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CONTENTS



04

04 Why it matters who manages the spend

Qs are best positioned to keep infrastructure spend on track.

05 Big role of small contractors

The first Contractor's Corner was hosted in May.

08 The dangers of poor design documentation and late changes

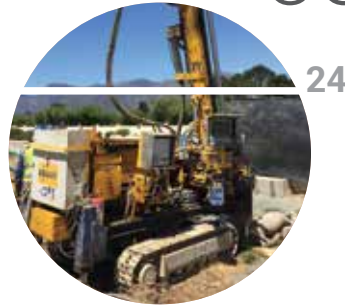
The JBCC cautions on how dangerous this can be.

12 Getting vehicles back on the road, fast

The importance of a stellar repair and maintenance programme.



16



24

16 Mall of Africa – one year later

Massive mall showing excellent results – against the odds.

22 Brutally brilliant brick

Despite being called ugly, building with brick has been resilient.

24 Paarl bulk sewer line's innovation

Overcoming unstable ground conditions in the Western Cape.

28 High-end high-rise

The multifunctional and luxurious Embassy Towers in Sandton.

30 First bridges on N2 contract in KZN under construction

How to reduce a 40 month contract to 37 months.

32 Nearing completion

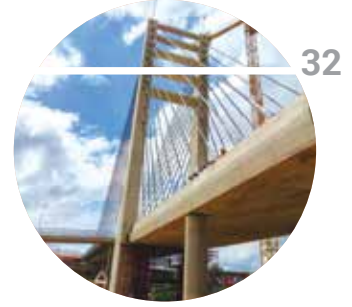
The Sandton Rea Vaya Bus Transit project is all but completed.

40 In the fast lane

The Bakwena N1N14 freeway is being widened.

44 Rock-solid reliability

Three SDLG wheel loaders are working hard in Qatar.



32



ON THE COVER

National sales manager at AfriSam, Amit Dawneerangen, says that the rapid pace of urban development has necessitated a shortening of construction time frames, and this has led to contractors looking more favourably upon precast concrete products.

"Concrete has proven for more than 2 000 years to be durable and the use of precast concrete products is not new," he says. "As far back as ancient Rome the material was poured into moulds enabling this civilisation to build its complex network of aqueducts, culverts and tunnels."

AfriSam offers customers in the concrete product manufacturing segment bespoke product and technical solutions to enhance operational efficiencies. Turn to pages 20 and 21 for more detail.

REGULARS

- 04 Marketplace
- 14 Environment & Sustainability
- 16 Property
- 22 Projects & Contracts
- 30 Project Profile
- 50 Equipment
- 53 Products & Services

COMMENT

According to the latest Construction Industry Development Board (cidb) business condition survey for small and medium-sized enterprises, business confidence in both the building and civil engineering sectors, registered below the neutral 50-point mark for the first quarter of 2017.

► This is the seventh consecutive quarter it has registered a sub-50 point result. In the general building sector, building activity weakened. Despite this, the sentiment did edge up one point to 46 on the index. The civil contracting sector declined by four points to 37, primarily caused by weaker construction activity, profitability that is under pressure and more intense tendering competition.

According to the cidb, civil confidence is at its lowest level in nearly five years. This is a cause for concern, more so because the level of dissatisfaction was across all grades and provinces. In conclusion the report states that there is some improvement in activity envisaged for the building sector, but that this was not the case for the civil sector.

In stark contrast

One of the most buoyant construction markets in Africa is that of Ethiopia. It is experiencing a construction boom because of a marked increase in public investment in development projects as well as private investment.

Up until fairly recently, infrastructure development in Ethiopia was hampered as cement was imported at huge costs. However owing to a growing number of cement factories in the country, Ethiopia has now, in fact, started exporting cement. This has been brought on by incentives such as cheap electricity, government-provided land and tax incentives.

The country is working towards a target of producing 27 million tons by 2020. According to a Bloomberg report, South Africa produced 17 million tons in 2015. This puts the remarkably swift expansion of the Ethiopian market into perspective – cement production has increased 10-fold in the last 10 years. It seeks to dominate the cement trade in the wider Eastern African region.

Wilhelm du Plessis

Editor

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The Ethiopian capital Addis Ababa. In stark contrast with the South African building and civil industry, the Ethiopian construction industry is booming – resulting in the increased production of cement.

ON THE AGENDA

Sustainable Construction World

In October *Construction World* will publish its third supplement dedicated to sustainable construction. There is a big focus on how the design of a building can make a project sustainable, but this supplement, in line with the focus of *Construction World*, will illustrate how the building of a project – from the cement that is used, to the equipment, to facilities management – can contribute to a structure's sustainability.

Best Projects 2017

Enter your project for our annual Best Projects. This is the only award in the country that recognises excellence across the entire construction world. It is being held for the 15th time.

Turn to pages 18 and 19 for an overview of the awards. The deadline is Friday, 8 September.

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SCANIA

Why it matters WHO MANAGES the spend

Quantity surveyors are best positioned to keep public infrastructure spend on track, despite 83% of government infrastructure spend currently being managed by engineers.

► An estimated R875,7-billion has been committed to a number of ambitious government infrastructure projects for the Medium Term Expenditure Framework (MTEF) until 2019/2020), according to the figures given in the national budget and publicly available information on projects and their budgets.

Herman Berry, a member of the Building and Property Economics Committee of the Association of South African Quantity Surveyors (ASAQS) and executive: programme, cost, consultancy (Africa) at AECOM, says that this is a substantial number, and represents a very welcome commitment to service delivery and upgrading our national competitiveness.

“Despite the bulk of the infrastructure spend actually being managed by engineers, the priority now must be to ensure that the projects are delivered on time and on budget – and greater involvement by professional

quantity surveyors is the best way to do that,” he adds.

Who manages the spend?

Berry says that the spend is spread across the key sectors of education (R50,1-billion), energy (R234,5-billion), health (R35,6-billion), human settlements (R102,5-billion), transport and logistics (R327,5-billion) and water and sanitation (R125,3-billion).

He points out that infrastructure spend in education, health and human settlements is primarily contracted through the Department of Public Works and the costs are traditionally managed by quantity surveyors.

By contrast, projects in the other sectors are largely under the cost control of engineers. These projects account for 83% of the projected spend in this budget (R726-billion).

“It is perhaps worth mentioning that the energy and transport sectors, where quantity surveyors have no formal control over project costing and accounting, have seen some of the most spectacular cost overruns in recent years.

“Engineers are judged by the quality and aesthetics of their designs and thus, quite rightly, those are their main priorities. Cost is, however, a primary consideration for the quantity surveyor, who produces a Bill

of Quantities from the engineer’s design. The Bill of Quantities remains the baseline for the project and all payments, and the foundation for the final account, which the quantity surveyor must draw up and be able to justify.”

The ASAQS has previously called for all government projects worth R10-million or more to have a quantity surveyor made responsible for the overall project and, particularly, the final accounts in an attempt to stem corruption. While corruption may be the cause of some cost overruns on big projects, there are many other factors at play.

The real point is that a quantity surveyor has the professional know-how and commitment to scope the project costs and quantities properly, and then ensure that it remains within scope.

“These are ambitious projects, and it is highly desirable they are achieved and that the country gets what it paid for.

“The best way to ensure that is to get quantity surveyors involved—we are trained to ensure that a client’s money is spent as originally planned, and that any deviations are properly documented and authorised before payments are made,” Berry concludes. “We believe government should bear this in mind when it frames the terms of its tenders.” ●



Big role of small contractors

The African Construction and Totally Concrete Expo introduced a free, CPD-accredited training programme at this year's event which took place on 23 and 24 May 2017 at the Gallagher Convention Centre in Johannesburg.

This offering will contribute towards transformation in the construction industry and the development of Small, Medium and Micro-sized Enterprise (SMME) contractors, which have been recognised by government and business as crucial for industry development, economic growth, job creation and poverty alleviation.

Hosted by AfriSam and Builders Warehouse, the Contractors Corner aligned the expo with the recent commitment by government and seven major contractors to support and promote enterprise development and industry transformation in Africa's construction marketplace. The initiative offered emerging SMME contractors unprecedented opportunities to find out about new projects opening for tender, learn about the latest available materials and technologies, develop soft and hard skills as well as participate in competitions and prize giveaways. It was held within the first-ever African outdoor workshop auditorium and featured live-streaming masterclasses along with hands-on product demos.

"The Contractors Corner was designed to boost the participation of these contractors both at the event and in the country's economy by equipping them with knowledge and skills to enhance their daily operations," says Soren du Preez, programme director of Africa's mega construction and infrastructure show.

Victor Bouguenon, group marketing manager, AfriSam, added: "AfriSam was proud to sponsor the new Contractors Corner at this year's African Construction and Totally Concrete Expo. We understand the growing importance of the small to medium contractor, the challenges they face and the real possibilities they can unlock for our industry and our country. As a leader in the construction materials industry, we believe that we have an inherent responsibility to support, uplift and promote emerging participants in the building sector."

Items covered in the Contractors Corner included Readymix concrete masterclasses; Finance and building materials for government projects and Best practices in key account management and material supply.

President of Small Contractors Association of South Africa (SCASA), Thobile Madikizela shares: "The African Construction and Totally Concrete Expo's all new Contractors Corner is an initiative in alignment with the SCASA that aims to uplift and empower small contractors in South Africa through training and capacity building."

In addition to the sessions provided in the Contractors Corner, interactive professional and commercial classes were offered on the Expo floor at no charge. These CPD-accredited workshops comprised a variety of expert presentations addressing subjects ranging from high-performance waterproofing and Readymix troubleshooting to a business case for builders' rubble in construction.

As Africa's largest gathering of built environment professionals, the Expo also provided ample chances for SMME and main contractors, as well as others working across varied sectors of the industry, to network.

With transformation being a crucial aspect of this year's Expo, the Women in Construction Awards were hosted at the event.

"We believe that enterprise development, gender empowerment and transformation are key to unlocking the future potential of the construction industry and ultimately closing Africa's infrastructure gap," concluded Du Preez. ●



Major expansion milestones

As part of its expansion strategy, PPC recently announced the inauguration of its Ethiopian operation, Habesha Cement.

The inauguration of PPC's Ethiopia operations, Habesha Cement, marks the completion of the construction of the factory and instalment of the technical and non-technical systems. The ceremony, officiated by His Excellency, Ato Hailemariam Desalegn, the Prime Minister of Federal Democratic Republic of Ethiopia, was held at the plant in Holeta, 50 km north-west of the capital, Addis Ababa.

