

# ROBUST



## SUSTAINABILITY

ROAD ENGINEERING  
EXPERT SCOOPS  
JD ROBERTS AWARD

## CEMENTATION

EXPLORES  
NEW HORIZONS  
IN ASIAN MARKETS

## WE CARE

LETSEMA BOKAMOSO  
BEE TRUST REACHES  
MATURITY

## MAJOR PROJECTS

Gautrain airport link opens for World Cup

## BUILDING SOUTH AFRICA

Delivering world class infrastructure

# Mega projects

Contractor of choice





**MEGA PROJECTS**  
CONTRACTOR OF CHOICE  
PAGE 1



**MESSAGE FROM THE CE**

**DEAR READERS**

At a function to celebrate two of our recently retired executive directors, Millard Arnold and Terry Rensen, they both expressed how meaningful it is for them to be able to have on their resumés – “Retired in Murray & Roberts”.

There are two issues that are raised by this sentiment.

Firstly, by thinking of their resumés, neither Millard nor Terry accept retirement as signalling an end to their working lives. While Millard has extended his career for now as legal counsel to my office, Terry has planned a different future that gives him more time and flexibility to do the many things he and his wife Sue have planned together.

Secondly, by placing such value on the concept of “Retired in Murray & Roberts” both Millard and Terry have established a right to ongoing membership of an exclusive group of people who accept Murray & Roberts as an important community in its own right.

Murray & Roberts is itself an important member of a number of other communities, such as South African society, the engineering & construction sector, global mining, and many more. So when we do big things our presence is felt, but when we get hurt, others hurt as well.

In closing out the 2010 financial year, we have revealed a few defensive bruises inflicted by a sequence of external and internal body blows over the past 18 months. But we are not down and out and we have resolutely advanced forward and upward on a number of fronts.

This is Murray & Roberts. We are strong and resilient. We are not cowed by the challenges of major projects or the blows inflicted on us in the process. We learn and we grow. We fight for our rights as did those who have shaped our country and our company over more than 100 years, into what we are today.

We are Murray & Roberts – all of us. So thank you Millard and Terry for your contribution over this past decade and for reminding us as well, of the important role played by our spouses in particular and families in general, in our lives and careers.

**Brian Bruce**

**1. COVER STORY**

Mega projects contractor of choice  
– Murray & Roberts delivers world class infrastructure to South Africa

**4. BUILDING SA**

The spotlight on 2010 Projects  
– Gautrain, Cape Town Stadium  
– Gauteng Freeway Improvement Project

**8. NEWS**

Exploring new horizons  
– Middle East project update  
– A major lift at Medupi  
– Concor excels

**12. OPERATIONS**

– Clough takes on the largest resource project in Australia's history

**13. HISTORIC PROJECTS**

– Bloukrans Bridge

**14. SUSTAINABILITY**

– JD Roberts Award  
– Letsema Bokamosa BEE trust matures  
– Q&A: Thokozani Mdluli

**16. WEEKENDER**

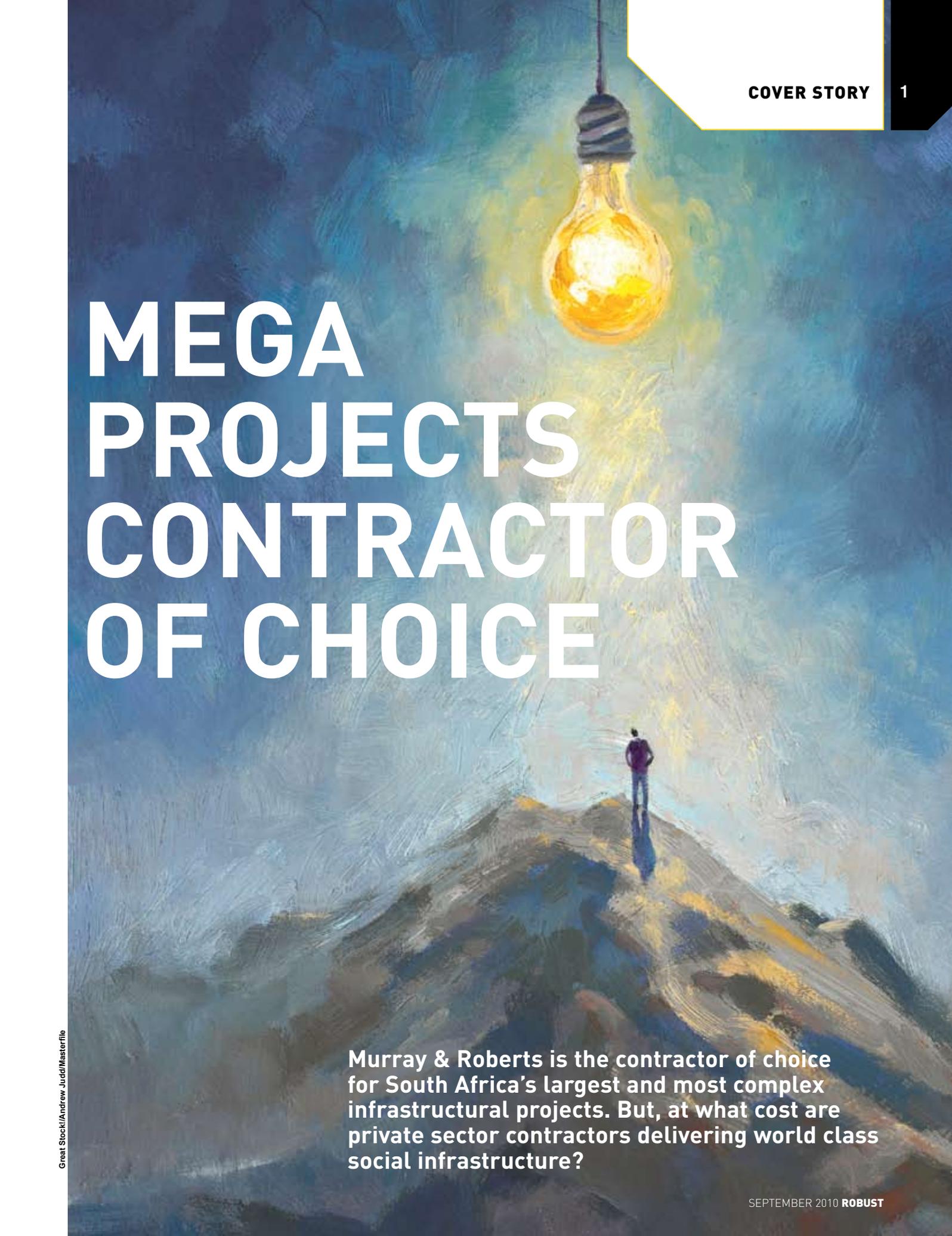
– Win a three-night stay for two at Majeka House in the Cape Winelands

**Editor: Lesley Lambert**  
E-mail: [lesley@wisenet.co.za](mailto:lesley@wisenet.co.za),  
Tel: + 27 11 325-5388

**Robust** magazine is published on behalf of Murray & Roberts by Profit Partnership Corporation (Pty) Ltd. Tel: +27 11 532-4000, Fax: +27 11 646-6040.



