

# ROBUST



SEPTEMBER 2015

MURRAY & ROBERTS GROUP MAGAZINE

## VISION

## 2020

The Journey Starts with  
the Destination

### INNOVATION

An Evolutionary Step for  
Shaft Pre-sinking Methods

ENGINEERED EXCELLENCE

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FROM

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Another financial year has come and gone and we've already brushed past three months of the new financial year.

In the main feature of this issue we reflect on our history and **Purpose**, simultaneously defining our 2020 **Vision** – where we aim to be a leading diversified project engineering, procurement and construction group in selected natural resources sectors and supporting infrastructure.

Looking back at how far we've come since our humble beginnings in Cape Town in 1902, we are today present on six continents and recognised as an international engineering and construction group.

We may operate in uncertain times, but when I look at the Group's **New Strategic Future**, I can't help but get excited about the possibility and opportunity. The Murray & Roberts Board has approved a few strategic initiatives to be implemented over the next three years and I will share this in more detail with you at the appropriate time.

The capacity and capability of our employees is a cornerstone of Murray & Roberts' sustainability, so let me use this opportunity to thank each and every one of our employees for your sense of duty, commitment and contribution in 2015.

Please enjoy the September issue of Robust and as always, remember to Stop.Think.Act.24/7 in all that you do.

**HENRY LAAS**  
GROUP CHIEF EXECUTIVE

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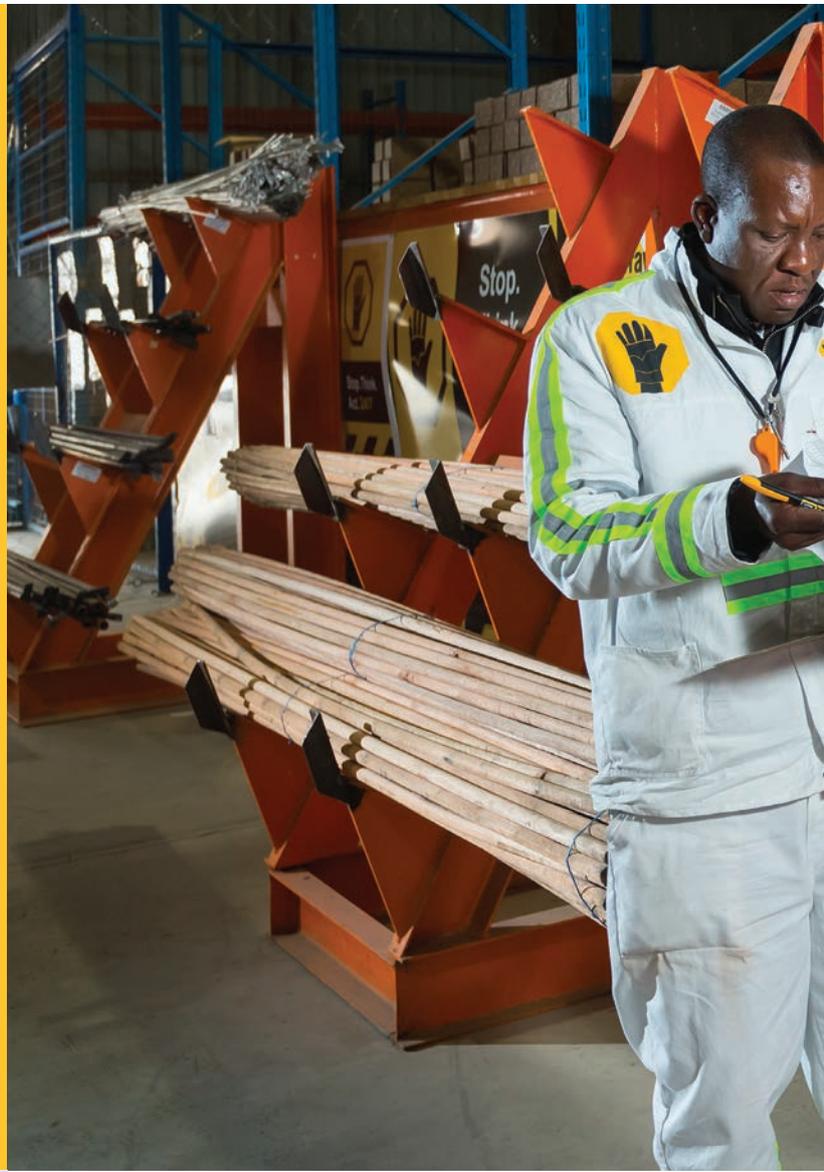
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# VISION 2020



## THE JOURNEY STARTS WITH THE DESTINATION

Our **Vision** is clear – by 2020 we aim to be a leading diversified project engineering, procurement and construction group in selected natural resources sectors and supporting infrastructure.

The Group has predominantly delivered infrastructure projects throughout South and Southern Africa for more than 110 years, and is today recognised as an international engineering and construction group. We are a group of world-class companies and brands aligned to the same purpose and vision, and guided by the same set of values.

Murray & Stewart and Roberts Construction merged in 1967 to form what we know today as Murray & Roberts. Headquartered in Johannesburg, we now have a presence in South Africa, Namibia, Botswana, Mozambique, Zambia and Ghana, the United Emirates, Australia and South Korea, Scotland, Canada, the USA and Chile.

Our **Purpose** is the delivery of infrastructure in a sustainable way to facilitate economic and social development. Founded as a specialist building and civils contractor, the Group today derives only 20% of its revenue and 5% of its profits from the traditional construction business. The Group now offers engineering, procurement, construction, commissioning, operations and maintenance services in the oil & gas, underground mining, power and water as well as the civil infrastructure and building markets. A giant leap from where it all began in Cape Town more than a century ago.



“ The Group is diversifying its business model by enhancing its specialist engineering, commissioning and asset support capabilities to complement its construction capabilities. ”

As much as it's important to know where we came from, we have to look forward and chart our **New Strategic Future**. Underpinning the *New Strategic Future* is the concept of **Engineered Excellence**, which is our guiding principle in everything we undertake. It commits us to strive for excellence through detailed planning and execution, and is especially important in ensuring we continue to advance our strategy and improve our performance.

In the Group's *New Strategic Future* plan, specific objectives and priorities were defined to give clear expression to the Group's strategic direction.

The Group's strategic objectives are:

- Grow profitability and cash flows;
- Focus on international natural resource market sectors;
- Diversify business model into higher margin segments;
- Deliver project and commercial management excellence;
- Enhance the safety, performance and diversity of our people; and
- Enhance shareholder value.