The establishment of Habesha Cement Share Company is the first of its kind in Ethiopia, established via a shareholding scheme consisting of over 16 500 Ethiopian shareholders.

The 1,4 million tonne per annum cement plant was built to address the demand for cement and assist the booming construction and infrastructure activities in the country.

Habesha Cement's inauguration now brings to three the number of projects PPC has successfully completed outside South Africa in the past year as part of its expansion strategy. On 17 April, PPC Barnet DRC despatched its first truck load of saleable cement from the plant near Kimpese in the Kongo Central province in western DRC, 230 km south-west of the capital Kinshasa. The 1 million tonnes per annum cement plant was commissioned in February 2017.

"With the completion of the plants in the DRC and Ethiopia we have achieved two significant milestones in our quest to become a major player in the cement industry across Africa," said Njombo Lekula, managing director, International operations, PPC. "Both plants have been built using the latest technologies, in line with international standards."

With PPC celebrating its 125th birthday this year, this longer term strategic approach is in line with the company's philosophy and commitment to quality. "Because quality matters in all we do, we choose to focus on the bigger picture: the ultimate vision of success. This challenges how we think and act not only in terms of the products and materials we manufacture and the projects we invest in, but also when it comes to our approach to collaborating with the right partner," said Lekula.

"We are excited and enthusiastic about the completion of these two new plants and as a brand, remain committed to bringing innovative products and breakthrough engineering expertise to the continent's growing markets," concluded Lekula. ●

BROADENING AFRICAN FOOTPRINT

Capitalising on the robust energy markets in Africa, pan-African infrastructure group – Consolidated Infrastructure Group (CIG) – recently posted double digit revenue growth for the six months to February 2017, during which the group markedly advanced its strategic objective to expand across Africa.

► The decentralised group leveraged its broader geographical footprint to amass 65% of total profit after tax from outside South Africa. The period also saw CIG bed down its acquisition of Conlog – a prepaid electricity metering and services provider – and start to reap the benefits of synergies.

CIG's order book at February 2017 grew year-on-year 25% at R6,6-billion.

Revenue grew 29% to R2,7-billion from R2,1-billion, while EBITDA was up 20% to R330-million from R274-million at the same time last year. Earnings were however negatively impacted by a reduction in profitability in CIG's Angolan associate, AES, due to a slowdown in oil exploration, a stronger South African Rand and higher interest costs. Earnings per share (EPS) and

headline earnings per share (HEPS) were down 18,5% to 111 cents apiece. The group ended the period with cash of R548-million compared to R481-million at February 2016.

CEO Raoul Gamsu says he remains confident in the group's focus on Africa and the Middle East, and is "pleased at the continued momentum in CIG's international penetration in the period. The MEA region presents a wealth of opportunity given the upward trend in renewable energy projects and continued demand for and funding of electricity grid infrastructure."

The **Power** division remained the key driver of results and performed well. General business activity was strong off the back of Power's progress in diversifying its footprint and opportunities.

Group newcomer Conlog performed as expected and was included in results for four months, while recent renewables start-up, CIGenco, concluded its first contract for an independent power project in Namibia. In South Africa the division faced a mixed bag of conditions, with uncertainty in the municipal and renewable energy sectors balanced by continued infrastructure investment on the part of Eskom and the mining sector.

The **Building Materials and Rail** divisions both recorded stronger and positive growth mainly due to improved market conditions and expanded market share. AES, the **Oil & Gas** division's waste service business in Angola, fared less well and was impacted by reduced oil exploration activity and the appreciation of the South African Rand.

Gamsu points out that "CIG acted quickly together with local management to contain costs in the slower period and AES continues to deliver positive returns on investment for the group."

He adds that conditions for



CEO of Consolidated Infrastructure Group, Raoul Gamsu.

foreign currency have improved in Angola and currently AES has no backlog on its offshore creditor payments.

Looking ahead he says CIG will leverage the group's cross-selling opportunities by piggybacking the established presence and local market experience of group companies to introduce their CIG peers' products and services.

"A tangible example is Ghana where Conco has an excellent track record but where Conlog has never operated."

In South Africa he remains optimistic despite the delays in starting Round 4 renewable energy projects. CIG is a major participant in Round 4 having secured R2,3-billion of work. "We have to bear-out the delay in commencing Round 4, as we are confident that the programme will happen and will contribute significantly to our South African Power business over the next three years once active."

He points out that addressing new BEE legislation in South Africa and the sectors' skills shortage will continue to pose challenges to growth.

He concludes: "The change in economic outlook in South Africa as a result of our recent credit ratings downgrade has somewhat obscured visibility into the future and curbed the slowly building sense of optimism.

"However, positive conditions in the power and rail markets continue to prevail and CIG will capitalise on group strengths in a broad spread of regions to continue expansion and growth." ◉





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The dangers of poor DESIGN DOCUMENTATION and LATE CHANGES

Queries regarding incomplete or inadequate design documentation, or specifications issued late during the construction phase, seem to crop up more often than any other issues the Joint Building Contracts Council (JBCC) has to face.

Uwe Putlitz, CEO of the JBCC, says in the JBCC's free 'Frequently Asked Questions' service to users of JBCC agreements, most frequent queries and disputes relate to:

- Late changes to the specified works;
- Consequent revision of the construction period;
- Partial or late payment to the contractor; and,
- Termination of the contractor's appointment – when all else have failed.

"JBCC has found that a significant number of queries relate to incomplete or inadequate design documentation or specifications issued late in terms of the contractor's programme. These issues should have been dealt with speedily - and at little cost – in the pre-contract phase of a project while the employer was still initiating a project," Putlitz states.

He says essential questions to be asked – and answered – right at the outset to manage contractual risk include:

- When is the facility required? "This is to ensure realistic expectations: invariably employers and consultants believe the inception, design, procurement and execution of the works can be completed in ridiculously short periods."
- Are specialist design and execution skills

required, ranging from geotechnical engineers, town planning, urban design, acoustics, kitchen design, interiors, and landscaping so that these disciplines can be integrated timeously in the final solution?

- Will the use of new materials and/or the specification of untried construction technologies be involved
- Who does the 'design' – will it be done within the employer's organisation, or by professional consultants appointed by the employer, or by the contractor in a 'design and build' method or similar solution?

"Buildings have become more complex to cater for more sophisticated technological operating systems and to deal with environmental performance criteria during construction and during operation. Generally, this requires a larger number of skilled designers whose work must be coordinated and integrated before the procurement documentation is issued and contractors are appointed. Quality design takes time. Such professional consultants must be fairly rewarded for their skills and the professional risks they assume on behalf of their clients.

"Failure to respect the design process in terms of the time and the skills required – and payment for appropriate professional fees – may result in the late issue of incomplete construction information to

the contractor who may consequently be entitled to a revision of the date for practical completion, and possibly also additional costs. And delays in completion, mean delays in tenant income for the client.

"Then will follow the search in the building contract agreement for a clause to blame someone who can be made to pay for the expense and loss incurred. If the professional designers are singled out for blame – should their professional indemnity insurance compensate the client for expense and/or loss incurred? Remember, the more avoidable claims are submitted to the insurers, the higher the premiums will be in future."

Putlitz says the situation could get even worse if the parties sought restitution by resorting to legal action, calling for money and time to resolve issues that should have been dealt with in the project initiation and design phases.

He adds that it must be remembered that professional fees are not like a manufactured product that can be discounted provided the overhead costs have been recovered once a new range is introduced. Excessively discounted professional fees also hamper the advancement of skills and the updating of computers and associated software that are an integral part of the building professional's career.

"Thus potential delays as a result of inadequate design solutions, incomplete construction information, under-budgeted obligations, poor contract management, and efforts to have fees cut, must be eliminated to achieve timeous project delivery, within a realistic budget," Putlitz added. ●

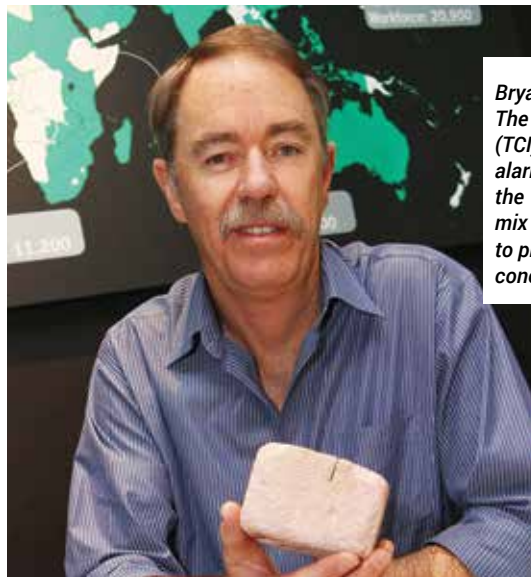
Critical factors that affect concrete quality for housing

The role that the various mix constituents play to produce quality concrete for housing is often not fully understood, Bryan Perrie, managing director of The Concrete Institute (TCI), has cautioned.

Perrie says using the correct mix proportions and ensuring good site practice affects the strength, durability and economy of the finished concrete. "First of all, the quality of the cement is crucial. Building contractors should note that all producers and importers of cement must have a Letter of Authority (LoA) from the National Regulator for Compulsory Standards (NRCS) for each different cement type sold in South Africa. The NRCS issues a LoA only if the cement standard complies with SANS 50197-1 or SANS 50413-1," he explains.