Reproduction of **Robust** in whole or in part without express written permission from Murray & Roberts or the publishers is prohibited. Great care has been taken in the preparation of the articles. The editor and publishers cannot accept responsibility for any errors which may inadvertently have occurred. The opinions expressed in this journal are those of the authors and/or persons interviewed, and do not necessarily reflect the views of the editor, publishers or Murray & Roberts.

A painting of a person standing on a mountain peak looking up at a glowing lightbulb hanging from the sky. The background is a textured, blue and green wash, suggesting a vast, open landscape. The lightbulb is the central focus, casting a warm glow. The person is small in the distance, emphasizing the scale of the scene.

# MEGA PROJECTS CONTRACTOR OF CHOICE

**Murray & Roberts is the contractor of choice for South Africa's largest and most complex infrastructural projects. But, at what cost are private sector contractors delivering world class social infrastructure?**

**“It is this ability to overcome obstacles that allows us to compare ourselves to any other organisation on this planet.”**

**N**o-one can deny that the 2010 FIFA Soccer World Cup was a spectacular coup for South Africa. But, now that the final whistle has blown, for many the harsh glare of reality has replaced the thrill of hosting one of the largest international sporting events.

Certainly the eyes of the world were on South Africa from 11 June to 11 July and investment bankers say visiting businessmen were doing more than just watching soccer and admiring our new stadiums. There is an anticipation of much business to follow the World Cup, but that is still far into the future. For now, and for companies like Murray & Roberts that have become used to punching above their weight on the global stage, it is also a sobering time as management assesses the consequence of taking on mega projects with demanding deadlines.

The first phase of the Gautrain project incorporating the link between the OR Tambo International Airport and Sandton Station, was completed ahead of schedule following an effort that Murray & Roberts CE Brian Bruce describes as Herculean. But, at what cost to Murray & Roberts was this achieved?

Ironically, because of a compromise agreement entered into to accelerate the completion of Phase 1, payment for this achievement will be delayed.

The continued involvement of Murray & Roberts in the mega project market requires ongoing debate, because there is no doubt it is a demanding arena. In most cases, mega project experience is hard won and carried on the shoulders of too few people.

Brian poses this question: Should Murray & Roberts be a major project business or does it now retire gracefully into the status quo and become a second-tier local contractor? Or put another way: Is Murray & Roberts committed to playing in this space or would its people prefer more comfortable

jobs that pose less challenge and limited risk? This question, he says, goes to the very heart of what Murray & Roberts stands for.

“What is it that we have done that is different to other construction companies that have made perfectly sound contracting businesses in a relatively protected environment here in South Africa?” He answers saying: “We consciously decided to join the major league, to bid for the big global projects – and we won some.”

The first victory on this path was winning the Gautrain tender, and as it so often happens in life, being the first posed significant challenges. The selection of partners was made in 2001, before the Group’s Opportunity Management System and at a relatively low level in the organisation, for what was then estimated as a R4 billion project. Important lessons have been learnt and Murray & Roberts is today better skilled at selecting its partners for bidding on mega projects.

Murray & Roberts approached the international stage with significant experience of mega projects, but it still had to learn fast and in the process build the scale and capacity that makes its position in the South African market almost unassailable.

“We’ve grown as a result of this experience, but does the promise of future rewards make it worthwhile?” asks Brian. The decisions Murray & Roberts makes are deeply influenced by the fact that challenge and ambition are ingrained in its DNA. Even before relaunching itself onto the global stage, the Group was involved in many of the domestic mega projects that defined much of this country’s infrastructural development. From the Carlton Centre half a century ago, to the Mossgas refinery and the Hillside and Mozal aluminium smelters. These were ultimately successful developments, but extremely taxing ones. The Carlton Centre almost led to the demise of Roberts Construction over

funding issues, partly caused when the company was let down by its American partner. Mossgas came in significantly above the budgeted cost.

The complexity of mega projects is what makes them so stressful, and ultimately why so few end up satisfying all stakeholders. But this is also the reason why experience is essential, bringing an expectation that things can and will go wrong, but having the capacity to resolve them.

“If one or two critical subcontractors lack capacity to meet deadlines and the project begins to fall behind schedule, this often cannot be caught up. It’s like trying to fly an aeroplane while you are still building it,” says Brian.

What this means is that once you have the experience and capacity, whether you want to be in the mega project space or not, by default the market will come knocking as it cannot risk inexperience.

Another cause of stress in the mega project model is the time-value placed on capital by financiers. This forces work to commence even though everything may not be correctly in place.

Nothing demonstrates this better than the South African power program where significant design changes and technological modifications as well as delayed services delivery have largely negated the original benefits of repetition and planned economies of scale.

The same applies to projects such as Gautrain, where the providers of finance have prioritised completion to schedule while government has failed to deliver the land for development on program.

These issues are particularly crucial in a public private partnership (PPP), a financing model which appears likely to become more commonplace in the coming years as an answer to the infrastructure demands of the country and indeed the entire African continent.

The challenge in PPPs is the complex nature of the contracted relationship between a regulatory-constrained

public sector and financially motivated private sector. This in turn creates differing expectations, and unnecessary pressures.

“With the hindsight of some tough projects under our belts, we are forced to question our limitations,” says Brian. “Is there a project that is too big for us – not necessarily in terms of capacity, but the hassle factor? While Gautrain has been a considerable success in being launched ahead of the 2010 FIFA Soccer World Cup, it took a mammoth effort on the part of Murray & Roberts and its partners to achieve this result. Without the passion and drive of Murray & Roberts alone it may not have happened.

“It is this ability to overcome obstacles with well thought through solutions that allows us to compare ourselves to any other organisation on this planet. Gautrain is a considerable accolade to our resourcefulness, but if this is to be the standard operating basis for all mega projects, we have a near insurmountable challenge.”

Such successes – even at the price Murray & Roberts is confronting, enhances the company’s reputation for achieving the near impossible.