The Group's four business platforms, Oil & Gas, Underground Mining, Power & Water and Infrastructure & Building, deliver services across the project value chain to their respective clients, giving them regional, as well as international exposure in the opportunities they pursue.

The Group is diversifying its business model by enhancing its specialist engineering, commissioning and asset support capabilities to complement its construction capabilities. These services yield higher margins and carry lower risk, than services provided in the construction segment of the project value chain.

The strategy is to transform Murray & Roberts from being purely a South African construction company, to an international group focused on the natural resources market sectors, active in all the segments of the engineering and construction project value chain.



“ Despite the challenges we will no doubt face in the financial year ahead, the Group is well placed to realise its vision for 2020. ” Henry Laas, Group Chief Executive

## ORGANISATIONAL STRUCTURE

The organisational structure we adopted to support our strategy is four specialist client-centric business platforms focused on their chosen natural resources market sectors, as opposed to several generalist engineering and construction businesses with a geographic focus. This enables each business platform, within the Group’s core ambit of engineering and construction, to develop a differentiated service offering based on the specific requirements of clients in that market sector.

- Oil & Gas – The platform operates from offices in Australia, South Africa, Scotland and the USA and comprises the following businesses: Clough (Perth based); e2o (Adelaide based), CMR Marine (Cape Town based); Booth Welsh (Ayrshire based) and CH-IV (Hanover, Maryland based). The platform was restructured to align and integrate with other Murray & Roberts Group businesses, improve operational efficiency and better position the platform to secure future work. It now comprises three primary divisions: Oil & Gas Engineering Procurement and Construction (EPC), Oil & Gas Commissioning and Brownfields, and Infrastructure & Marine.
- Underground Mining – The platform comprises the following businesses: Murray & Roberts Cementation (Johannesburg based); Cementation Canada (North Bay based); Cementation USA (Salt Lake City based); Cementation Sudamérica (Santiago based) and RUC Cementation Mining (Perth based). Its geographic footprint is one of the largest in its industry, with a service offering that spans the project value chain including specialist engineering, shaft construction, mine development, raise drilling and contract mining.
- Power & Water – The platform comprises three businesses: Murray & Roberts Power & Energy, Murray & Roberts Water and the structural steel fabricator, Genrec Engineering. The Power & Water business platform, previously Energy & Industrial,

underwent an extensive restructure in the final quarter of FY2015. The platform is now structured as a project execution business in the power and water sectors, offering engineering, procurement and construction as well as operation and maintenance services.

- Infrastructure & Building – The platform comprises the following businesses: Murray & Roberts Buildings (Gauteng, Western Cape, Namibia and Botswana); Murray & Roberts Developments (newly-formed); Murray & Roberts Infrastructure (incorporating Roads & Earthworks and Civil Construction); Concor Opencast Mining and Murray & Roberts Middle East. The platform’s operations are supported by shared administration and plant services (Murray & Roberts Plant). Results from the Group’s concession investments, Murray & Roberts Concessions (Public Private Partnership Investments and Services) and the Gautrain construction Bombela Civil Joint Venture are also reported under this platform.

The Group expects a more challenging FY2016 and the declining order book over the past two years reflects the reality of a sluggish global economy and weak demand for commodities, coupled with low investment in fixed capital formation in South Africa. The natural resources market sectors are cyclical and despite more difficult trading conditions expected in the financial year ahead, the Group is well placed to realise its vision for 2020.

Growing profitability and cash flow in the years ahead will be a strong area of focus. Our relative balance sheet strength will enable us to extend the success of our bolt-on acquisition strategy, as we grow our capability to provide services in all segments of the project value chain. **R**

# PEOPLE

## Robust interviews Jonathan Hall – Operations Director at Kusile Project



### WHAT CAREER MILESTONES ARE YOU MOST PROUD OF HAVING ACHIEVED?

My current role at Kusile. In particular, being part of a team which has shown significant improvement in productivity and has achieved major milestones including 7 million man hours without LTI and a full year with no industrial action.

### WHAT ARE SOME OF THE CHALLENGES YOU FACE IN YOUR CURRENT ROLE?

Productivity is our biggest challenge at Kusile. We have had a good run so our biggest challenge will be sustaining the success. Breaking it down into **SPQCP**, which is the language that we speak at Kusile:

In terms of **SAFETY** our biggest challenge is complacency and gravity. Though we have achieved over 7 million LTI free man hours, this needs to be maintained and we need to ensure our work environment is consistently free from harm.

We have hit our **PRODUCTION** targets consistently over the last 3 months and have spent the correct amount of man hours to hit our milestones. The challenge is maintenance and consistency.

**QUALITY** – we continuously strive to get all work done right the first time to minimise the amount of rework. Our team at Kusile has a drive to ensure that quality gets the same level of attention as HSE. Quality is increasingly becoming embedded in our culture and employees realise the impact that poor quality has in terms of costs to the company. We have implemented quality reviews which involve everyone from artisans to senior leadership.

**COST** – we consistently strive to ensure we work as efficiently as possible to minimise rework and lost material on the pad. The last three months have seen a marked improvement in our efficiencies, we are now the most cost effective solution to our client on the Kusile site.

**PEOPLE** – maximising the talent pool and attracting the right level of talent to the Kusile team and ensuring that they stay at Kusile. Working on site is a full time commitment, it is therefore very tricky to ensure that the members of our team have a proactive work life balance.

### WHAT EXCITES YOU ABOUT THE FUTURE IN YOUR INDUSTRY?

Seeing young talent developing and gaining experience at Kusile and developing young apprentices and engineers into leaders. For South Africa to reach its full potential the development of infrastructure is essential. The engineering and construction industry will be at the centre of this, particularly the power, energy and water projects.

### WHAT ARE SOME OF YOUR INTERESTS OUTSIDE OF THE OFFICE?

I don't have a lot of free time but I do enjoy my off weekends and over the Christmas break I take an annual diving trip with my boys. I also enjoy photography and cooking.

### WHAT IS THE BEST PIECE OF CAREER ADVICE YOU'VE RECEIVED?

Sjoe, I have received lots of great advice. I have been lucky enough to work with very dynamic leaders and project managers in the global as well as local industry. The advice I consistently follow is:

1. Maximise the potential of your team.
2. Maintain open and honest communication with all levels of the organisation.
3. Focus on relationships with all your stakeholders.
4. Trust, but verify – “touch it, feel it, see it”.
5. If you want your team to push high performance boundaries it is important to be visual, show leadership and get your hands dirty. ‘Adult Supervision’ is sometimes necessary.