Perrie says the most common errors that tend to occur when producing concrete for housing are:

- Incorrect ratio between the water and the cement – a ratio that determines the strength of the concrete. When site batching for small quantities of concrete, contractors tend to use a builder's wheelbarrow as unit of measurement. But this practice often produces inconsistent concrete mix proportions. "The contractor should ensure that the wheelbarrow is always levelled off at the top when measuring materials for mixing, to ensure that the correct, consistent mix proportion is achieved throughout. Note: two bags of 50 kg cement is the equivalent to one builder's wheelbarrow," Perrie states;
- The addition of extra water to improve the workability of the concrete after an extended period of time. This practice significantly reduces the strength of the concrete;
- Often concrete is not cured using the proper technique and/or is not cured long enough. "Newly cast concrete must be cured to ensure that hydration continues until the full potential strength of the hardened concrete is achieved and to minimise the tendency to crack. The concrete should be kept damp and not allowed to freeze during this time. The concrete should be cured for at least five days after placing it and longer in cold weather," he advises;
- There is often confusion between client, specifier and contractor when it comes to finishing a concrete floor, specifically relating to the application of a cement screed to the finished concrete floor. In general, a sand-cement screed should not be applied as the final wearing surface. The appropriate application of sand-cement screeds and concrete toppings is described in detail in the The Concrete Institute publication: 'Sand-cement screeds and concrete toppings for floors' which is available free of charge from the Institute;



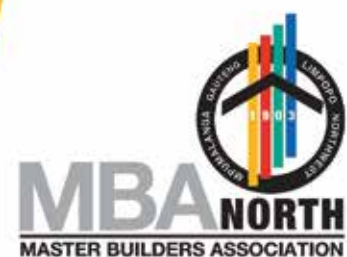
Bryan Perrie, MD of The Concrete Institute (TCI) says there is still alarming ignorance about the roles that the various mix components play to produce top quality concrete for housing.

- Cracks in plaster and floors are a very common problem on most sites – a problem that can be avoided or reduced through the correct use of expansion joints to allow for movement of the structure at appropriate intervals. "Care should also be taken to allow for movement joints between different material types, such as clay bricks and concrete blocks," Perrie adds. ◉

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One of the most rigorous and specialised processes for the mining, industrial, manufacturing, and commercial development sectors is environmental licencing and compliance assurance. I-CAT Environmental Solutions offers an 'environmental masterplan' in terms of the resulting compliance, auditing, and monitoring requirements.

The range of environmental-compliance solutions has a specific focus on the mining and industrial sectors, as prescribed by relevant national legislation and compliance standards, I-CAT environmental solutions director, Lourens Jansen van Rensburg explains.

"The current economic climate in South Africa has resulted in companies cutting down on budget allocation for minimum environmental compliance, yet recognising their obligations to account for their activities impacting on the environmental, and to accept responsibility for them," Jansen van Rensburg explains.

I-CAT offers an Environmental Masterplan solution whereby all external environmental licencing, auditing, and monitoring requirements are addressed within its Environmental Solutions department. Benefits include cost and resource-savings, as well as ensuring that all environmental aspects are considered and assessed in an integrated, holistic manner.

"Furthermore, we can assist our clients with their sustainability and integrated reporting requirements in line with the relevant standard, covering reporting on economic, environmental, social, and governance performance.

"We present our clients' values and governance models in a holistic manner, while determining the link between their business strategies and commitment to a sustainable global environment," Jansen van Rensburg concludes. ●

Business development and marketing director at I-CAT Environmental Solutions, Lourens Jansen van Rensburg.



Sales director for Eaton Africa

Power management company, Eaton, has appointed Malvin Naicker as director of sales for its Africa region, effective 1 April 2017.

He has more than 15 years' experience in sales, management and electrical engineering and previously worked for Schneider Electric, Siemens and Mondi Business Paper. He is an electrical engineering graduate from the Durban University of Technology and recently completed a Management Excellence Program at the Gordon Institute of Business Science. Naicker succeeds Neil Primrose who will be repatriating to the United Kingdom to take up the role as the head of EMEA sales for Eaton's Energy Storage Division. ●

Malvin Naicker, appointed as director of sales for Eaton's Africa region.



New COO

Attacq announced the appointment of Jackie van Niekerk as the JSE listed capital growth company's new Chief Operating Officer. Van Niekerk joins with more than 14 years of property experience, starting out as a property manager, working her way up through the ranks to her most recent position as the CEO of Pivotal.



Morné Wilken, CEO of Attacq, welcomed Jackie van Niekerk as the new COO of Attacq, with effect from 1 May 2017. "Attacq is fortunate to strengthen the management team with the appointment of Jackie van Niekerk, who has a proven operations track record in the property industry. Jackie's experience in property and the business world, will add real value in her new leadership role at Attacq," he says.

Wilken explains that the role will lead the asset management, business operations, human capital and risk management teams. In her new role, Van Niekerk will provide strategic support and advise the Executive Committee on matters pertaining to profitability and strategic initiatives

"I am excited about the appointment as COO of Attacq and am confident I can add real value, and strengthen and grow the South African property portfolio to the benefit of shareholders and stakeholders. I look forward to working with the strong and capable leadership team already in place at Attacq. I received a warm welcome from everyone at Attacq and have already hit the ground running," says Van Niekerk about her appointment.

Van Niekerk recently concluded the successful merger between Pivotal and Redefine Properties in her capacity as CEO of Pivotal at the end of 2016. She joined Pivotal Property Fund in 2009 and became the youngest and only woman CEO in the property sector at the time, where the fund grew to a R12-billion listed development fund.

She established Pivotal's offshore strategy by successfully concluding the merger of Mara and Delta Africa to create the MaraDelta Africa fund and acquired an equity stake in Echo Property Polska based in Poland. The establishment of Setso Property Fund, a unique black economic empowerment fund, was done under her mentorship.

Van Niekerk is an esteemed leader and a pioneer for women in the property sector. She is also a wife and mother, proving that women have a significant impact in business.

"Attacq is a fast-growing, JSE listed company and as we grow, so must our skill set in the team. As the owners and developers of Waterfall City and Waterfall logistics hub, Attacq requires a range of skills and we feel that Jackie adds to our diversity and compliments our already strong leadership team," concludes Wilken. Waterfall is South Africa's largest urban infill development, designed to provide everything expected of a world-class modern African city, with all the conveniences and advantages of a leading-quality urban environment. ●

AFRICAN LEADERS IN ASPHALT TECHNOLOGY

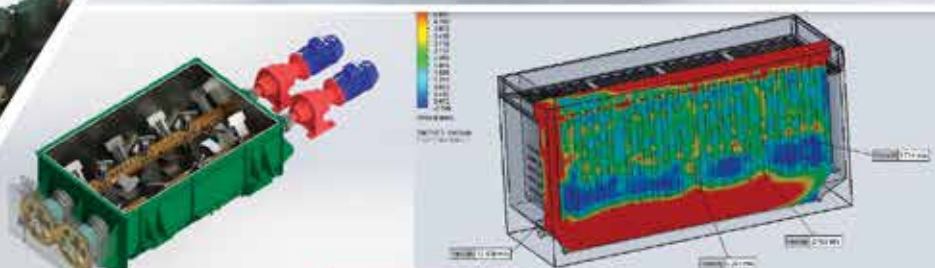
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Getting vehicles BACK ON THE ROAD, FAST

For Scania, repair and maintenance is an integral part of a productive relationship with the customer and it aims to take over the logistics of such a repair process to enable the customer to get on with running their business. This is good news for construction contractors whose vehicles often work remotely and in challenging conditions.

Services offered by Scania South Africa depends on the customer as it is acutely customer solution focused. "It depends on the solution the customer needs – it can range from a maintenance contract to a full repair and maintenance contract," says Theunes van der Westhuizen, General Manager, Retail.

"In addition to servicing or repairs at service centres, we are able to do on-site servicing using the customer's facility, but our own technicians, or we can use our technicians with the customer's technicians. The overriding consideration for Scania's repair processes, is whether it will add value (uptime – which is a key aspect for Scania) for the customer," he says.

A centralised division

The repair and maintenance division, or contracts division, is centralised – whether vehicles operate in South or Southern Africa. It is based at the Scania head office in Aeroton, south of Johannesburg. "Any contract, any management of this contract, any cost coming via this contract, is managed by this centralised division," explains Van der Westhuizen.

When a breakdown happens, rather than the operator trying to negotiate directly with the local dealer, this is done centrally by this division. "A work order bill is opened by the workshop, it is ascertained whether the vehicle is under contract, exclusion and inclusions are checked for, and a job card is opened. The system does certain vetting of the type of repairs to determine if they are within the contract conditions. If there are rejections, we have a team to ensure that this is 100% correct," says Van der Westhuizen of the initial process. "Because the repair and maintenance programme is broken down into main groups, we can specify what the vehicle is covered for."

The team

The same team that handles the repair and maintenance contracts, also handles the processing of warranty claims. "This makes the process more efficient as the process is not disjointed," maintains Van der Westhuizen.

"The availability of parts is one of the key elements of our offering.



LEFT: *Theunes van der Westhuizen, Scania South Africa's General Manager, Retail says that the main aim of Scania's repair and maintenance offering is to get the vehicle back on the road as fast as possible as uptime is key. RIGHT:* An example of a monitoring report.

We have 95% parts availability from the distributor warehouse in Nasrec, Johannesburg. We are proud of the logistical setup that we have. Any part that is available in the country will be dispatched to the customer within hours. If a part is not available in the country, it will be air freighted to South Africa," says Van der Westhuizen.

Marrying breakdowns with information

Technology allows for the monitoring of the vital statistics of vehicles, remotely communicating this data to a central fleet management system.

"We have two packages for Scania Fleet Management products: a *monitoring* and *control* package. The monitoring package (an on-board control unit) is standard on all vehicles and comes at no additional cost. It provides basic key data on indicators such as kilometres driven, fuel usage, harsh braking, periods of idling and driver performance.

With the control package, customers get full fleet management. They can track and monitor their fleet from any computer or mobile device and get detailed information about vital aspects of vehicle operation. Importantly, it can provide insight into driver behaviour and other important aspects that impact cost and performance.

Scania Assistance Software is linked to the Scania dealer system. "When a customer phones the dedicated Scania call centre and provides the chassis or registration number, we can tell whether the vehicle is still under warranty and has a repair and maintenance contract. The system sends a signal to the vehicle to retrieve its last known location as well as any warning lamps or fault codes appearing on the instrument cluster. This is channelled back into the assistance software. The entire process from when the breakdown is logged, a technician is

dispatched, when he arrives, and what is wrong with the vehicle, is captured. Response time can be measured as far as breakdowns are concerned – as it is important to get the vehicle back on the road as quickly and efficiently as possible," says Van der Westhuizen.

Breakdown services

When a breakdown is logged, Scania will determine – depending on what type of breakdown it is and if it can be repaired, or whether it must be towed to the nearest workshop. "Everything is done to ensure that we use the most effective way to get the vehicle back on the road as swiftly as possible.

