEN ASSEMBLY PLANT IN THE NORTHERN ADELAIDE SUBURB OF WOODVILLE. THE ASSEMBLY PLANT HAD CLOSED IN OCTOBER 2017.

Through a competitive tendering process McMahon Services was awarded the project for the demolition of the former General Motors Holden main assembly plant, Charles Sturt Industrial Estate Building and the surrounding pavements and hardstand located in the north-western area of the site.

Works included the decommissioning, demolition and environmental remediation of the former General Motors Holden Main Assembly Plant within the Charles Sturt Industrial Estate.

Initial works were the identification and safe decommissioning of electrical, stormwater, water main, sewers, telecommunication and gas services and then relocating and connecting these services to the new Nerve Centre building located adjacent to the demolition site.

Asbestos remediation works included the safe removal and disposal of 100,000m^2 of asbestos deep 6 sheet roofing from the saw tooth roof configuration prevalent across the plant. Third party air monitoring was applied during asbestos clearance activities. All asbestos containing materials were packaged in double layer 200μm plastic wrap and disposed of at an approved EPA licenced waste facility receiving station. Hazardous waste removed from site included 100,000L of transformer and subterranean tunnel oil.

Mechanical demolition works was undertaken with three demolition excavators fitted with hydraulic shear attachments working to a height of 16m.

Other works included site clearances, demolition of approximately 26,000m^2 of concrete footing and crushing of concrete, excavating and remediating contaminated areas to a depth of 3m, and backfilling pits, sumps, tunnels and excavations. 25,000t of concrete and masonry were demolished and recycled. 2,000t was recovered from structural steel supports and salvaged heavy equipment on site. 29 large presses ranging from 40t to 65t were also removed from site.

Additional works included the replacement of a SA Power Networks 33kVA transformer used by the adjacent Bunnings Waterhouse facility.

Plant and equipment used on site includes one small forklift, two large forklifts, five elevated work platforms, trucks, 13t, 30t and 45t excavators with hydraulic shears

MULTI-DISCIPLINARY PROJECT LEAVES BROADCAST AUSTRALIA HOPEFUL

BROADCAST AUSTRALIA PROVIDES TELEVISION AND RADIO BROADCAST TRANSMISSION SERVICES ACROSS AUSTRALIA THROUGH ONE OF THE WORLD'S MOST EXTENSIVE TRANSMISSION NETWORKS COVERING METROPOLITAN, REGIONAL AND REMOTE LOCATIONS. THEIR MOUNT HOPEFUL BROADCAST SITE SERVICES THE ROCKHAMPTON AREA OF QUEENSLAND.

Broadcast Australia identified asbestos containing materials in the Emergency Power Plant Room ceiling and eave soffit linings to the buildings which were in generally poor condition and required remediation. Additionally, the roof sheeting, roofing accessories and rainwater infrastructure on the Main Transmitter Building, Emergency Power Plant Room and foyer were reaching their end of service life and required replacing.

Furthermore, the existing Sleeping Quarters and Tool Store located on the north east side of the building had been uninhabitable for a period due to an infestation of termites, the weakening of the building structure due to the subsidence of the supporting soil, and the large quantity of deteriorating asbestos containing materials within the building.

The cooling systems supplying the Transmitter Hall had been originally designed for the now obsolete analogue television (PAL) transmission era and no longer suited the current transmission arrangement on site. The plenum (an air-distribution box attached directly to the supply outlet of the heating, ventilation and air-conditioning equipment that heats or cools the air to make the building comfortable) was currently positively pressurised due to the over-proportionate amount of the supply-air to this room resulting in unconditioned air spilling into the Transmitter Hall.

McMahon Services were engaged to undertake multidisciplinary works on site that included friable and non-friable asbestos remediation, mould remediation, demolition of the sleeping quarters and adjacent carpark, roofing and cladding works, building works and repairs, and mechanical works. Works in the Transmitter Building and Emergency Power Plant Room included asbestos remediation, mould remediation, roof sheeting, gable-end panels, eave soffit linings, roof sarking, guttering and downpipes, and the replacement of timber and fire rated doors.

Mechanical and electrical works included decommissioning and removal of existing under ceiling split air conditioners, installation of a new heating, ventilation and air conditioning (HVAC) system, installation of variable speed drive systems for existing plenum room supply-air fans, and the replacement of external security lighting.

Workforce peaked at six Class A asbestos technicians, a five-person demolition crew and three-person roofing crew. Plant and equipment included scaffolding, 14t excavator, asbestos bins, four body trucks and site vehicles.

NEW SENIOR APPOINTMENTS

Julia Swift, General Counsel SA

Julia joins the McMahon Services team bringing 13 years of legal experience to the company. She has specialised in commercial litigation, employment, industrial relations and work health and safety law.

Julia was a Special Counsel in private practice, and then as General Counsel in the civil construction industry. She is an experienced lawyer in reviewing risks in tendering and contract management, and ultimately working with our clients to ensure compliance with contracts.

Julia's qualifications included a Master of Laws (Employment and Industrial Relations), Bachelor of Law (Honours) and a Bachelor of Commerce (Marketing).

Julia is providing specialised legal services to the McMahon Services' group including preparation, review and negotiation of various contracts at tender stage through to facilitation of project handovers from tender award to commencement of the works. Julia's role also involves advising on WHS obligations, and ensuring suitable contract management of projects.

Mel Milosevic, Return to Work Manager SA

Mel is highly experienced in return to work injury management across a variety of industries. Her construction and heavy industry experience include previous roles with Master Builders Association South Australia and Adelaide Brighton Cement, and she has managed injuries and return to work strategies for over 40 construction industry businesses.

Mel's experience includes managing work injury claims, ensuring rehabilitation and return to work plans are developed, implemented and reviewed on an ongoing basis, as well as facilitating the return to work process across the company. Mel also manages internal communications and stakeholder engagement with respect to her role.

With a background in and aligning work practices to the South Australian Workers Rehabilitation and Compensation Act and ReturnToWorkSA, Mel is now focused on meeting Australia wide Federal and State requirements.

Her qualifications include a Certificate IV in Personal Injury Management (Claims Management) and a Certificate II in Information Technology.

Mel is the company's contact with respect to return to work issues or incidents as they occur, to ensure they can be correctly guided and mitigated as required.

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