### WHAT WOULD PEOPLE BE SURPRISED TO KNOW ABOUT YOU?

I love cooking and went to cooking lessons for two years and really know how to hold a dinner party – one day some of you may be lucky enough to find this out.

### WHAT WAS YOUR FIRST JOB?

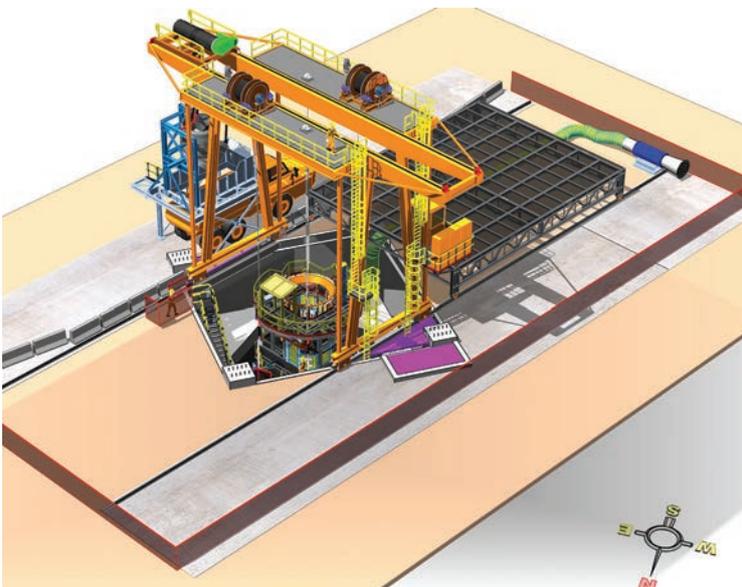
I was a newspaper boy at 14 in the United Kingdom. I also served hot beef on rye sandwiches at the Turffontein Race Course. My first full time job was an Industrial Relations Advisor. **R**

# INNOVATION

An evolutionary step for shaft pre-sinking methods



VENETIA PRODUCTION SHAFT PRE-SINK LAYOUT



## AN EVOLUTIONARY STEP FOR SHAFT PRE-SINKING METHODS

Murray & Roberts Cementation's engineering team completed its service shaft pre-sinking phase of the shaft sinking contract at De Beers' Venetia Mine sixteen days ahead of schedule. They did this by engineering a novel Pre-Sink Gantry utilising proven technologies innovatively which streamlined the operations to an extent that it became safer, more efficient and cost effective.

The validation of the concept over two pre-sinks is such that it has added a new alternative to the way that the global industry can approach pre-sinking. The Murray & Roberts Cementation team see this success as a result of harnessing the diverse skills, knowledge and experience that is entrenched within the DNA of the company and its people.

## WHERE IT ALL BEGAN

The Venetia bid included a preferred requirement for the successful contract team to engineer a new way to execute pre-sink operations. De Beers' key requirement was for bidders to come up with a more mechanised solution that would remove safety hazards for the sinkers without jeopardizing productivity.

A team of engineers, technical assistants and designers from Murray & Roberts Cementation conceptualised a single and dual sink shaft solution that would meet, and exceed, its clients' needs within legislated regulations.

Murray Macnab, Global Director of Mining and Mine Development for WorleyParsons said this about the Pre-Sink Gantry and a legacy of industry initiatives: "Eliminating hazards for employees is at the centre of our efforts as we re-engineer our processes and equipment for shaft sinking. The Pre-Sink Gantry system and method has addressed most of the lessons learnt on projects in the past."

## HOW IT WORKS

The Pre-Sink Gantry is essentially a movable gantry crane system that is able to carry and manoeuvre a movable suspended stage,



“Eliminating hazards for employees is at the centre of our efforts as we re-engineer our processes and equipment for shaft sinking. The Pre-Sink Gantry system and method has addressed most of the lessons learnt on projects in the past.”

Murray Macnab, Global Director of Mining and Mine Development for WorleyParsons

together with the mucking hoist which is able to roll over and away from the shaft during pre-sinking operations.

Sounds simple but in reality this is a highly technical engineering integration of separate functions that has enabled the team to significantly mitigate the risk of injury and improve productivity during pre-sink operations, especially in the case of dual shaft sinks, where set up time for the second shaft when using one suite of equipment is typically reduced from 6 weeks to 5 days.

“Murray & Roberts Cementation has developed a system that is like nothing the mining sector has seen before,” says Allan Widlake, Business Development Director for Murray & Roberts Cementation. “This type of innovation is not about the equipment, which already exists, but rather about how we put the equipment together and use institutional expertise and knowledge to develop a system that is rather special and unique.”

Because the Pre-Sink Gantry configuration is highly integrated and operated by a multi-skilled crew, half the number of employees are needed to execute a successful pre-sink, which of course means a decrease in exposure to potential risks.

The main gantry girders were designed to accommodate the loads from the main hoist (used for kibble hoisting and stage suspension) which allows for a pre-sink of 80 metres below collar elevation as well as the stage winders (used to raise and lower the pre-sink stage).

The height of the gantry structure was matched to the height of the stage to enable the stage to clear the collar once raised to the upper limit. Once the stage has been raised in this upper position, the long travel wheel drive motors are energised to move the Pre-Sink Gantry, complete with suspended stage, away from the shaft, drawing a blast cover over the excavation.

When in use the blast cover effectively prevents fly rock from leaving the shaft barrel when the blast is set off. No manual intervention is required to position the blast cover, removing a labour intensive activity in an open excavation. A feature of the system is that it involves the complete removal of the stage from the shaft barrel before each blast, which substantially reduces potential structural and equipment damage.

The electronic control and data capturing system is housed in the drivers' desk; the drivers' cabin is positioned strategically allowing for high visibility of all shaft operations without extensive use of CCTV. Full data logging is provided for machinery, rope loads, signalling and distance status, and is accessible in real time through secure access on the internet.

“Murray & Roberts Cementation is passionate about safety and productivity improvement. As such, we are constantly searching for new innovations, methods and engineering solutions that help us to achieve this.”

“We believe the Pre-Sink Gantry is an excellent example of our global expertise, experience and knowledge coming together to create a proposition that achieves both our safety and efficiency objectives. I am very proud of our team,” says Widlake. Because the system is able to be rapidly installed at projects, exposure to construction hazards is reduced significantly. The erection is simplified for safer crane lifts by hinging the gantry support legs, lifting up the main beam which has all the winders already installed. This is rather like a giraffe getting up after drinking at a waterhole.