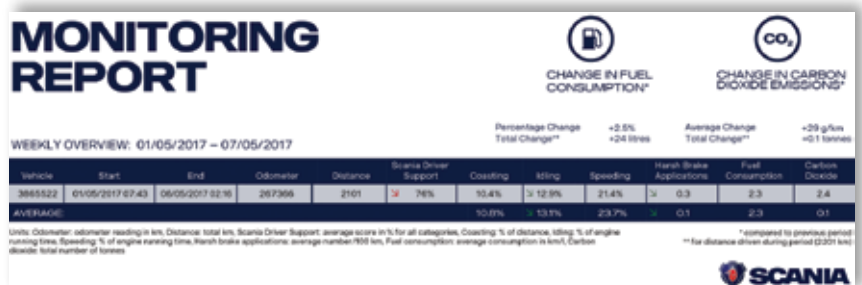
"When a breakdown is logged and given that it has our fleet management product, the system automatically requests the fault codes. This gives technical experts a clearer picture of what may be wrong when they reach the breakdown site. It is obviously better to solve the problem first time around if the repair allows it," Van der Westhuizen concludes. ●

Intervals of service

Scania trucks are serviced every 30 000 km. However, operating conditions play a vital role in determining the service intervals – it varies as it is based on the customer's operation. Servicing can be done off-site – this is done with the customer to enable them to plan optimally.

Warranty

The standard warranty (from date of delivery) is one year unlimited mileage bumper-to-bumper – excluding wearing items.



Mining industry supplier expands

Aury Africa aims to become a leading manufacturer and supplier of high-performance mineral-processing equipment to the African mining industry by 2022. This is the vision of the company's new management team, led by director Sydney Parkhouse.

Key to the ongoing success of the Original Equipment Manufacturer (OEM) is the industry-leading expertise and experience of its management team. Parkhouse, a professional engineer, himself has 40 years' experience in the mining industry, from coal to gold, and has worked as far afield as China, Mozambique, and Colombia.

He is joined by George Sturgeon as business development manager, Ameen Peters as regional sales manager, Kiran Singh as production manager, and Active Ngwenya as sales administrator. "In the meantime, we would like to reassure all of our customers that it is business as usual," Parkhouse stresses.

Parkhouse will ensure that Aury Africa has good representation in Africa, with

the initial focus being on Zambia and Mozambique. "Our mission is to provide our clients with reliable and cost-effective solutions to their production challenges, supported by professional aftersales service teams," he comments. In addition, Parkhouse will strive to forge a closer working relationship with both Aury China and Aury Australia.

Aury Africa produces a complete range of high-quality vibrating screens for the coal, gold, and minerals-processing sectors. This consists of banana, horizontal, circular, high-frequency, and flip-flop vibrating screens.

It also supplies a range of exciters to fit most OEM screen types. Consumable products available include centrifuge baskets, polyurethane (PU) wedge wire



Aury Africa has an extensive stockholding of PU wedge wire panels.

panels, intertank/interstage cylinder screens for classification, sieve bends, static panels for separation.

"A significant competitive advantage for Aury Africa, and a major cost-saver for our clients, is our capability to manufacture these PU wedge wire panels locally," Parkhouse points out. These are available at a fraction of the price of similar imported products panels.

Commenting on the current state of the mining industry, Parkhouse is optimistic that the green shoots appearing in commodity sectors such as copper and iron ore bodes well for the industry as a whole. "We will ramp up our production in conjunction with our clients' anticipation of meeting the demand for commodities globally." ●

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Sun shines on South Africa's CLEAN ENERGY FUTURE

Substantial ultra-violet radiation levels and excellent wind conditions have allowed South Africa to diversify its energy generation mix from one that previously relied heavily upon fossil fuels towards a national grid network that is now supported by green renewable energy (RE).

In line with the South African government's own stated objectives of moving towards a cleaner economy with a very low carbon footprint, RE is expected to play an even greater role in powering the country and its economy moving forward.

This intense focus on harnessing the country's abundance of renewable resources for power production was again reaffirmed by president, Jacob Zuma, in his recent State of the Nation Address when he indicated that the roll-out of RE projects would continue as a national priority.

The announcement was favourably received by both local and international energy experts. This is considering that the fourth round of the Renewable Energy Independent Power Producer Programme (REIPPP) involves 26 preferred bidders across a host of clean energy generation technologies, and represents R50-billion in investment into South Africa.

The acclaimed programme has played a pivotal role in the swift implementation of RE projects in the country, to date. Experts are, therefore, confident that the achievements realised during the first three windows have laid solid foundations to even exceed the current rate of delivery of important clean electricity in the country.

A steep learning curve

"The past five years proved to be a very steep, but essential learning curve for all involved. International technology providers had to adapt to the unique South African operating environment, while establishing close linkages with local participants. With these now firmly in place, as well as the extensive experience garnered by South African participants during the process, I believe that we will witness quicker and smoother implementation of projects under the REIPPP," says Tim Davidson, a director of JG Afrika.

!Khi Solar One Tower

This leading firm of engineers and environmental scientists is closely associated with an array of successful projects under earlier windows of the REIPPP, including the 50 megawatt (MW)

!Khi Solar One Tower in Upington, Northern Cape.

This project remains one of JG Afrika's many milestones, in terms of sustainable power generation. It was the tallest concentrating solar power (CSP) tower in the world when the firm was appointed to provide professional structural review engineering and construction monitoring services.

In addition to the power station's 200 metre (m) tall circular shaft and concrete stiffening ring, JG Afrika undertook a full design review of the infrastructure's 5 200 m³ foundations; 28 m high shear walls at the foot of the tower; 200 m tall stair and lift well; three 35 m x 20 m x 40 m external structural steel light receiver structures; adjoining walkway platform; and extensive structural steel support framework.

The design review included finite element analysis of the structure in its complete state and considered the structural behaviour during the construction phase. Limit state design was undertaken based on the worst case results from dynamic and static modelling, while design loads were based on local and international codified standards.

All designs and drawings supplied by Altac, the engineer, were evaluated and approved or modified to comply with JG Afrika's requirements.

The company was acting on behalf of Spanish sustainable technology specialist, Abengoa, one of numerous European companies that have already invested substantially in South Africa's renewable energy sector.

!Khi Solar One and KaXu Solar One were the first two privately-owned CSP power stations to be developed in South Africa. JG Afrika also acted as the design review consultant for the mirror assembly warehouse on the !Khi Solar One project on behalf of Abeinsa, Abengoa's construction company, complementing its involvement in other utility-scale solar projects. This includes the De Aar and Drogfontein Photovoltaic (PV) Farms where JG Afrika undertook all civil designs on behalf of Siemens South Africa, the engineering, procurement and construction contractor.



ABOVE: !Khi Solar One Tower at Upington, Northern Cape, clearly showing how concentrated solar power (CSP) systems concentrate the sun's energy using the reflection from the mirror panels to produce heat that is then used to generate electricity.

RIGHT: JG Afrika was appointed in JV with CA du Toit to undertake the design of the Balance of Plant, undertake a detailed geotechnical investigation and procure an aerial Lidar survey of a 20 ha area.

Meanwhile, JG Afrika has also built a strong track-record in wind energy projects in South Africa under the REIPPP banner, including acting as owner's engineer on the Noblesfontein Wind Farm. These projects have also relied heavily upon the company's geotechnical capabilities, such as the geotechnical specialist consulting services and a range of geotechnical studies provided to the Metrowind wind farm and Kouga Windfarm projects.

Vast opportunities

Owen Davis, an executive associate of JG Afrika, is confident that this appetite for increased involvement in South Africa's vast RE potential will continue based on its own future pipeline of projects under the REIPPP banner.

Many of these European companies are even exploring opportunities elsewhere in the larger Southern African Development Community (SADEC) region where South Africa's own experience is being used as a blueprint for the efficient rollout of clean energy programmes in other countries.

"South Africa has become a major investment destination for European technology companies. We can, therefore, expect to see more and stronger linkages being forged between them and local developers, as well as participants in the



*Tim Davidson,
a director of
JG Afrika.*

professional teams. This bodes very well for sustainable energy for the country and the larger region," Davis says.

One of JG Afrika's strengths in the market is the range and depth of its technical service offering. This has positioned it as a single point of contact for all engineering services associated with the development of these power stations.

Meanwhile, the firm has also succeeded in gaining a significant head-start in the maturing waste-to-gas market, following its extensive involvement in the first large-scale waste-to-energy plant in Africa that started operating in Athlone, Western Cape, earlier this year.

JG Afrika was part of the team that comprised project initiators and developers, Clean Energy Africa and New Horizons Energy, as well as Fountain Civil Engineering, the engineer, procure and construct contractor. The firm was involved in site-development planning, traffic and transportation, as well as the civil and structural contract and design elements of the project.

In addition, JG Afrika was tasked with the integration of certain designs, with environmental and building plans, plus essential stormwater and effluent-management planning, while serving as the lead consultant in the mechanical, electrical, IT, ventilation and fire teams, as well as for architectural and building plan approvals.

Participation in this project has also bolstered the engineering and environmental firm's capabilities in biomass projects, definitely a highlight of this next round of



Lifting solar power contractors up

Johnson Crane Hire has an established reputation for handling small lifting on a wide range of construction and utility projects sites. This skill and experience has resulted in the company securing a number of contracts from solar power projects, especially in the Northern Cape region.

Commenting on this Peter Yaman, sales executive at Johnson Crane Hire, says that it is the ready access to a range of mobile cranes that positions the company well to undertake lifting in remote regions such as this. Johnson Crane Hire has an established branch in Kathu and while servicing the mining sector it can support the lifting requirements of the solar power contractors.

"The power of dealing with the largest privately owned mobile crane rental company in Africa is that through our vast branch network, we are always able to draw additional resources from other branches, should this become necessary," Yaman says.

"Planning of lifting activities is one of our strengths and we dovetail the lifting with the individual construction programmes so as to ensure optimum productivity for the

individual solar power contractors."

Lifting the components, including the imported sections which make up the composite panel structures, needs to be done with care. This is where pre-planning and the use of skilled and experienced operators plays a major role.

Johnson Crane Hire has a team of highly skilled and trained operators. Not only are the operators well versed in the actual operation of the cranes, but they are also completely familiarised with the application on the solar power farms.

"We differentiate ourselves by providing all customers throughout South Africa and neighbouring countries with a total lifting solution delivered through our 'SMART' – Safety, Maintenance, Availability, Reliability and Total Cost Effectiveness – brand promise," Yaman says.