Brian believes a major projects strategy is worth it, particularly if each employee takes on more of the burden, thereby reducing stress levels. “It is the contractor who does not meet deadlines that will suffer in the long run. If you do not complete project milestones on time, you don’t get paid and that impairs your future,” he says.

“In the end this comes down to self-belief. It is only through that sense of self-belief by some that we hosted a successful Soccer World Cup, with roads repaired on time and visible policing dealing with the criminal element. Self-belief has to come from everybody, because it is only by having agreement on what we are as a nation or what we are as a company that real success is born.

In asking the question: Is the will of the entire Murray & Roberts organisation behind us to remain a major project player, or is it to be driven only by a handful of people? Brian believes each employee will have to individually make this decision for his or her self. The preparation for mega projects is on a vastly different scale, which he likens to the training differential between a pilot and an astronaut.

“Mega projects introduce a completely different dynamic. Everybody is in the game of doing traditional contract work, but only a select few have the capacity and expertise to do major projects. To do the latter, you have got to get fit. It cannot be done on an occasional basis. We will probably never have a critical mass of trained astronauts,” he says.

“But if we decide that we want to continue to ‘punch above our weight’ as Murray & Roberts, or retain our new FIFA ranking as South Africa, we need to look at what more we need to do to stay there.

“We have learned a great deal from the mega projects we have undertaken over the years, but everyone must have the opportunity to learn, not just a few executives. Furthermore, what we have learned is country specific and isn’t replicable on an international basis. For instance, despite our experience in Gautrain, it is unlikely that we could go to another country and be successful in bidding for a fast-rail system there.

“Our ability to do mega projects is dependent on South Africa doing mega projects. We are perhaps fortunate in that we recognised early the advantage of being essentially South African and have always identified ourselves as such.

“South Africa is currently in a period of initiating a number of mega projects, and because of our experience in this sector we should be the first contractor that comes to mind in public sector circles,” says Brian. 

# Building SA

**Murray & Roberts has a leading role in a range of projects to upgrade South Africa's road, rail and power networks. Robust explores the Group's significant contribution to the development of world class social infrastructure.**

## Gautrain

"On 8 June 2010, Phase 1 of the Gautrain System was opened for commercial service. This was truly a world class achievement and took place 19 days ahead of the initial contractual completion date of 27 June 2010," according to the Gautrain web site.

"The first phase operations include the airport train service between Sandton Station and OR Tambo International Airport, a commuter service between Sandton and Rhodesfield – with an intermediate stop at Marlboro Station – as well as dedicated feeder and distribution bus services to and from the Sandton and Rhodesfield Stations. The Operations Control Centre, together with the Train and Bus Depot facilities located just south of Allandale Road in the Midrand area, were also completed as part of the first phase scope of works."

This sparse announcement scarcely does justice to the monumental effort that went into commencing operations ahead of

the 2010 Soccer World Cup to accommodate the tens of thousands of foreign visitors who used this facility as their first introduction to South Africa.



■ Jerome Govender  
Project CEO





Commenting on the achievement, Murray & Roberts CE Brian Bruce said: "Gautrain was never contractually bound to the World Cup, and the complexity of the contract negotiations pushed the end date of the contract beyond the tournament. However, it became informally associated with the World Cup and a decision was taken to accommodate two deliverable dates – one for the OR Tambo-Sandton route and one for the rest of the network."

In the end it took a 'Herculean' effort to achieve the opening ahead of the World Cup.

Murray & Roberts and its partners pulled out all the stops to achieve the success sought by a government eager to host a memorable tournament and to encourage more public private partnership (PPP). The first major milestone of the country's biggest ever PPP simply had to be an outstanding success.

And it was. "It seemed an impossible task but we achieved it by the thinnest of margins, the last contractor left the site of Sandton Station at 4am on 8 June and the first train left the station – on time – 90 minutes later," says Brian.

Since then, Gautrain has exceeded expectations, running well over budgeted passenger volumes, and impressing all with its efficiency and world class quality.



■ Andy Fanton  
Project manager

# Cape Town Stadium

Construction of the 68 000 seat Cape Town Stadium commenced in March 2007 and in just 33 months was completed, on deadline, by Murray & Roberts and its partner.

The stadium was handed over to the City of Cape Town on 21 December 2009 and it successfully hosted nine World Cup matches, including a semi-final.

The Cape Town Stadium is located on Green Point Common close to the V&A Waterfront and Cape Town city centre. The stadium is 55 metres high with a fabric façade and a steel cable tensioned glazed roof. Approximately 10 500 people were involved in its construction and it will have a positive impact on communities and economic growth in the Western Cape Province for years to come.





# Upgrading major freeways



The Gauteng Freeway Improvement Project (GFIP) has been implemented to upgrade and expand the freeway network to significantly reduce traffic congestion and unblock access to economic opportunities and social development projects. The GFIP will inject approximately R29 billion into the South African economy and approximately R13 billion into the provisional gross geographic product, creating nearly 30 000 direct jobs over its life cycle.

In anticipation of this development, Murray & Roberts company, Much Asphalt upgraded its facilities and capacity and was contracted in 2009 to supply 70% of the asphalt required to complete the first phase of the GFIP.

Phase 1 is due for completion in September 2010. The initiative that

crosses the Johannesburg, Ekurhuleni and Tshwane metropolitan boundaries widens freeways to at least four lanes in

both directions and in some sections up to six lanes.

This phase of the project will upgrade 185 kilometres of the existing freeway network. Over the lifespan of the project, a further 376 kilometres of upgraded and newly constructed freeways are planned for implementation. The

network will provide an interconnected freeway system of inner and outer ring roads, incorporating the historically-neglected western and southern Gauteng settlements.

The most significant contribution the investment will make to ordinary citizens is the quality of life improvement that an upgraded road infrastructure will deliver. ○



■ Phillip Hechter  
MD: Much Asphalt

# Exploring new horizons

## RUC CEMENTATION GOES GLOBAL



■ Sewerage works in Hong Kong

By extending its focus to markets further afield, RUC Cementation has recently been able to secure a number of large international contracts, including:

- Construction of three raise bored shafts of six metres in diameter and 550 metre depth over three years at Freeport Indonesia on Papua Island
- Raise drilling of two shafts to a depth of 1 300 metres at Ivanhoe Mines copper gold project in Mongolia in what is considered to be the finest copper and gold ore body in the world
- A sub-contract with Gammon Construction for shaft sinking works for a new sewerage system in Hong Kong

## CEMENTATION CANADA GETS GOLD

Cementation Canada was recently awarded three new projects in a buoyant gold market.