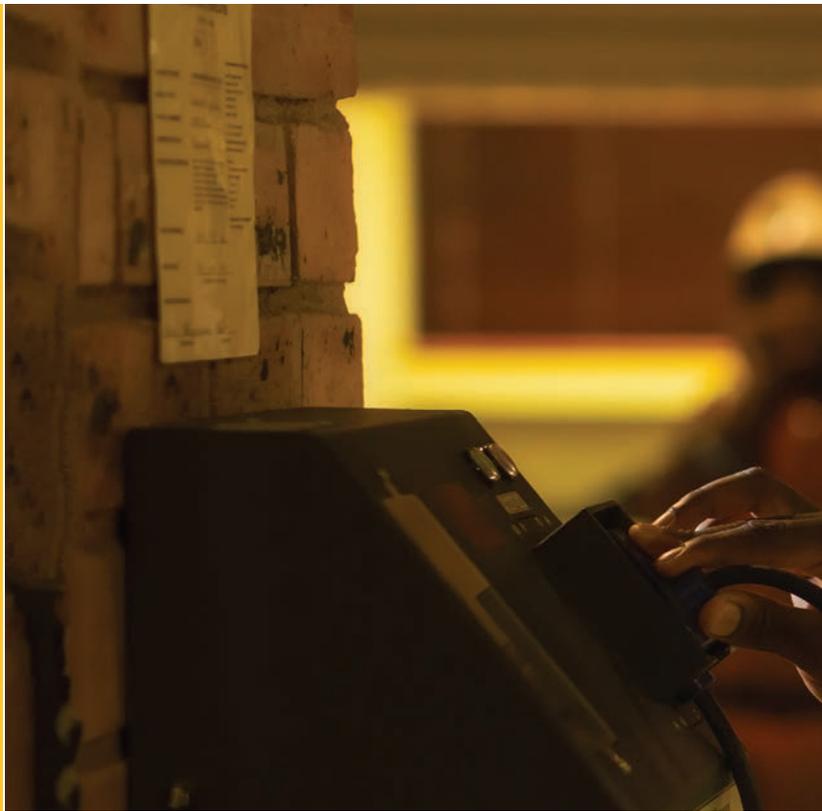
## TESTING AND TRAINING

The Pre-Sink Gantry was installed at Bentley Park, the company's world class training academy and facility near Carltonville, where it underwent rigorous testing and validation before being transferred to Venetia.

With the understanding that the unconventional nature of the new Pre-Sink methodology required a different mind-set, the team then set out to find the right people for the task.

“Through a thorough selection process, we hand-picked and developed the multi-faceted skills in people that match the ‘out of the box’ thinking applied in the design of the Pre-Sink Gantry system. Our team was put through a rigorous hands on and e-Learning training programme which I believe has culminated in us developing the most advanced pre-sink skills available,” says Tim Wakefield, Engineering Services Executive for Murray & Roberts Cementation. **R**

# BUSINESS PLATFORMS



## UNDERGROUND MINING

### MURRAY & ROBERTS SECURES MULTI-BILLION KALAGADI MANGANESE CONTRACT MINING PROJECT

Murray & Roberts Cementation was awarded a R4.8 billion, 5-year contract mining project for Kalagadi Manganese in June.

Henry Laas, Group Chief Executive, says “This award will further bolster the recent growth in our global Underground Mining platform order book. This growth is encouraging, considering that the global commodity cycle is still depressed.”

Murray & Roberts Cementation is the leading mining contracting company in Africa and has served the needs of the mining industry for more than a century – it offers a comprehensive range of capabilities and services covering the full spectrum of the mining value chain.

Daphne Mashile Nkosi, Executive Chairperson, Kalagadi Manganese comments, “We are excited to partner with Murray & Roberts to further develop our company and realise our production goals”.

Kalagadi Manganese has been exploring for manganese in the Kalahari Basin. The three farms on which the company holds new order mining rights are believed to hold some 960 million tonnes of manganese ore.

“The global Underground Mining platform provides specialist engineering, construction and operational services in the underground mining sector. Most key commodities are represented in the platform’s order book and current portfolio of projects. In the medium term an upturn is expected in the commodity cycle which will present significant growth potential to the global Underground Mining Platform,” concludes Laas. **R**

### INNOVATIVE SOLUTIONS TO A TECHNICALLY CHALLENGING PROJECT

Cementation Canada has begun work at the Sifto Canada salt mine in Goderich, Ontario. The project, refurbishment of liners inside two of the mine’s three shafts, counts as one of the most technically challenging projects in the company’s history.

The concrete liners have sprung leaks, partly because of deterioration due to age as well as ground movement from mining. Cementation Canada presented an innovative solution to the problem.

“Technically, this is a very different project,” says Roy Slack, President and Chief Executive Officer, Cementation Canada. “It’s not like designing a shaft or shaft liner from scratch, we have to adapt to what’s there.”

First, a concrete foundation ring will be built into the rock behind the existing concrete liner and will extend 230mm into the shaft, which when complete will reduce the width of the shafts from 5m to 4.5m.

After the foundation ring is complete, the new liner which is made of cylindrical steel liners, will be installed.

The steel liners are 38mm thick and each section is 3.1m high. Two sections of liner are welded together on the surface and then lowered into place with cranes.

Each two sections welded together weigh 42 tonnes and must then be welded to the section below it.

Each shaft, from foundation ring to the bottom of the shaft, covers a distance of 248m, as they cover the distance, crews will remove the old concrete and replace it with a new 457mm thick liner.

“The salt mine will continue to operate during rehabilitation, and with water continually flowing into the shafts due to existing damage, repairs really have to be watertight.” concludes Roy.

The rehabilitation project began in March and is expected to continue for four years. **R**



## EXCELLENCE AT MURRAY & ROBERTS CEMENTATION TRAINING ACADEMY

As testament to its philosophy of knowledge sharing in the industry, Murray & Roberts Cementation Training Academy has developed a National Certificate in Occupational Health, Safety and Environment, which has been accredited by the Mining Qualifications Authority. The Academy has also been endorsed by the British Safety Council to facilitate the delivery of the International Certificate in Occupational Health and Safety and also offers a number of additional safety related courses (pictured below) including Murray & Roberts Cementation SHE Risk Management, Level 1 First Aid Training, Basic Fire Fighting, Incident Investigation and Working at Heights.

The Academy recently exhibited at the A-OSH Expo, Africa's premier occupational health and safety exhibition. Tony Pretorius, Risk Manager at the Academy, explains "We felt that A-OSH Expo 2015 was the perfect forum to introduce the Academy's courses to a wider base of customers. The ability to interact with almost 2 500 risk and safety professionals was an extremely valuable one."