Safety underpins all Johnson Crane Hire operations, with comprehensively documented and implemented safety systems that comply with all industry safety standards and thorough risk assessments conducted before each lift. There is also a primary focus on proper crane maintenance at all branches, supported by the company's national workshop in Johannesburg.

Comprehensive workshop facilities, technical expertise and superior systems have earned Johnson Crane Hire the reputation of owning the most well maintained lifting equipment in Africa, and Yaman says this could be the primary reason why solar power contractors are favouring the company when it comes to lifting. ●

the REIPPP that will also help the country optimise the use of its vast forestry and sawmilling residues.

Examples of these biomass projects are those using wood-waste to produce electricity, or other forms of energy, and JG Afrika has already engaged with Scandinavian investors and developers of such technology.

Both Davis and Davidson are extremely proud of their involvement in helping South Africa secure a sustainable future that is in line with the growing international "green" consciousness, as well as JG Afrika's own ethos regarding infrastructure development on the continent. ●

MAKING BUSINESS SENSE

Abland and its partners have commenced work on a new Industrial Precinct situated on the slopes of the historic Durbanville Hills estate on the N7 near Cape Town, which will have easy access to major highways and arterial routes.

► This is the brainchild of Abland known for its sustainable property developments. The Atlantic Hills Business Park is set to evolve into a long-term value creation for its owners and tenants, the first of whom will take occupation in January 2018.

Access and convenience

The Atlantic Hills Business Park is also well positioned for future city growth. Situated on the Potsdam interchange with direct access onto the M12 and immediate access onto the N7 and M13, the Atlantic Hills Business Park provides easy access to the V&A Harbour, Montague Gardens, Killarney Gardens, Atlantis, Durbanville, Parklands and Platteklouf. Atlantic Hills will also be integrated into the City of Cape Town's transport system, providing public transport access from Milnerton, Parklands, Platteklouf and Durbanville.

The 72-hectare site is ideal for distribution, warehousing and cold storage businesses. State of the art fibre-optic telecons will also be installed on all sites.

The Master Property Owners Association will control security within the Atlantic Hills Business Park using an up-to-date camera surveillance system. Rapid response security personnel will respond to all issues identified by the security system. Cameras will be located at entrances and other appropriate positions.

The size of the stands is flexible and can be custom designed from 1 000 m² to 100 000 m² with sufficient power available for low and high use purchasers or tenants. Abland offers tenants an all-inclusive, completely integrated service, to suit their specific requirements. Premises on each stand will be purpose-built with the infrastructure planned for maximum flexibility.

A portion of the precinct will be developed for mixed use, offering tenants a retail component, including a petrol station with convenience shopping and fast food outlets.

Holistic development

The Atlantic Hills Business Park will be a holistic development and promises to be visually striking. Strict design guidelines will be adhered to with each building complementing the surrounding buildings and the environment, with a view to contributing positively to the immediate neighbourhood rather than standing in isolation.

The design guidelines encourage simplicity, scale and vertical proportions, refined details and the use of a prescribed colour palette, establishing a recognisable and notable node.

Tenants are encouraged to ensure that their warehouse façades are not bland and featureless, but rather include design elements that break the monotony. The office or showroom components will also be designed as a coherent part of the warehouses with the use of colour and materials creating a holistic aesthetic.

All boundaries will be suitably landscaped as an integral part of the overall landscape design and only indigenous plants will be planted.

Earthworks and services installation are currently underway at Atlantic Hills for all infrastructure on the first phase of the development. Construction of premises for the first tenants is expected to commence in the fourth quarter of 2018.

Atlantic Hills Business Park is the ideal location for three categories of tenants. These include the larger user who needs convenient access to the harbour, just 22km away on a direct route. Those tenants who want easy access to the Namibian route will also find the Atlantic Hills precinct ideal.

Thirdly, tenants who would like to be closer to home or move their existing premises from the more traffic-congested areas will be perfectly placed within the development. The fact that Abland will extend the M12 to the entrance of Atlantic Hills is also a major advantage for all tenants. ●



To celebrate its first birthday, the Mall of Africa hosted a 'Safari of the Senses' tour through the mall for members of the media. They were treated to a sensory journey through the Mall of Africa where they could experience all that is on offer and interact with some of the leading brands, including Woolworths, Starbucks, Jo Malone, Sorbet Man and Lucky Bread to name a few.

► In his welcome address Morné Wilken, CEO of Attacq explained that Attacq regards the Mall of Africa as one of its most valuable assets in the Attacq property portfolio.

"This mall is the realisation of a very significant vision and a long-term business journey. We identified a gap in the market to develop something extraordinary in the Waterfall area in the centre of Gauteng, the financial hub of South Africa," says Wilken.

The idea behind the Mall of Africa was to create something unique. "Given the great location, we wanted to create the benchmark Mall for Africa and therefore we aptly named it Mall of Africa," notes Wilken. "The Mall of Africa is conveniently located



MALL OF AFRICA – ONE YEAR LATER

in Waterfall on the N1 at the Allandale off-ramp, we created a unique Gauteng destination experience for local shoppers, visitors and tourists alike," he says.

The nature and design of the mall meets the identified customer needs. Mall of Africa caters for significant footfall, making it attractive to top international brands, national and other quality tenants. Its stature secures the future of the mall and ensures it will dominate in the region.

The 133 000 m² first phase is a significant draw card for both leading retail brands and shoppers, at its more than 300 retailers and restaurants.

"Attacq is very proud of the first year of trading since opening day, 28 April last year, when more than 123 000 people visited the mall. In the 11 months to the end of March this year, over 13 700 000 people had visited the mall at an average monthly visitors' rate of over 1 200 000 visitors per month. Our best performing months were May 2016 with 1 537 661 visitors and in December when 1 517 899 visited the Mall of Africa," explains Wilken.

Despite tough economic times Mall

of Africa is trading above expectations. Attacq proudly states that the Mall of Africa achieved a turnover of R3 427 184 526 for the eleven months of trading to March 2017, at an average of R311 562 229 per month with a highlight month of R491 145 650 turnover achieved in December.

Sustainable mall

"Waterfall is a leader when it comes to sustainability in Gauteng. Attacq is testing business cases for sustainable technologies across waste, water, carbon, and energy.

"The energy and water ratings of our buildings in Waterfall is an ongoing process, as these are not only good practice in transparency, but also highlights where we can improve most efficiently, and the Mall of Africa is no exception," he adds.

As part of the sustainable environmental approach, a solar rooftop photovoltaic plant, with 15 080 solar panels, has been installed on the roof of the super-regional

Mall of Africa in Waterfall City. The 4 755 kWp PV plant, covering an area of 30 000 m², will direct electricity into the six substations in the Mall of Africa, generating

more than 16% of the mall's power requirement. More than 360 km of DC cables were used to connect the solar panels on the roof to the inverters in the building.

The clean renewable energy generated at the plant will reduce the carbon footprint of the Waterfall City by 8 180 tonnes of CO₂ in the first year of operation.

When completed this will be the largest rooftop diesel/PV hybrid system in the world. The use of the plant will save 4 394,36 tons of coal per year and reduce the coal trucks on the road by 157 per year.

The design of Waterfall City is to create an environment where people can work, live and play and continues to be one of the most attractive development pipelines in South Africa, given that it is an infill development without legacy issues, while having significant scale and in an excellent location.

Wilken concludes: "We are committed to the future of Gauteng as the economic hub of the continent and to adding value to the future of South Africa – we will be part of the solution for economic prosperity in the region". ●

Century City's R460-million offices

A new development of 16 300 m² of premium grade offices, which will include new regional offices for Discovery, is to be built on a prime gateway site at Century City.

Being developed by the Rabie Property Group at a cost of R460-million, Sable Park will comprise two four storey buildings of 8 000 square metres and 8 300 sqm² respectively, each with two levels of underground parking.

Designed in a contemporary modern vernacular by the award-winning dhk Architects, the buildings will front on to Sable Road providing high visibility and offering uninterrupted panoramic views of Table Mountain and Table Bay.

Discovery's Cape Town staff, who will be relocating from elsewhere at Century City due to their existing lease expiring, will be occupying the larger of the two buildings.

The second building, which is ideally suited for a large user looking to make a strong corporate statement, is being designed to be flexible and if needs be, could be sub-divided to accommodate smaller users, says Rabie director, Colin Anderson.

David Pierre-Eugene, head of Group Facilities at Discovery, said: "With our existing leasing commitments coming up for renewal, we were on the look out for new premises whereby we could be consolidated into one building and have options for future growth.

Sable Park is situated in the all-green Bridgeways precinct which has become the new commercial and hospitality hub of Century City. The precinct is home to a number of other blue chip companies including the new Absa regional offices, Chevron, Philip Morris, the Business Centre, Thomson Reuters, Mastercard, Derivco, Northfund, Glad Africa and the Rabie Property Group amongst others.

Also located in the precinct is the mixed-use Century City Square which comprises the Century City Conference Centre and Hotel, 15 000 m² of offices, 51 apartments and five restaurants, pubs and coffee shops surrounding a public square and served by 1330 parking bays in a super basement and a structured parking garage.

Century City Square development was recently awarded a 4-Star Green Star – Custom Mixed Use Design rating by the Green Building Council of South Africa, the first development in the Western Cape to achieve this. Five other office buildings in the precinct have also received Green Star ratings. ●



2 BEST PROJECTS 17

Construction World's Best Projects showcases excellence in the South African building, civil engineering and project management sectors.

In its 15th year, the aim of *Construction World's* Best Projects is to recognise projects across the entire construction industry: from civil and building projects to professional services to specialist suppliers and contracts.

There are six categories in which to enter. Projects may be entered in several categories, provided they meet the prerequisites for entering each one, as well as meet the entry criteria.

Judging

A panel of independent judges from the construction industry has been appointed. These judges represent ECSA, SAICE, MBA and CIOB. They are Trueman Goba, chairman of Hatch Goba and former ECSA and SAICE president; Nico Maas, chairman of Gauteng Piling and former president of the Master Builders' Association; and Rob Newberry, managing director of Newberry Development and founding president of the Chartered Institute of Building.

Each criterion as set out for the various categories will be scored out of 10 – with 10 being the highest score and one being the lowest – it is therefore VERY important that entries address the criteria for the particular category it is entering.