Crews are on site at Apollo Gold's Black Fox Mine near Matheson, Ontario and Northgate Mineral's Young-Davidson Mine near Matachewan, Ontario. Both projects are in North Eastern Ontario and involve First Nations Agreements. Black Fox Mine is transitioning from open pit to an underground operation and the scope of work includes underground development and raise boring. The Young-Davidson project is an engineer, procure and construct (EPC) contract to deepen an existing shaft and develop a new production shaft by raise boring.

Kitikmeot Cementation Mining & Development (KCMD) has been awarded the development program at Newmont's Hope Bay Project in Nunavut, north of the Arctic Circle. KCMD is a joint venture between Cementation Canada and Inuit partner, Kitikmeot Corporation of Cambridge Bay, Nunavut.

■ Murray & Roberts Cementation site establishment at South Deep Mine



## WORKING AT EXTREME DEPTH

Murray & Roberts Cementation will apply its experience in mine development to deepen an existing shaft at the Gold Fields South Deep mine near Carltonville on the West Rand to 3 000 metres. The shaft is being extended to match the man and materials shaft adjacent to it, which is currently the deepest rock hoisting shaft in the world.

This is the latest in a portfolio of projects Murray & Roberts Cementation is completing for the mine which includes the new mine development below 95 level. It will be undertaken in a challenging environment of extreme depth and will require a methodology that allows safe access below an existing shaft.

## MURRAY & ROBERTS WINS IAS AWARD



Murray & Roberts won the Investment Analysts' Society (IAS) award for the best presentation to the Society in 2009/2010 for companies with market capitalisation between R5 billion and R20 billion.

The IAS is a liaison body for the investment analyst profession. The Society currently has 2 000 members, including investment banks and houses, fund managers, brokers, insurance companies and pension funds.

Each year, the IAS promotes a prestigious awards ceremony in recognition of the skills of those listed companies that win awards for "Best Communicating and Reporting".

## CONCRETE TECHNOLOGY

Murray & Roberts has established a Concrete Centre of Excellence to raise the level of construction technology in the Group and introduce new technology to improve efficiency and reduce costs.

The centre is based at the Elandsfontein head office of Murray & Roberts Construction and it serves a number of group operations that work with concrete. It is managed by Cyril Attwell, a research scientist and expert in concrete technology who joined the Group when he was employed to provide advice on the optimal use of concrete for the Gautrain project.

In the six months between January (when it was established) and June this year, the centre has achieved significant bottom-line savings for group operations by modifying concrete technology across a broad spectrum and reducing costs. These savings are reflected in increased margins on existing projects, enhanced competitiveness in tender negotiations (where savings of between 10% and 25% are being achieved on concrete costs) and theoretical savings gained by using alternative concrete mixes.

Group operations that are benefiting from the work of the centre include Hall Longmore, Rocla and the Cementation Group. The Concrete Centre of Excellence plans to extend its work to other group operations in future to generate even higher levels of efficiency and cost saving.

## ICONIC MIDDLE EAST PROJECTS NEAR COMPLETION

Murray & Roberts Middle East is making good progress on a range of projects in Abu Dhabi and Bahrain.

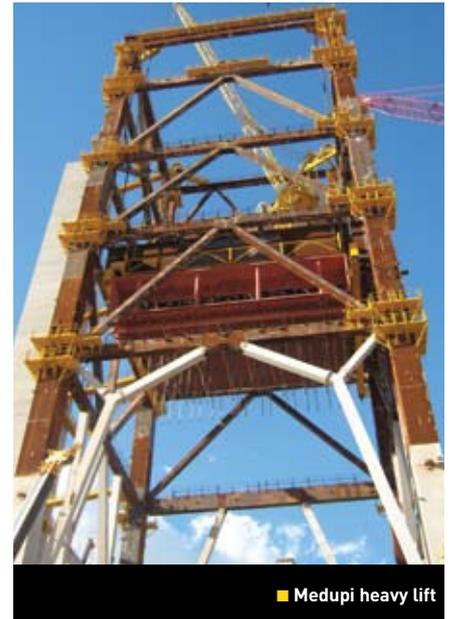
The R2,5 billion Paris Sorbonne University for Mubadala in Abu Dhabi is nearing early completion ahead of the contract program and within budget. The R6 billion Sheik Zayed University for Mubadala is also progressing well and has a target completion date of July 2011. Construction of the complicated space-age roof is underway, and the structure is taking shape.

Work on the new St Regis hotel, resort, and conference centre on Saadiyat Island in Abu Dhabi is proceeding well and the Al Habtoor-Murray & Roberts joint venture continues to focus on its commitment to safety and the highest quality of construction expected by its client, the Tourism Development and Investment Company. The project is scheduled for completion in 2011.

In Bahrain, the Arcapita Bank headquarters building and mosque is almost ready for occupation. The building has a prominent position in Bahrain Business Bay.



## PRECISION AND SAFETY



A major lift of 1 160 tons undertaken in July 2010 to erect the roof of the first Medupi boiler used a method called strand jacking to ensure the highest levels of precision and safety. The process involved the lifting of a heavy steel grid that will house the boiler onto a 104 metre high steel frame.

Strand jacking is a construction process in which large construction elements such as concrete slabs and steelwork are lifted into position with computer-controlled hydraulic jacks. Because the multiple jacks can be moved in unison and with great precision, heavy structures can be assembled at ground level and then lifted into position rather than being built at higher levels. This allows for increased safety and it reduces costs.

The Medupi heavy lift was successfully completed with support from Swiss subcontractor, Hebetec Engineering Limited, and Murray & Roberts company, Freyssinet. The transfer of valuable skills during the process will ensure that Murray & Roberts is able to complete the process for the other Medupi boilers.

## CONCOR PROJECTS

### BRAMHOEK AND BEDFORD DAMS

The contract to construct the Bramhoek and Bedford dams for the Ingula pumped storage scheme was awarded to the Bramhoek Dams Joint Venture, of which Concor Roads & Earthworks is the lead contractor.

The Ingula pumped storage scheme consists of an upper dam, Bedford, and a lower dam, Bramhoek. Both will have an approximate water capacity of 22 million cubic metres. The dams are 4,6 kilometres apart and are connected by underground waterways through an underground powerhouse which will house four 333MW pump turbines.

The contractors moved onto site in April 2008 and the scheduled completion date for Bramhoek Dam is October 2010 with its impoundment in August 2010. Bedford Dam is



■ Bramhoek dam

scheduled for completion early in 2011.

The site of the pumped storage scheme spans the Little Drakensberg,

straddling the provincial boundary of the Free State near Harrismith and KwaZulu Natal, near Ladysmith.