Pretorius says that learners need to be equipped with both theoretical and practical skills in order to appropriately and correctly



fulfil their job function in a safe manner. "Unfortunately this is not always the case in the learning environment, where one often finds an insistence on driving theory at the expense of practice. We have therefore customised our learning material in a manner which balances both critical elements in a blended approach."

The Academy's courses are recognised in the industry as being world-class as they successfully apply the experience and lessons gained by Murray & Roberts Cementation across a number of mining applications. "The ability to share our knowledge and expertise in a learning environment and to provide learners with access to our extensive infrastructure, are huge differentiators in the market," concludes Pretorius. **R**

## MURRAY & ROBERTS CEMENTATION APPOINTS NEW MANAGING DIRECTOR

Daniël Grobler succeeds Chris Sheppard as Managing Director of Murray & Roberts Cementation with effect from 1 June 2015.

Daniël has been with the Group for five years, where he has fulfilled various financial and commercial leadership roles. Daniël played a key leadership role in the R2 billion Murray & Roberts rights issue and during the R4 billion acquisition of the outstanding shares in Clough that Murray & Roberts did not already own.

For the past two years Daniël has served on the boards of Murray & Roberts Cementation, Cementation Canada and RUC Cementation as the Underground Mining Platform Chief Financial Officer.

Daniël is a Chartered Accountant with experience in the mining, construction and telecommunications sectors having worked in South Africa, the United Kingdom and the Netherlands. **R**





# OIL & GAS

## CH-IV DEMONSTRATES CAPABILITY AND EXPERIENCE IN THE GLOBAL OIL & GAS MARKET

Clough's U.S. subsidiary CH-IV has been awarded a contract for the engineering and design to be included in Freeport LNG's application to the Federal Energy Regulatory Commission (FERC), which seeks authorisation to add a fourth LNG train to the Freeport LNG facility.

The first three trains are currently under construction in Texas, USA. The fourth train will add production capacity of an additional five million tonnes of LNG per annum, increasing the total export capacity of the Freeport facility to twenty million tonnes of LNG per year.

Freeport LNG submitted a pre-filing request with FERC in May 2015, to begin the environmental review of Train 4, and expects to file the formal application with FERC in November 2015.

The regulatory process can be the most exacting, time-consuming critical-path element of any project development and to keep this process under control, Freeport LNG will rely on CH-IV's LNG expertise and experience in the area of engineering and FERC filing support.

"CH-IV assisted Magnolia LNG through FERC and permitting approvals and we are delighted to see this successful relationship continue through the owners engineer award," says Jeffrey Beale, President of CH-IV.

"CH-IV is also very proud of the long-standing relationship we have had with the Freeport LNG team as they have moved from world-class LNG import operation to soon to become world-class LNG export facility. We are honoured to be supporting Freeport's further expansion with the fourth train."

CH-IV has also been selected to fulfil the role of owner's engineer for the engineering, procurement and construction phase of the Magnolia LNG Project in Lake Charles, Louisiana, USA.

The contract will see CH-IV, supported by Clough, provide technical and project execution support personnel to Magnolia, overseeing

engineering, procurement and construction contractor KSJV, as the project moves through detailed design, construction, commissioning and start-up.

Magnolia LNG, a wholly-owned subsidiary of Liquefied Natural Gas Limited, is developing the 8 million tonne per annum mid-scale LNG facility using its highly efficient and patented Optimised Single Mixed Refrigerant LNG process technology.

"This project will realise the synergies of the Clough and CH-IV relationship with CH-IV providing high value consultancy and engineering expertise, supported by Clough's global oil and gas engineering capability," says Jeffrey.

Clough's Executive Vice President of Global Products and Services, Thomas Dockray said this was a key milestone for the Group.

"This award recognises CH-IV's capabilities and experience in the global oil and gas market. CH-IV has specialist LNG knowledge supported by a results-driven culture focused on delivering success for their clients," concludes Thomas.

## WHO IS CH-IV?

CH-IV International was established in 1991 and has offices in Hanover, Maryland and Houston, Texas. CH-IV provides consulting services to LNG asset developers, regulators, facility owners, operators and lenders to ensure assets are designed, developed, constructed and operated safely and in accordance with codes, regulations, and the project's technical and commercial specifications.

CH-IV specialises in the provision of LNG engineering and consulting services to the global LNG sector including North America, Asia, Africa, Europe, the Pacific Rim, and South America.

The company provides the full spectrum of LNG consulting and design services from feasibility through to operation. Specialised LNG products and services include import and export terminals, small scale and peakshaving facilities, regulatory support and production engineering and consulting.

In 2014 CH-IV was acquired by Clough. CH-IV continues to act independently and is now able to leverage complementary skills and synergies across the entire LNG spectrum to provide a significantly strengthened LNG service to clients. **R**



# POWER & WATER

## MURRAY & ROBERTS POWER & ENERGY

Key learnings and lessons extracted from working on some of the world's largest and most complex coal-fired power stations, combined with an expanding skills base and finely tuned knowledge and systems has positioned Murray & Roberts Power & Energy to take advantage of future growth in the power market.

If one takes into account the fact that more than 600 million people, or roughly 70% of the population of sub-Saharan Africa do not have access to electricity, one can appreciate the scale of the opportunity.

While growth is its target, Murray & Roberts Power & Energy has worked hard over the period to further embed world-class skills, training and safety throughout projects.

"We have a leading global player in our new Power Programme Director, Michiel Korthals Altes, who is responsible for both Kusile and Medupi. Korthals Altes brings a wealth of experience and knowledge to the team," says Steve Harrison, Managing Director of Power & Energy.

"Our employee relations model, the SPQCP programme has been successfully entrenched at Kusile and we are seeing excellent results. Unpacking the programme with all employees, and allowing them to understand and meet its goals and targets has not only produced a more collaborative and inclusive approach to overall employee relations but also to safety. Kusile has achieved a significant 7 million man hours without an LTI, a true reflection of the whole team's commitment," says Harrison. The programme is currently being rolled out at Medupi.

One of the big highlights for the Power team was the synchronisation of Medupi Unit 6 in March this year. Unit 6 contributes 800 MW into the South African national grid. Hydro testing took place on Kusile's Unit 1 reheater on 17<sup>th</sup> May, the superheater on 14<sup>th</sup> June and Medupi Unit 5 reheater on 14<sup>th</sup> June. The hydro test is a major milestone in the construction of the boilers and involves raising the pressure of the water inside the boiler to a staggering 445 bar to check integrity of all welds.