In each category an Overall Winner Award and one or two Highly Commended Award(s) will be made. A 'Special Mention' award may be given.

Awards evening

The awards ceremony will be held on **Wednesday, 8 November 2017** at the Royal and Kensington Golf Club in Johannesburg.

Entry criteria for each category

- Construction innovation technology
- Corporate social investment
- Design innovation *
- Environmental impact consideration
- Health and safety
- Quantifiable time, cost and quality *
- Risk management *
- Motivating facts about the project

(*The same criteria pertain to all categories except for 'Category B: Specialist Contractors or Suppliers' where the following do not apply: Design innovation; Quantifiable time, cost and quality; Risk management.)

Category A1: Civil Engineering Contractors

Prerequisites for entries

- Only South African construction and civil projects executed by locally based companies.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

REFER TO ENTRY CRITERIA

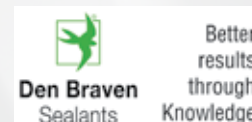
Category A2: Building Contractors

Prerequisites for entries

- Only South African construction and civil projects executed by locally based companies.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

REFER TO ENTRY CRITERIA

Bronze sponsor:



Category A3: Civil Engineering and Building Contractors (outside South Africa)

Prerequisites for entries

- Projects outside South Africa, executed by a South African contractor.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

REFER TO ENTRY CRITERIA

CALL FOR ENTRIES

Submitting entries

- Each entry must be accompanied by the completed entry form; available on www.constructionworldmagazine.co.za or by requesting it from constr@crowm.co.za.
- The maximum length for submissions is 2 000 words
- Each submission must clearly state which category is entered for*
- **IMPORTANT** It is to the entrants' own advantage to address ALL the criteria as set out in the category being entered. If a criterium fell outside the scope of the contract, please state this.
- The written submission must be accompanied by up to six high resolution photographs with applicable captions.
- The photopgraphs and copy must be submitted separately – NOT in PDF format.
- The submission must also contain a summary list of important project information such as client, main contractor etc. – i.e. the professional team involved in the project.
- Electronic submissions are acceptable – entrants do not need to produce hard copies of entries.

* *Construction World* retains the right to move entries into a more appropriate category.

Deadlines

Deadline for entries is
Friday, 8 September 2017 at 17:00.

Contact

For further information contact the editor, Wilhelm du Plessis on 011-622-4770 or constr@crowm.co.za

Special issue

The December issue of *Construction World* is dedicated to the various winners and entries and is thus an overview of activity in the built environment during the past year.

Category B: Specialist Contractors or Suppliers

Prerequisites for entries

- Only South African construction and civil projects executed by locally based companies.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

Criteria for category B

- Construction technology innovation
- Corporate social investment
- Environmental impact consideration
- Health and safety
- Motivating facts about the project

Silver sponsor:



Category C: Professional Services*

Prerequisites for entries

- Only South African construction and civil projects executed by locally based companies.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

REFER TO ENTRY CRITERIA

***Depending on the entries received, an award for both consulting engineers AND architects will be made.**

Category D: The AfriSam Innovation Award for Sustainable Construction

Description of category: Working with the community on a project that has socio-economic impact.

Prerequisites for entries

- Only South African construction and civil projects executed by locally based companies.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

This category will be judged on the project's

- change and transferability
- ethical standards and social equity
- ecological quality and energy conservation
- economic performance and compatibility
- contextual and aesthetic impact

REFER TO ENTRY CRITERIA

Main sponsor:



AfriSam EXPERTISE at the core of CPM SECTOR GROWTH

Much of our modern world is constructed using concrete; in fact, concrete is the second most consumed substance on earth after water.

Today, many contractors are faced with the decision as to whether to use in-situ concrete, precast concrete products or a combination of both. There are a number of deciding factors, chief amongst these are the project time frame, the quality, the safety and the cost.

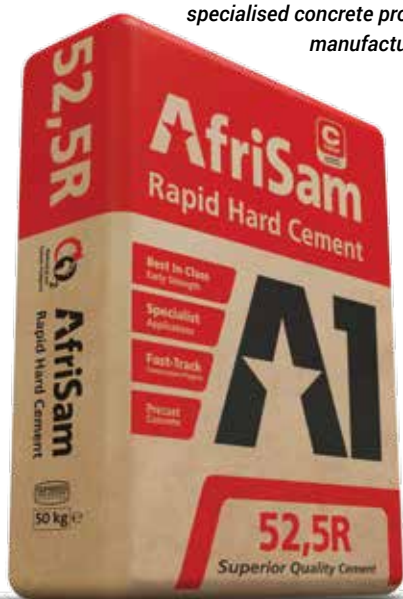
Shortening of time frames

National sales manager at AfriSam, Amit Dawneerangen, says that the rapid pace of urban development has necessitated a shortening of construction time frames, and this has led to contractors looking more favourably upon precast concrete products.

"Concrete has proven for more than 2 000 years to be durable and the use of precast concrete products is not new," he says. "As far back as ancient Rome the material was poured into moulds enabling this civilisation to build its complex network of aqueducts, culverts and tunnels.

"What is new is the combination of this traditional material – concrete – with constant industrial innovation by the local manufacturers to produce precast concrete systems and products that meet the needs of the infrastructure and built environment

AfriSam's Rapid Hard Cement has been developed for specialised concrete product manufacturers.



contractors," Dawneerangen says.

This has made the concrete precast manufacturers (CPMs) sector highly competitive, and operating in an economically constrained environment has added to the challenges faced by these operations. Significantly, South Africa is home to a broad spectrum of CPMs from small to medium enterprises to large scale manufacturers; yet all face similar challenges in terms of optimising concrete mid designs while reducing the total cost of manufacture.

"The watchword for CPMs has become operational efficiency, and AfriSam has found that many turn to an independent third party to advise them on best practice in terms of concrete technologies," he says.

AfriSam's offering

Not only has this been a catalyst for AfriSam's new offering which was implemented at the beginning of this year, it is also directly in line with the company's philosophy of creating concrete possibilities.

AfriSam offers CPMs an Efficiency Audit which is used to assess and evaluate the operating processes at an individual CPM, and based on this the company is able to make informed recommendations, especially on the most appropriation selection of materials for their production process.

"What is most important about our approach to support the CPMs is that we are not applying a one-size-fits-all approach," Dawneerangen explains. AfriSam has built its reputation on the sharing of its expertise to assist customers in building sustainable businesses and is aware that majority of the CPMs do not have access to an in-house concrete technology specialist.

AfriSam's Centre of Product Excellence has the necessary depth of experience and skilled technologists who understand concrete product manufacturing processes. This means that solid technical support is readily accessible to this sector of the market.

Importantly, the AfriSam Centre of Product Excellence has also helped many new players establish a presence in the market by imparting essential knowledge on



the cement, aggregates and sand required to manufacture a quality product, and particularly early on in the conceptualisation stages of these factories.

"In the CPM market we focus on assisting our customers to operate as efficiently as possible and this involves evaluating the existing mix designs and assisting to reduce unnecessarily costly components without compromising the quality of the end product," he says.

"By drawing on all the alternatives, it is possible to provide the most cost effective solution for each customer. It is about building relationships that give our CPMs a competitive edge and reflects the quality, consistency and high performance of our products."

He cautions that the incorrect selection of materials will not only have a significant impact on the quality of the end concrete product, but also on the cost of manufacturing. For example, a poor quality aggregate could increase both cement and water usage, he says.

A large number of products

Based on its close interaction and collaboration with this market, AfriSam has developed a number of cement products that meet the specific needs of the CPMs.

Dawneerangen refers to AfriSam's Rapid Hard Cement in the 52.5R strength class and AfriSam's High Strength Cement in the 42.5R strength class and 52.5N product. AfriSam's Rapid Hard Cement meets the high early and late strength requirements of the industry.

"The "R" early strength factor in AfriSam's 52.5R CEM I Rapid Hard Cement and 42.5R CEM II High Strength Cement is proving to



By using AfriSam cement, CPMs have reduced their cement consumption, while achieving better finishes and durability of their concrete products.



AfriSam's Centre of Product Excellence has the necessary depth of experience and skilled technologists who understand concrete product manufacturing processes.

be a real differentiator in the CPM market. Top of the range 52.5R Rapid Hard Cement, developed for specialist concrete product manufacturers, is performing particularly well, achieving in excess of the SANS 50197 minimum of 30 MPa mortar strength at the two day mark," he says.

This is enabling CPMs to develop a variety of new high specification products, such as highway barriers, roof tiles, retaining wall systems, culverts and concrete pipes. AfriSam is the only company to manufacture 52.5R Rapid Hard Cement as a standard product.

AfriSam offers CPMs an Efficiency Audit which is used to assess and evaluate the operating process at the individual CPM, and based on this the company is able to make informed recommendations.



Its 42.5R High Strength Cement has been specially formulated and activated to allow for further extension with additional mineral components in the production of structural concrete. The "R" rating of the High Strength Cement is supported by AfriSam's strict quality control plan and this product is achieving in excess of the SANS 50197 minimum of 20 MPa mortar strength at the two day mark.

AfriSam High Strength Cement is commonly used to achieve concrete strengths of between 10 and 50 MPa, but it is also suitable for high strength concrete, with strengths of 80 MPa and higher.

By using this AfriSam cement,

CPMs have also reduced their cement consumption, while achieving better finishes and durability traits of their concrete products.

Importantly, AfriSam's SANAS-accredited laboratory services are also available to verify and test the efficiency of mixes, and product deliveries can be specifically scheduled around customers' individual activities. "AfriSam is committed to the CPMs sector and with our expertise at the core we believe it will continue to grow as developers, architects and contractors see the gains achieved by using precast concrete systems," Dawneerangen concludes. ●



Choosing the correct specification and high quality raw material can significantly impact on the efficiency of CPMs.

BRUTALLY BRILLIANT BRICK

Unlike Johannesburg architect, Thorsten Deckler, who feels that you can pretty much build anything with facebrick, many people over the decades have felt differently about utilitarian brick and concrete. Including English poet, writer and broadcaster, Sir John Betjeman who wrote a 10-stanza poem, entitled *Slough* which called for the destruction of the English town by the German Luftwaffe.

In the inter-war years the English town of Slough was used as a dumping ground for redundant war materials and quite abruptly, just before World War 11, became the home of hundreds of ugly new concrete and brick factories. Betjeman was so struck by the desecration caused by industrialisation and what he perceived as the “menace of things to come” that he was prompted to write the poem but later regretted its harshness.