### A PLATFORM TO DEMONSTRATE DESIGN CAPABILITY



■ Medupi's first chimney

Construction of the two chimney structures for the Medupi power station is well underway. The R1 billion contract, in which Concor is participating as a joint venture partner, was awarded in April 2009 and involves the design and construction of two chimney structures and the construction of three coal silos and six fly-ash silos.

Design is not often included in a construction contract and this element of the project will allow the joint venture to demonstrate its civil engineering capabilities in the design and construction of these specialised structures.

The project is progressing slightly ahead of schedule as the joint venture partners demonstrate their world class expertise in chimney sliding. The sliding of the outer casing of the first chimney windshield was completed in mid-May. It took six weeks, working continuously 24 hours a day and seven days a week, to slide the first chimney. The foundation for the second chimney is ready and the sliding of its windshield is due before the end of the year.

The Medupi chimneys will be 220 metres high with three steel flues per chimney. This is different from the conventional Eskom chimneys of the past which had brick flues. Installation of the nine metre diameter steel flues will comprise the next stage of the project. From an environmental perspective, the two chimneys are flue gas desulphurisation (FGD)-ready.

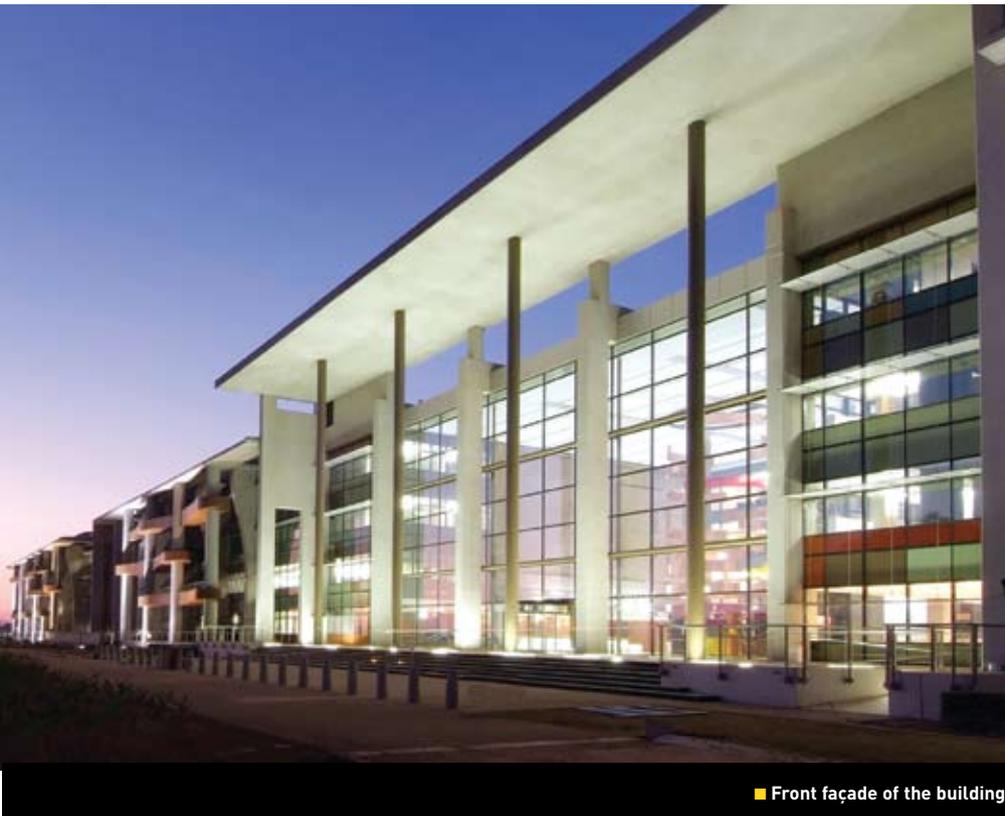
Construction of the coal and fly-ash silos has commenced and the first fly-ash silo was slid in July.

### CONCOR BUILDING WINS SAPOA 2010 AWARD

The Department of International Relations and Co-operation's new office and conference centre development in Tshwane, of which Concor Building was the main contractor, won the prestigious South African Property Owners Association (SAPOA) 2010 awards in the best development and best overall property development categories.

The R1,2 billion building structure embodies a functional and efficient use of space for staff and the public which is further enhanced by high standards of green design principles.

Accommodating some 2 500 employees with 1 500 parking bays, the 138 570 cubic metre building includes a state of the art conference facility designed to house the African Union and South African Development Community (SADC) conferences.



■ Front façade of the building

### CONCOR MINING EXTRACTS BULK COAL SAMPLE FOR SASOL'S MAFUTHA PROJECT

Concor Mining secured the contract for the excavation of the bulk coal sample for the Sasol project, and coaling of this bulk sample was completed in the first quarter of 2010. The project is situated at Steenbokpan, near Lephalale in Limpopo Province, and site establishment took place in July 2009.

Sasol requires the bulk coal sample for large scale gasification trials in one of Sasol Synfuels' gasifiers in Secunda as part of its pre-feasibility study into the establishment of a potential coal-to-liquids (CTL) plant in the Lephalale area.

The contract entails the removal of top soil, then overburden to a depth of 34 metres and the extraction of a selected coal sample to a depth of 91 metres.

The project is particularly complicated as the mining area has been kept to a minimum and the coal has to be selectively drilled and blasted, and then mined.



■ Excavation of the coal bulk sample

### NGQURA HARBOUR CONTAINER TERMINAL PHASE II

Concor continues its involvement in the construction of South Africa's newest deep water harbour. The Hochtief-Concor Joint Venture is currently constructing the Phase II expansion of the Ngqura Harbour Container Terminal.

The Ngqura Container Terminal, which opened in 2009, is attracting increasing volumes of container traffic, and requires expansion of the quay from two berths to three.

On completion of the quay wall, the dry excavation, in which it is built, was flooded allowing the sea to engulf the seaward face of the wall.

Construction of the container terminal is on schedule for handover in February 2011.



# Boosting gas output

**Murray & Roberts subsidiary Clough is a key partner in the Gorgon LNG project, the largest resource project in Australia's history.**

**T**he Greater Gorgon gas fields, off Western Australia's Pilbara Coast, contain more than 40 trillion cubic feet (Tcf) of gas, representing some 25% of Australia's total known gas resources. The Gorgon Project is the largest resource project in Australia's history and will be adding 15 million tons of LNG a year to Australia's current annual output of approximately 20 million tons in a phased manner between 2014 and 2015.

Clough, as a key member of the Kellogg Joint Venture – Gorgon (KJV-G), has been awarded by Chevron Australia the engineering, procurement and construction management (EPCM) contract for all downstream facilities on the project.