In terms of future prospects, the Power & Energy team is currently working in South Africa, Mozambique, Botswana and Ghana and has significantly raised its profile as a top EPC provider and is working on securing EPC and construction work in the IPP and energy space.

The Platform sees the REIPP Programme (specifically Concentrated Solar Power) and Base Load Coal as the key drivers for growth, followed by Co-Gen and Gas2Power. The area of operations, repair and maintenance in the Power sector is also a growth opportunity primarily through the JV with Worley Parsons – MWES. **R**

## MURRAY & ROBERTS WATER

Murray & Roberts Water has consolidated its offering to focus on three core areas for growth: industrial waste water treatment, desalination and acid mine drainage.

A significant advantage for Murray & Roberts Water was its acquisition of water technology company Aquamarine. This partnership allows the consolidated team to operate in a unique market that supplies modular water plants that are scalable and adaptable to suit from small to large scale industrial plants, and everything in between.

"Historically, Aquamarine has turned down opportunities to participate in larger projects, as the owners did not want to take on such big risk – this is where Murray & Roberts Water can add additional value and capacity," says Harry Singleton, Operations Executive for Murray & Roberts Water.

The integrated working relationship combined with Aquamarine's networks in Africa has led to the award of a contract to supply trailer mounted water treatment plants to Lake Victoria North Water Services Board in Kenya as well as projects in Mozambique, Ghana, Namibia and Zambia.

The team, which also includes a collaboration with Hyflux of Singapore for its desalination and waste water management, has its sights on expanding business throughout the continent. **R**



# INFRASTRUCTURE & BUILDING

## ROADS, RENEWABLES AND BRIDGES – MURRAY & ROBERTS INFRASTRUCTURE DOES IT ALL

Murray & Roberts Infrastructure has recently been awarded a number of projects in roads and renewable infrastructure and recently started work on the “Great Walk Bridge” at Grayston interchange.

Says Eric Wisse, Managing Director of Murray & Roberts Infrastructure, “The success in securing additional contracts is in part attributable to our commitment to Engineered Excellence, not only in the work we deliver, but in managing relationships with our clients and stakeholders.”

Recent awards for the roadworks teams include a 28 month contract to rehabilitate a section of the R61 in the Eastern Cape region between Bizana and Port Edward as well as upgrading a portion of the R72 between Port Alfred and the Fish River for SANRAL, including widening of the Rietrivier Bridge.

Following on the successful completion of two back-to-back contracts on the N1 outside Hammanskraal for Bakwena Platinum Corridor Concessionaire, Murray & Roberts Infrastructure has secured rehabilitation work for the Northern Toll Roads Venture on the same national roadway between Bela Bela and Polokwane, in joint venture with Grinaker-LTA.

Murray & Roberts Infrastructure is working on a number of wind farm contracts for Mainstream. The first bases for Noupoort’s 35 wind turbine generator wind farm have been poured and when complete will be able to power 70 000 average homes with clean energy. Site establishment has also begun for the Loeriesfontein and Khobab wind farm contract. Each of these wind farms will have 61 wind turbine generator foundations.

Murray & Roberts Infrastructure has been awarded the design and construction of the civil balance of plant for the De Aar 1 Maanhaarberg Wind Farm for Longyan Engineering South Africa. When complete, this wind farm will contribute 100 MW into the national grid using 66 wind turbines.

Utilising specialist technical sliding expertise, Murray & Roberts Infrastructure has been contracted by Murray & Roberts Cementation to perform underground sliding work on the Cullinan Mine project. The contract includes the construction of two 40 metre high underground silos and one underground water tank.

Construction has started on the “Great Walk Bridge” which forms part of a 5km pedestrian and cycling path from the heart of Alexandra to the centre of Sandton CBD, providing a quicker and safer route for the estimated 10 000 people who walk or cycle between the two areas each day. The bridge will cross the M1 highway alongside the existing Grayston interchange and is due for completion in October 2016.





The success in securing additional contracts is in part attributable to our commitment to Engineered Excellence, not only in the work we deliver, but in managing relationships with our clients and stakeholders.

Eric Wisse, Managing Director, Murray & Roberts Infrastructure



**EXCELLENCE IN PROJECT MANAGEMENT, ANOTHER SUCCESSFUL DEVELOPMENT BY MURRAY & ROBERTS WESTERN CAPE**

Murray & Roberts Western Cape is on track to completing work on the Century City Square development in Cape Town.

This complex and challenging project was secured after the successful completion of the adjacent Bridge Park office development, for the same client. Says Dave Heron, Managing Director, Murray & Roberts Western Cape, “Our experience in executing the latest construction and environmental best practices, as well as good working relationships with the client and professional teams, were instrumental in us securing this project”.

The Century City Square development comprises an office tower, boutique hotel, mixed-use office and apartment buildings, conference centre including a 20 000m<sup>2</sup> parking garage and a 19 500m<sup>2</sup> super-basement. A road system surrounds the development and the scope of work includes road construction, realignment and extension.

The entire development has been registered with the Green Building Council of South Africa for a Green Star rating.

Effective project management implementation is proving critical to the contract’s success. The development is divided into sections, each section has its own professional team and each section has different completion dates. This requires seamless integration and coordination amongst the approximately 60 sub-contractors on site.

“Tying these disparate elements together is a feat of logistics on this mammoth project, and testament to our commitment to Engineered Excellence,” concludes Dave.

Once complete the Century City Square development will have used 34 760 m<sup>3</sup> concrete in slabs, 80 716 m<sup>2</sup> of formwork to slabs, 4 017 000 bricks and 377 000 face bricks.

The project is due for completion in January 2016. **R**



# NEWS

## GROUP SAFETY ACHIEVEMENTS

Stop.Think.Act.24/7 is the Group's safety philosophy and guides our intentions every day. On our journey to Zero Harm, the Group recorded several lost time injury (LTI) free milestones.

- Murray & Roberts Botswana – two years LTI free
- Murray & Roberts Plant – two years LTI free
- RUC Cementation Mining – two years LTI free
- Genrec Engineering – one year LTI free

Safety achievements were also recorded on many of our projects.