The ‘new’ trading estate appearance of Slough, however, was a foretaste of the Brutalist brick movement, which flourished from

A window in Sankt Petri, seen from the inside. The glass was fixed to the outside of the walls by means of mastic so that no window frame would be visible, heightening the primal and raw qualities of the space.



the 1950s to 1970s, and which has some severe critics, amongst them Charles, Prince of Wales. His writings and speeches have often been condemning of the movement and in 1987 at a Corporation of London Planning and Communication Committee annual dinner he said: “When they (Luftwaffe) knocked down our buildings, it didn’t replace with anything more offensive than rubble”.

Luckily, not everyone shares these Brutalist sentiments. Deckler who, together with his wife Anne Graupner, runs a practice named 26’10 South Architects after the latitude of Johannesburg – this is in part a commitment to this rather fraught but exciting city – is a fan of brick.

And, while many of us who grew up in the 70s still have mixed feelings about suburban facebrick housing, Deckler has less qualms professing to a “somewhat warm and fuzzy feeling for knotty pine and facebrick”.

“I guess I associate these materials with both the happy homes I spent time in as well as a period in which honesty of materials was valued,” he explains. However, he admits that the opposite can also be true: exposed brick deployed in an oppressive environment can lead to a strong aversion for the material.

Exposed brick

Asked to name local and international architects that have worked with exposed brick who he admires, Deckler admits to being a fan of the Swedish Brutalist architect, Sigurd Lewerentz (1885 – 1975) and local architect, Jack Clinton. However, he wonders if, “Lewerentz fits the Brutalism bill 100 percent”? In photographs his work might seem forbidding but Deckler, who recently returned from a trip to Sweden where he visited a number of Lewerentz projects, comments that when you “visit his works, they feel humane, even friendly”

According to Deckler, Lewerentz used brick in a gripping manner which is witnessed in many of his projects from the Eneborg housing

Exterior of vestry offices at St. Mark’s in Bjorhagen showing characteristically thick mortar joints containing slate chips for additional strength.





Exterior of vestry offices at Sankt Petri showing various brick patterns.



ABOVE AND BELOW: St Mark's brick vaults supported on angled steel beams. (All Images: T. Deckler.)



Deckler leaves us with this thought: "This all goes back to the argument that decent architecture, no matter what material and style it is, can be enabling, comforting, inspiring and memorable if it is in control of proportion and scale, and offers intimacy and generosity."

Corobrik, the brickmaking giant has been supplying the Southern African market for the past 115 years.

"Our bricks are as relevant today as they were a century back," said Musa Shangase, Corobrik Commercial Director. "We continue to invest in our business to ensure we remain relevant and can produce bricks, that are environmentally friendly, long lasting and never go out of fashion." ●

project which called for construction in the local dark clay brick to two world renowned Swedish churches, St Peter's in Klippan and St Mark's in Bjorkhagen, Sweden. Both churches show his investment in brick as a material and his mastery of the medium. And, both churches are a showcase of his ability to transform the use of clay brick from what many believe to be the mundane into tactile spaces which resonate with atmosphere.

In the St Peter's structure, Deckler was particularly admiring of Lewerentz's ability to allude to and evoke the atmosphere of the Roman catacombs where early Christians hid to escape capture.

Here the entire structure is made from brick including the walls, floors and ceilings. He also forbade the workmen to cut any of the bricks or grind off welding burs on the steel work to ensure an unpretentious directness. "One can argue that this is what most builders in South Africa achieve without even trying....but in the case of Lewerentz it's a premeditated move over which he presided with utmost control and intent," explains Deckler.

The Brutalist movement was a big fan of brick – utilitarian, stark and rugged, Brutalist brick buildings are typically massive in character if not in size and are renowned for their functionality. Favoured for educational buildings, government projects and public housing, Brutalism can be seen as an expression of moral seriousness amongst architects after the lightness and frivolity of some 1930s and 1940 architecture. "I have some feelings for Brutalism where it was handled less dogmatically and where proportions, human scale and the integration of nature are well considered," says Deckler recalling many of Lewerentz's works.

Favoured long before

Facebrick, however, was favoured long before the Brutalist movement as is witnessed in the Monadnock Building in Chicago, USA. Built in 1891 and completed in 1893 the Monadnock was the tallest load bearing building ever constructed and is identified by its unornamented vertical mass of purple-brown brick. Deckler, who recently returned from a trip to Chicago was impressed by this 16-story high-rise. "The facebrick material made an incredible impression on me and the building's deep window reveals and rounded corners gave it a tactile feel that was almost African in nature, reminding me of the earth architecture of Mali," he commented.

From churches to corporate buildings and suburban homes, around the world facebrick has featured prominently in the last century, the choice of architects looking for honesty, practicality and integrity.



Paarl BULK SEWER line's innovation

Keller's Franki Africa has developed a reputation for being able to deliver cost effective geotechnical solutions using a wide range of appropriate technologies in a host of different, and often challenging, ground conditions. "We have worked in Southern Africa for many decades and have a profound understanding of the different soil conditions and the optimal geotechnical solutions for them," says Franki's trenchless technology manager, Byron Field.

He adds that this knowledge often enables the company to be proactive in solving problems that, on the face of it, sometimes seem insoluble. "The Drakenstein Municipality's Bulk Sewer Pipeline is an excellent example of this," says Field.

The challenge

The path of the sewer pipeline – which is in the Paarl, Western Cape area – includes a ±105 m stretch across Arboretum Rd and the N1 highway followed by a ±110 m section which runs parallel to the Boschenmeer Golf Estate boundary wall at a depth of between -6 m and -8 m.

According to Field, the main challenge was the relatively unstable ground conditions, which comprised sands from 0 to -4 m with loose cobbles and boulders from -4 to -8 m and a very high water table.

He adds that SANRAL also had strict wayleave conditions prohibiting the DM from conducting works beneath the national highway unless they were able to prove that every conceivable precaution was taken to protect the highway and to ensure uninterrupted use.

It was obvious that a 'trenchless' methodology, like pipejacking, was required in order for the new sewer to run under the roads without interrupting traffic. But, also, the depth of the pipeline and its proximity to the Boschenmeer Golf Estate boundary

Contract summary

- **Project:** Contract No. CES 14/2015
- **Client:** Drakenstein Municipality
- **Engineers:** Lyners
- **Main contractor:** Vakala Construction
- **Specialist geotechnical contractor:** Franki
- **Contract commencement/completion:** August 2016 – Feb 2017
- **Scope of specialist geotechnical work:** 215 m 1780ø O.D. Pipejack; 250 m³ Grouting

wall made open excavation unpractical in this area.

The ground conditions were analysed and a new challenge was encountered Field explains: "Firstly, the level of the sewer passed directly through the cobble layer between -4 m to -8 m and when pipejacking through this type of ground it is virtually impossible to prevent collapse of the cobbles during excavation. Secondly, the high water table tends to draw fines from the surrounding ground towards the jacking shield. Both of these things could have led to over-excavation resulting in ground level settlement," he says.

Franki's proactive proposal

Franki then approached the Drakenstein Municipality with a proposal to treat the ground beneath Arboretum Rd and the N1, as well as alongside the Boschenmeer golf estate boundary wall.

The proposal entailed Jet Grouting – which involves the mixing and partial replacement of the in-situ soil with cement slurry – to consolidate the in-situ ground condition along the sewer centreline and between the depths of -4 to -9 m and then installing a pipejack through the treated ground.

"The treatment of the ground would prevent collapse of the sand and cobbles during pipejack excavation and would reduce the ingress of water to manageable levels," Field says.

He adds that Jet Grouting was Franki's preferred method of treatment as high pressure jetting can be used to consolidate in-situ ground at exact levels and can provide up to 2,5 m diameter columns with only an 80 mm drill stem.

The municipality's design team found the proposed solution acceptable, included it in a tender document for this phase of the works and, in August 2016, Franki was appointed by the main contractor, Vakala Construction, to carry out the specialist geotechnical works as per their envisioned specification.

The result

Field says that the result could not have been better. "The Jet Grouting work went according to plan and was carried out with zero impact on traffic. In addition, once the Jet Grouting was completed and the site was cleared, there was no remaining evidence at ground level that the ground beneath had been treated," he says.

As for the pipejacking Field says the entire operation went smoothly with the ground treatment "working beyond even our highest expectations" The subcontract work was completed by Franki on time (February 2017) and on budget. ●



5 m shored jacking pit ready to start pushing jacking shield.

BELOW: Exposed trial jet grout column clearly showing dense cobbles that are bound together after treatment.



Franki is renowned for its geotechnical solutions using an array of different piles including driven tube piles, precast piles, auger piles, full displacement screw piles, rotapiles, micropiles, the famous Frankipile (driven cast-in-situ pile) and many more. It is also well-known for its soil improvement systems including dynamic compaction, deep soil mixing, accelerated consolidation and of course Jet Grouting as discussed above.

Franki's skills in trenchless technology are just as strong and for more than 30 years it has successfully provided pipe-jacking and other trenchless technologies – augering, thrust boring and large diameter case boring – to a wide range of clients in Southern Africa.

Trenchless technology is a 'family' of methods, materials, and equipment capable of being used for the installation, replacement or rehabilitation of existing underground infrastructure with minimal disruption to surface traffic, business, and other activities. It is, therefore, often the most cost-effective solution.

Pipejacking, an integral part of this 'family', is a technique for installing underground pipelines, ducts and culverts. Powerful hydraulic jacks are used to push specially designed pipes through the ground behind a shield at the same time as excavation is taking place within the shield. The method provides a flexible, structural, watertight, finished pipeline as the tunnel is excavated.

By being part of the Keller Group, Franki's leadership in the Geotechnical space in Southern Africa has been significantly enhanced. Keller is the world's largest independent geotechnical engineering contractor, giving Franki significant advantages including access to a wide range of innovative technologies - including trenchless technologies – and in the areas of finance for future growth, new state-of-the-art machinery and, of course, a wealth of geotechnical intellectual property and experience.

Jet grouting rig installing raker columns beneath N1.



Addressing South Africa's skills deficit

The South African bill of rights states that, "Everyone has the right to a basic education, including an adult basic education." Education is essential for the transformation of South Africa's society, providing individuals with the knowledge required to bring about social, economic and political change.