The onshore facilities will consist of three 5 million ton per annum LNG trains, gas processing and treatment facilities, product storage and offloading, complete offsites, utilities and accommodations. The EPCM contract also includes a 300 TJ/d domestic gas plant. The design of the facility features improvements in greenhouse gas emissions performance, including improved waste heat recovery and the injection of reservoir carbon dioxide into the subsurface.

The EPCM effort is planned as a fully modular construction strategy to minimise impact on the island during



the construction phase, and is being conducted from two main operating centres located in Perth and London, with support from global centres in USA, Singapore, Indonesia and Japan.

Along with these unique and one of a kind design items, KJV-G has implemented a quarantine compliance plan for the project on, and on behalf of Barrow Island, which has been rated world class by the Western Australian Government Environmental Protection Agency (EPA) in a 2009 EPA decision document.

Global procurement and numerous international fabrication yards will be used to supply the key components of the project and KJV-G personnel will manage these global sites, including the critical supply chain management and logistics processes using key supply bases in Western Australia.

Early construction activity is well underway to ensure that the proper infrastructure and marine logistics capability is established and over five million man hours have been completed without a Days Away From

Work (DAFW) incident. Major contract and procurement commitments to the approximate value of \$14 billion were secured to mid-June 2010.

A work force in excess of 3 500 personnel will construct and commission the facilities over three years.

Australian participation is an important aspect for the project and it is anticipated that over 40% of the project spend will occur in Australia. ○

## FACT FILE:

### GORGON LNG PROJECT

**Client:** Chevron Australia Pty Ltd

**Location:**

**Barrow Island, Western Australia**

**Contract Value:**

**AUD\$2,7 billion (Clough 20%)**

**Joint Venture:**

**Kellogg Joint Venture – Gorgon**

**Contract period:**

**September 2009 – Present**

**Safety Performance:**

**Manhours: 5 309 945**

**LTIFR: 0**

# Our Legacy

Looking back at major historic projects that have contributed to the reputation Murray & Robert has developed over the years as a leading world class contractor.



■ A younger Brian Bruce, project manager at the time, holds up a painting of Bloukrans Bridge by industrial artist, Peter Rodgers (left)

## BLOUKRANS BRIDGE

The Bloukrans Bridge was one of three Garden Route bridges constructed by a consortium of Murray & Roberts and Concor for R25 million (2010: R320 million).

This proved one of the most demanding and technically complex contracts Murray & Roberts had ever worked on – from a design as well as construction point of view. A tremendous amount of work went into the design of the temporary stage structure which was more complex than the permanent stage.

Bloukrans was constructed by the free suspended cantilever system. That is, every fourth segment – each averaging 5,25 metres in length – was tied back by the BBR suspension cables. This was the first time that the BBR system of prestressing was used for this application.

At the time of construction, the Bloukrans Bridge was the largest concrete arch bridge in Africa and the fourth largest in the world. The arch alone, has a mass of nearly 12 000 tons!

The Bloukrans Bridge was opened in June 1983 after being completed five months ahead of schedule. ○

## HIGHLIGHTS:

- The 451 metres deck at Bloukrans was completed three years after the start of the contract and an incredible 26 weeks ahead of the original schedule
- The Bloukrans Bridge received both the Fulton Award for Excellence in the use of concrete and the SAICE Eastern Cape Branch Award in 1983



■ Pictured at the Bloukrans site are (from left): Ian McInnes, steel fixer, prestressing general foreman; Brian Bruce, project manager; Graeme Brodrick, chief engineer; Dave Lang, chief planner; Paul Meyer, senior engineer; Andy Sommerville, works manager

# Road engineering expert wins JD Roberts Award

Transport infrastructure engineer, Dr James Maina of the CSIR, is the 2010 recipient of the prestigious JD Roberts Award.

**M**aina is recognised nationally and internationally for outstanding research towards finding solutions for large and detailed problems in his field of expertise.

Through their research, Maina and his Council for Scientific and Industrial Research (CSIR) team predict how road structures will perform over a period of time. This information enables road owners to perform proper design, rehabilitation and maintenance planning, taking all variables into account.

Maina last year became the CSIR's first black chief researcher, which is the highest ranking within the CSIR's research career ladder progression. His outstanding leadership in the advancement of science, engineering and technology is clear within the CSIR, as well as in his participation in numerous national and international professional bodies.

## ENHANCING QUALITY OF LIFE

Now in its 30th year, the JD Roberts Award is sponsored by Murray & Roberts and held in partnership with the CSIR. Instituted by Murray & Roberts in 1980 in remembrance of one of the Group's founding fathers, Dr JD 'Douglas' Roberts, the award recognises and promotes competitive and environmentally-sustainable solutions to human dilemmas and encourages scientific research into technology that will enhance the quality of life of all South Africans.

Douglas Roberts was a doyen of the construction industry in South Africa, well



■ Chris Rust, Strategic Research Manager, CSIR; Dr James Maina, 2010 JD Roberts award winner; Carien Botha, Innovation Executive, Murray & Roberts; Sue Leuner, daughter of JD Roberts; Brian Bruce, Chief Executive, Murray & Roberts

known for his innovation, entrepreneurial flair and passion for seeking and trying new techniques and ways of doing things. It is in this spirit that the JD Roberts Award is presented annually, recognising talent and research within the CSIR.

Maina is the project leader of a multi-year, multi-million rand project on the improvement of the South African pavement design method (SAPDM). The project is in support of external research and development contracts funded by the South African National Roads Agency Limited (SANRAL).

## INTERNATIONAL RECOGNITION

Putting his expertise to practical use, Maina has developed a number of computer software packages, one of which is called GAMES (General Analysis for Multilayered Elastic Systems). GAMES was originally developed to assist Japanese industry in the evaluation of road and airport road structures. Japan now uses GAMES as a standard tool for determining displacements, stresses and strains on roads, and even airports.

It was used in expansion projects at the second largest airport in Japan, the Tokyo International Airport.

GAMES has also been used in projects at two airports in Namibia and one in the Eastern Cape for determining the load bearing capacity of airport road structures. Locally, GAMES will also be used as the analysis engine for the new SAPDM.

Maina's work, based on wave propagation techniques, allows the use of information from laboratory and field tests for road evaluation, leading to a better understanding of the effect of moving vehicular loading. This is very important for road and airport road rehabilitation work where more accurate and realistic properties of road layers will be obtained by using optimisation algorithms with wave propagation techniques.