- Concor Opencast Mining, Vlakfontein, Mpumalanga – four years LTI free
- Murray & Roberts Contractors Middle East, Al Mafraq Hospital, Abu Dhabi – two years LTI free
- Clough, Ichthyus LNG, Western Australia – one and a half years LTI free
- Murray & Roberts Power & Energy, Kusile Power Station, Mpumalanga – seven million hours LTI free. **R**

## JACK CHEETHAM AND LETSEMA AWARDS – ENABLING DREAMS

Themba Sibiya and Maria Matlala were both born with intellectual disabilities and into poverty. They joined the Shumbashaba therapeutic riding programme, based in Diepsloot and a previous winner of the Letsema Award, which provided Themba and Maria with not only horsemanship skills but also self-confidence and a positive self-image.

Not in anybody's imagination did the opportunity to fly half way around the world and participate in an international sporting event feature.

And yet that is exactly what they did. The opportunity to progress from riding as therapy to riding as sport was presented when Shumbashaba and Special Olympics South Africa hosted several Unified Sports Days.

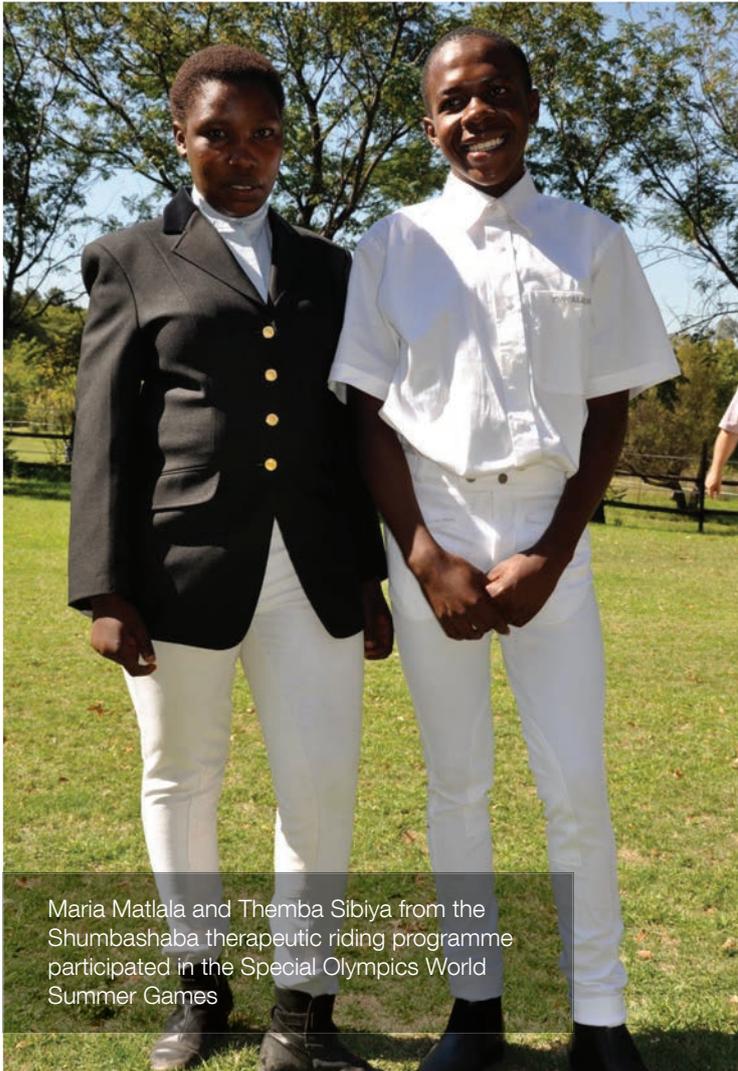
As a result of their participation, Themba and Maria were selected to join the team travelling to Los Angeles, USA to participate in the Special Olympics World Summer Games. They joined 7 000 Special Olympic athletes from 170 countries who competed in 21 Olympic-style sports.

The Chaeli Campaign, winners of the 2011 Letsema Award, participated in the Wheelchair Dancing World Cup in the Netherlands during April 2015.

Mukhtar and Chantelle competed in the Combi Class 2 division and Damian and Chaeli competed in the Combi Class 1 division, divisions are determined by the wheelchair dancer's physical ability. 20 countries competed, with over 200 wheelchair couples competing across the various divisions.

Both couples won both the Ballroom and Latin American divisions, emerging as double World Champions. They are now invited to compete in the elite World Class division, against elite athletes from across the world.

For more information on the inspiring work our Jack Cheetham and Letsema Award beneficiaries perform, visit [www.jclawards.co.za](http://www.jclawards.co.za). **R**



Maria Matlala and Themba Sibiya from the Shumbashaba therapeutic riding programme participated in the Special Olympics World Summer Games



Mukhtar and Chantelle, Damian and Chaeli competed in the Wheelchair Dancing World Cup in the Netherlands



JD Roberts Emerging Researchers Award finalists: Vhangwele Masindi, Dr Jacomine Grobler and Julius Komba

## TRANSPORT AND FREIGHT LOGISTICS RESEARCHER WINS THE 2015 JD ROBERTS AWARD

The 2015 JD Roberts Award for Emerging Researchers was presented to Dr Jacomine Grobler at a ceremony hosted by Murray & Roberts in Bedfordview.

The runner-up finalists were Julius Komba and Vhangwele Masindi.

Dr Grobler leads the Transport and Freight Logistics Research Group at the Council for Scientific and Industrial Research (CSIR) and was nominated for her contribution to the development of mathematical models and optimisation algorithms for solving industrial engineering problems.

Dr Grobler's accomplishments include the development of a multi-objective algorithm for a complex real-world production scheduling problem. The algorithms she developed were shown to outperform existing state-of-the-art algorithms by up to 76%, resulting in a significant decrease in manufacturing and algorithm development costs.

Julius Komba's research focuses on road design, advanced evaluation of road construction materials and monitoring the long-term performance of roads.

Vhangwele Masindi has developed acid mine drainage treatment technology with a patent filed in the United States, Canada and Argentina.

"The research presented was world-class and demonstrates the depth of research talent we have in South Africa," says Andrew Skudder, Sustainability Director at Murray & Roberts and member of the adjudication panel.

The annual JD Roberts Award, a partnership between Murray & Roberts and the CSIR, recognises the significant contribution made by researchers to improving global competitiveness of South African industry.

Instituted by Murray & Roberts in 1980 in remembrance of one of the group's founding fathers, Dr JD 'Douglas' Roberts, the award recognises and encourages scientific research into technology that promotes environmentally-sustainable solutions to human living environment challenges.