Over the past decade, Maina has published more than 60 research publications, in both Japanese and English, in scientific journals and in the proceedings of local and international conferences. He has also produced a reference book and several commissioned publications. ○



## Letsema Bokamoso reaches maturity

In December 2005, Murray & Roberts established the Letsema Broad-Based Black Economic Empowerment share ownership scheme, which introduced four broad-based trusts as 10% shareholders in Murray & Roberts. One of the trusts, the Letsema Bokamoso General Staff Trust, was established to encourage a culture of share ownership in Murray & Roberts and create a sense of inclusion amongst all employees of the Group and to further align the interests of the employees of the Group with those of its shareholders.

14 125 Murray & Roberts South African operating company employees were each granted 300 Murray & Roberts shares and full ownership rights in Murray &

Roberts, including the right to dividends and to vote.

### WHAT HAPPENS NEXT?

After 18 December 2010, these shareholders will have the right to either sell their shares and receive the cash proceeds on the sale or transfer the shares into their own brokerage account.

Murray & Roberts will be communicating to all qualified shareholders on these options and also on how to advise the trust of the option they wish to take during the last four months of 2010.

If you have any queries please contact Molebedi Trust Limited, the Letsema Bokamoso General Staff Trust administrator, on 0861 393 633.

# Q & A



THOKOZENI MDULI (38)

**BSC PBL MBL  
MURRAY & ROBERTS GROUP  
CHIEF SAFETY EXECUTIVE**

**Previous experience:** Group Manager Health, Safety and Wellness at ArcelorMittal South Africa

**How did you prepare yourself for your new role?** After extensive experience in the petrochemical, aluminium and steel industries I thought it was time to make a contribution in construction and mining.

**Have you achieved any important milestones since you started?** It's too early to claim victories but I am very encouraged about the robust discussions we have had with the Limited Board on health and safety. The future looks good.

**What are the key challenges in your area of responsibility?** To instil a health and safety culture in a high pressure environment is a challenging process. It requires a lot of leadership and I think we can do it.

**What drives you?** My passion for life. Being able to make a difference in life.

**What are your key interests after-hours?** Simple things like wildlife, laughing with friends and family, and soccer.

**Who has had the greatest influence on your life?** My parents – they achieved great things against all odds.

## Pensioner network



The annual Murray & Roberts pensioner roadshow, organised by Group Benefits, provides a valuable opportunity for pensioners to receive feedback on the performance of fund investments and the pension increase. Johannesburg based pensioners (pictured) used the opportunity to network with former colleagues and friends.

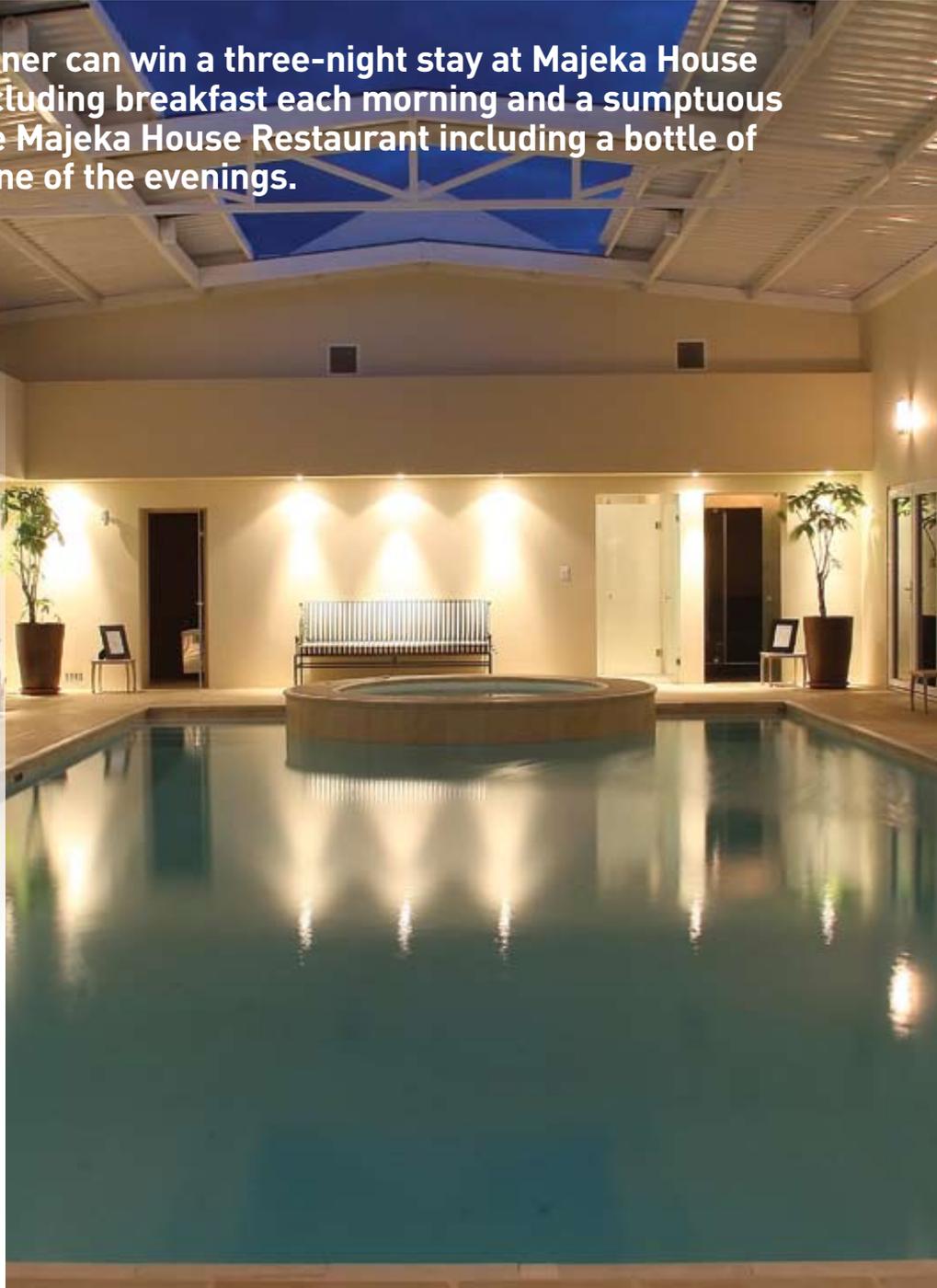
Win

# Indulge your senses

One lucky reader and partner can win a three-night stay at Majeka House in the Cape Winelands, including breakfast each morning and a sumptuous three-course dinner at the Majeka House Restaurant including a bottle of Dalla Cia estate wine on one of the evenings.

**S**et in the idyllic Cape Winelands and surrounded by tranquil gardens, the five-star Majeka House takes pride in indulging all senses. Mediterranean in style, the 12 Premier en-suite luxury rooms are located at 'The Arches' where a Solarium, business centre, and tranquil relaxation area are also available. Each elegant and plush room has a private balcony or terrace with relaxing views of mountains or gardens, and is styled along classic contemporary lines with a neutral palette.

Cosy up at the oversized fireplace and enjoy a decadent dinner, personally



**R12 000  
Total  
Prize  
Value**



**Winner of the Fairlawns  
competition: Shaun Govender**

#### RULES OF THE COMPETITION:

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 subject to availability and expires on 31 March 2011. Terms and conditions apply.
4. All extras are to be settled direct.
5. Transport to the destination is not included.
6. The prize is not transferable and cannot be exchanged for cash.
7. E&OE



prepared by chef, Anri Diener in the intimate Baroque-inspired Majeka House Restaurant and pamper yourself at the Majeka House Boutique Sanctuary Spa that offers an enticing menu of body treatments. If you prefer a more sedate pace, choose a book from the library and curl up for the day, or for those who would like to get out and about Majeka House is close to renowned wine estates, and just five minutes from historic Stellenbosch where there are cultural attractions aplenty along with multi-award winning restaurants and magnificent golf courses.

**Enquire about the attractive spring and summer getaway packages currently on promotion. For reservations or further information call (021) 880 1549; email [reservations@majekahouse.co.za](mailto:reservations@majekahouse.co.za); or visit [www.majekahouse.co.za](http://www.majekahouse.co.za).**



Answer the easy question, complete the entry form and send to Murray & Roberts Competition, PO Box 1151, JHB 2000 – to reach us before 15 October 2010. You can also fax to (011) 646-6040 or e-mail [competitions@profpart.com](mailto:competitions@profpart.com) (remember to put Murray & Roberts Competition in the subject line).

#### ENTRY FORM: SEPTEMBER 2010 COMPETITION

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

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

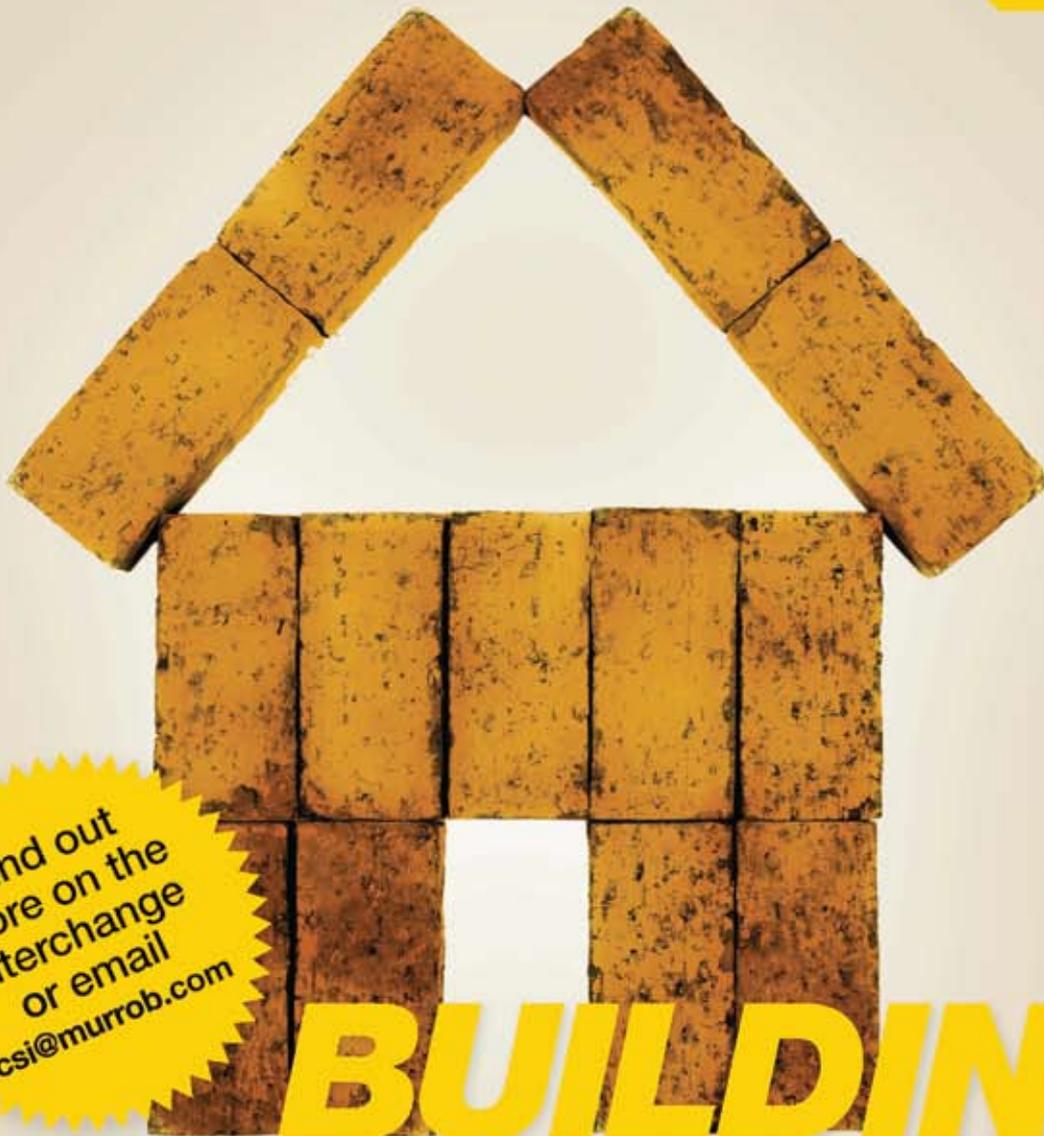
Question: Who was the project manager for the Bloukrans Bridge project? \_\_\_\_\_

\_\_\_\_\_

\* Strictly one entry per person

*The future is in our hands. Every day, in every way,  
we are building communities in South Africa.*

**Murray  
& Roberts**



Find out  
more on the  
interchange  
or email  
[csi@murrob.com](mailto:csi@murrob.com)

# **BUILDING SUSTAINABLE COMMUNITIES**

**Corporate Social Investment at Murray & Roberts**

*MATHS, SCIENCE & TECHNOLOGY EDUCATION  
LITERACY & NUMERACY IN EARLY CHILDHOOD DEVELOPMENT  
ENVIRONMENT EDUCATION*