The finalists' research presentations are adjudicated based on the relevance and potential improvement to people's quality of life; the innovation, uniqueness and distinction of the work; the potential uptake and practicality of the research in the relevant sector and the potential impact of the research. **R**

## ENGINEERED EXCELLENCE IN ACTION

Murray & Roberts was voted, by members of the Investment Analysts Society of South Africa, as a **leader in corporate reporting** in the Johannesburg Stock Exchange's Basic Industry sector for the 2014 financial year. This is the second time Murray & Roberts has been voted as winner for its sector.

Now in its sixth year, the **South Africa Graduate Employers Association Graduate Recruitment Awards** celebrate the achievements of South Africa's leading graduate employers. The online survey had 2 169 respondents who were asked to name the one organisation whom they felt had the best graduate programme in specific industry groups. Murray & Roberts were proud recipients of the 2015 Best Print Campaign Gold Award for companies recruiting up to 15 graduates.

Mbali Mbuli, Commercial Manager at Murray & Roberts Construction was recognised at the fourth annual **Standard Bank Rising Star Award** for her contribution to the Construction and Engineering industry. The awards were established to recognise and reward young professional individuals. This year's programme saw a record number of four hundred entries, which were narrowed down to five potential winners in each of the 12 industry categories, though a rigorous three-phase judging process, involving over 40 judges from business and government. **R**

## CEO SLEEPOUT – IAN HENSTOCK, MURRAY & ROBERTS COMMERCIAL DIRECTOR, SHARES HIS EXPERIENCE



Ian Henstock (centre)

The CEO SleepOut is a global movement in which business leaders sleep under the stars on one of the coldest nights of the year to raise awareness and funds for the cause of homelessness. Millions of dollars have been raised worldwide, and this year the movement launched for the first time in South Africa. The 702 Sun International CEO SleepOut challenges business leaders to look beyond profits to use their influence to raise funds for South Africa's most vulnerable children, to give them opportunity, purpose and a place to call home.

The South African initiative raised almost R24 million. Ian Henstock, Murray & Roberts Commercial Director, represented the company and shared his experience of a night sleeping on the street.

"The night was one of extremes. Extreme warmth, friendliness and association with the reason for spending the night on the street, coupled with an extremely cold early morning at around 3.30am, when I woke up and did not know what to do with myself to escape the cold.

A video was shown just before midnight, showing how homeless people struggle to keep themselves warm, dry and fed during the cold winter months. Life is extreme for members of society who have nothing, there is little hope and no easy escape. Hard work at recycling waste and self-improvement programmes offered by corporates and agencies have had a positive impact, and those who are able to dig themselves out of their predicament are always deeply grateful for the opportunity they've received, but the numbers benefited remain small by comparison.

So for me, it was one night out. I could not escape the cold, lying on a cardboard layer on the hard street was fine, but the cold was real, present and inescapable. My heart goes out to those who face 90 freezing days in a year, and countless wet days. There is no escape, and like tidal waves, they come, one after the other, without end." **R**

# COMPETITION

## WIN a MacBook Pro 13-inch: 2.5GHz



MacBook Pro is loaded with powerful features that make a great notebook even greater. MacBook Pro features Intel's third-generation Core architecture. A high performance graphic processor delivers incredible performance levels and high-speed Thunderbolt I/O lets you transfer data at rates up to 10 GBps.



### FEATURES

- Processor: 2.5GHz dual-core Intel Core i5
- Memory: 4GB 1600MHz memory
- Storage: 500GB 5400-rpm hard drive
- Graphics: Intel HD Graphics 4000
- Battery & Power: Built-in battery (7 hours)

# VALUED at over R15 000

**The very latest graphics.** The new integrated Intel HD Graphics 4000 processor boosts performance by up to 60 percent. That extra power gives you a smoother, more fluid experience than before. It's still highly efficient, too, so you get long battery life when you're out and about.

**A long-lasting battery. Charge less. Do more.** MacBook Pro delivers amazing battery life. And that's with more powerful processors and faster graphics than ever. An energy-efficient processor architecture with an integrated video encoder.

**FaceTime HD camera. Say "hi" in high def.** Get more of your friends in on the fun with crisp, widescreen HD video. The picture is so clear, it will look and feel almost like you're in the same room.

**It's very well connected.** MacBook Pro automatically finds available networks and allows you to join them with a click.

**The fastest, most versatile I/O in a notebook.**

Every new Mac comes with professional advice, award-winning service and support, and a world of online resources.

A Mac includes 90 days of free telephone technical support and a one-year limited warranty.

Ms AC Strydom, winner of the March 2015 Murray & Roberts Robust Magazine competition



TO STAND A CHANCE TO WIN, COMPLETE THE ENTRY FORM BELOW AND ANSWER THE EASY QUESTION. POST OR EMAIL YOUR ENTRY FORM TO REACH US BEFORE 01 NOVEMBER 2015 TO:

Murray & Roberts  
 Competition – September 2015  
 P.O. Box 652464, Benmore, 2010  
 Sandton, Gauteng, South Africa  
 Email: competitions@overend.co.za

**RULES:**

1. The prize will be awarded to the first correct entry drawn.
2. The judges decision is final and no correspondence will be entered into.
3. The prize is not transferable and cannot be exchanged for cash.

Remember to include:  
 "Murray & Roberts Competition – September 2015" in the subject line.

**ENTRY FORM: ROBUST SEPTEMBER 2015 COMPETITION**

Name: \_\_\_\_\_

Phone number: \_\_\_\_\_

Address: \_\_\_\_\_

Question: What concept underpins the New Strategic Future? \_\_\_\_\_

\* Strictly one entry per person

**Terms and conditions apply.**



## ENGINEERED EXCELLENCE

**Murray & Roberts** is a leading engineering and construction services company. It has predominantly delivered infrastructure projects throughout South and Southern Africa for more than 110 years, and is today recognised as an international engineering and construction group. **Murray & Roberts** is a group of world-class companies and brands aligned to the same purpose and vision, and guided by the same set of values.

The Group offers engineering, procurement, construction, commissioning, operations and maintenance services in the oil & gas, underground mining, power and water as well as the civil infrastructure and building markets.

Murray & Roberts is headquartered in Johannesburg, South Africa, and is listed on the JSE Limited. It has offices in South Africa, Namibia, Botswana, Mozambique, Zambia and Ghana, the United Emirates, Australia and South Korea, Scotland, Canada, the USA and Chile.

### Values

Integrity - Respect - Care - Accountability - Commitment

### Purpose

Delivery of infrastructure in a sustainable way to facilitate economic and social development

### Vision

By 2020 we aim to be a leading diversified project engineering, procurement and construction group in selected natural resources sectors and supporting infrastructure

More information is available at [www.murrob.com](http://www.murrob.com)