Despite this, South Africa still struggles from a skills deficit with current estimates suggesting that less than half of school starters will go on to complete Matric. To address this shortfall proactive businesses are implementing adult education programmes to bridge the skills gap from within.

One company that is setting the benchmark for employee development is Kwikspace Modular Buildings (Kwikspace). As part of their adult learning programme, Kwikspace offers employees who have not completed their basic education the opportunity to enrol in an Adult Education and Training (AET) Programme which provides training from National Qualifications Framework (NQF) level one to level four, which is the equivalent of a grade 4 to 10 level of schooling.

Comments Cynthia Kubheka, human resource executive at Kwikspace: "Through our staff training programmes, we endeavour to provide our employees with the tools they need to reach their full potential. We have been blessed with a workforce that is eager to learn and this year we are proud to have 34 employees enrolled in our adult learning programme."

However, completing one's basic education is hardly the end of the road and the recent spate of university protests have brought the economic barriers to obtaining a higher education sharply into focus. Therefore, Kwikspace employees who have achieved a NQF level four or passed Matric are eligible to further supplement their education by taking part in a series of learnerships including project management, business administration and business management.

Adds Kubheka: "There is a high level of poverty among young people in South Africa, making it difficult for some to pursue secondary or tertiary education or training. Kwikspace's extended adult learning programme is an attempt to remove some of the barriers to obtaining a higher education and provide real opportunities for transformation.

Despite high levels of unemployment in the country, employers still often struggle to fill jobs. According to the 2016 Manpower South Africa Talent Shortage Survey, 34% of local employers are having difficulty filling jobs, citing lack of experience, lack of hard skills and a lack of available applicants as some of the reasons. This has led to local employers, such as Kwikspace, looking for solutions within their organisations and 86% claim to be training and developing existing employees in order to fill open positions.

Concludes Kubheka: "The benefit of developing employees is two-fold. Not only do you have a more skilled workforce but also a more engaged workforce, motivated by the prospect of upliftment and opportunities for success." ●



On track with NCERA IRRIGATION SCHEME

Quality fluid-conveyance solutions provider Incedon is supplying the bulk pipeline to main contractor Xesibe Construction for the Ncera macadamia project for the Eastern Cape's Department of Rural Development and Land Reform.

Incedon's scope of work comprises the supply of 2,4 km of 400 mm class 16 MPVC and 700 m of 400 mm Class 30 ductile iron pipe, as well as related engineering components to Xesibe Construction, Brendon Pelser, civils sale representative – Eastern Cape, Incedon, explains.

"Incedon's well-trained civils team and strong supplier relationships ensure the client has peace of mind by accessing best-of-breed brands that comply with local and international quality standards," Pelser explains.

Tekflo valves, supplied exclusively in Southern Africa by Incedon, were specified for the project, along with AVK and Vent-O-mat Air valves, for which Incedon holds preferred distributor status.

"Incedon was chosen as the preferred supplier by the client as it could get all of its materials from us, meaning it did not need to purchase from multiple companies, open multiple accounts, and be concerned about multiple delivery dates.

"Secondly, the Incedon product range fulfilled the pre-requisite that the bulk of the material be manufactured locally which, in turn, boosts the local economy and supports job creation," Pelser notes.

The exception was the ductile iron pipe, sourced from Electrosteel India, a pioneer in this regard that supplies

Brendon Pelser, civils sale representative – Eastern Cape, Incedon.



The ductile iron pipe was sourced by Incedon from Indian pioneer Electrosteel.

35 countries. The pipe conforms to BS EN 545:2010/ISO 2531:2009, with push-on joints. The standard length is 5,5 m, with the option of supplying shorter lengths as permitted by the standard. Incedon is also supplying socketed accessories such as EPDM rubber gaskets and lubricant.

Once completed, the irrigation scheme will feed water from the Ncera River to the macadamia nut farms located in the area. Xesibe Construction is forging ahead with the project, with 70% of the pipeline supplied by Incedon already laid.

Pelser adds that the Eastern Cape is a key focus area for Incedon, as the majority of the area is rural and in dire need of water-supply infrastructure to villages, schools, and outlying areas. "The region has so much potential, with many new projects in the pipeline," Pelser concludes. These include the KwaBhaca Water Supply Project for Ward 7 in East London, in conjunction with LNP Construction. ●



The pipe conforms to BS EN 5452010/ISO 25312009, with push-on joints.

Another milestone on Africa's premier wind power project

WorleyParsons reports that the project delivery and engineering consultancy is nearing completion of its major scope of work on the Lake Turkana Wind Power (LTWP) Project in Kenya,

This includes a key milestone of 120 wind turbines attaining Ready for Energisation (RFE) status in January 2017 and installation of all 365 turbines completed on 5 March in only 362 days.

WorleyParsons' South Africa team was contracted in November 2014 by the LTWP consortium to provide overall project management, engineering review and construction management services for the Lake Turkana Wind Power Project, which will be the largest wind farm in Africa, and one of the largest in the world, when completed. The project scope included 365 wind turbines of 850 kW each, an electric grid collection system and a high voltage substation, upgrades to 210 km of existing road, an internal site road network and a 160-man self-contained permanent village. The substation, road infrastructure and village have been completed.

The wind turbines are expected to be commissioned in the last quarter of 2017 upon completion of the 428 km transmission line provided by Kenya Electricity Transmission Company.

"Despite some logistical, climatic and community challenges, we have delivered our scope of work to date for the LTWP Project within the stipulated timeframe and budget," says Tim Gaskell, power business unit manager for WorleyParsons RSA.

"We have worked closely with the customer and with the sub-



contractors to address these challenges and propose workable solutions. For example, as Lake Turkana is located within a desert-like environment, it seldom rains, but flash floods do occasionally occur and the existing road designs did not factor this in. We assisted with improving the road design to cope with flooding," says Gaskell.

"We also deployed additional people to assist local sub-contractors to adhere to the high standards required for the project. We have a strong focus on localisation and social upliftment to ensure that the surrounding communities benefit from this project, and have placed particular emphasis on health and safety awareness as most of the local workforce has not been exposed to any health and safety practices," adds.

The LTWP Project represents one of the biggest single private investment in Kenya's history, and aims to supply 300 MW of reliable, low-cost wind turbine generator capacity to the Kenyan national grid, equivalent to about 15% of the country's current installed electricity generating capacity. ●

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HIGH-END HIGH-RISE

As Sandton proves itself to be a magnet for city-loving residents, Murray & Roberts Buildings is helping expand the high-rise options for urbanites, constructing the multifunctional, luxury Embassy Towers right on the edge of this humming commercial centre.

Murray & Roberts Buildings is a division of Murray & Roberts Construction which is being purchased by a consortium led by the Southern Palace Group of Companies; this will create the first major black-owned infrastructure and building construction business in South Africa.

Named for its position just behind the US Embassy, the new R615-million sectional title development in Sandhurst will comprise 93 exclusive private residences – 69 two bedroom apartments, 18 three bedroom apartments and six penthouses.

A 'commercial' or amenities level will include a restaurant, spa and gym, as well as executive offices and boardrooms.

Construction work started on Embassy Towers in April 2016 and progress is on schedule, according to Murray & Roberts Buildings contracts manager Fanie Stadler, despite a slightly delayed start due to challenging rock conditions in the foundations.

"Formwork design and planning of pour sizes assisted in achieving milestone dates on the structural elements," says Stadler, "as well as casting the staircases off-site and installing them in their completed form."

The building will rise to 12 floors above ground level, and by the end of February

Safety and productivity are enhanced on site as workers travel to their work-floors in the cab of a man-and-materials hoist.



was already at level 12 with over 460 people on site; this working population will grow to about 750 at its peak. The most labour intensive aspects of the work – brickwork, plaster and screeding – are following closely behind the slab formwork of the main structure.

Working in a space constrained urban environment brings its own challenges, so logistics have been closely managed to ensure no congestion on the adjoining roads. The project therefore deploys two tower cranes and vertical hoists; while the cranes deal mainly with concrete pours, formwork and brick lifts, the hoist is a valuable apparatus for handling tiles, joinery items, ceiling boards and other related items.

"To reduce the cranes' lifting load, we pump most of our mortar up to the different levels for brickwork and plastering," Stadler says. "We also pump river sand up to where it is needed for screeding activities."

Suburban by-laws restrict the working hours to between 6:00 and 18:00, demanding that efficiency remain high throughout the life of the project.

"Our success to date has been facilitated by our involvement in the project planning from an early stage," says Stadler. "Before we began with construction, we already had about four months of planning behind us, where we were able to participate in the planning and development meetings – contributing substantially to the value-engineering and buildability of the project. This allowed for design issues to be resolved early in order to maintain the required progress."

"Every team member needs to understand what our challenges are on the project, and these are well covered in the Project Execution Plan," he says. "Our prior experience of working in Sandton, as well as our proven expertise in high-rise construction, ensures that possible risks are identified and mitigated timeously."

He emphasises the need to monitor progress on a continuous basis, meeting deliverables and ensuring that the necessary plant and resources were on hand to maintain the construction programme.

Safety is also a key driver of operations, aligned with Murray & Roberts Buildings'

- Developer: Embassy Towers JV
- Design: GLH Architects
- Murray & Roberts Buildings Management team: Fanie Stadler (contracts manager), Tertius Botha (site agent) and Abdullah Moola (quantity surveyor)



Bricks are lowered by crane onto a landing on the south-facing side of the building.

STOP.THINK.ACT.24/7 philosophy aiming at the target of zero harm. The Embassy Towers site retains its lost time injury frequency rate (LTIFR) of zero to date, says Stadler, as part of the safety culture of the workplace.

"This culture must be constantly enforced throughout the project duration, especially among the sub-contractors," he says. "Our main focus is on preventing major accidents, falling objects and disabling injuries, and our systems are all in place to keep that under control."

Some 12 500 m³ of concrete will go into the structure, strengthened by 1 200 tonnes of reinforced steel bars on 31 000 m² of formwork.

Among the design features of Embassy Towers will be marble cladding and extensive glazing on the facades, with a distinctive concrete pergola above the penthouses on the top floor, requiring off-shutter concrete work for which special formwork is being constructed. Five glass-fronted lifts will take residents between the floors; facilities also include a garden, a tennis court and an outdoor pool with a patio area. ●

"Formwork design and planning of pour sizes assisted in achieving milestone dates on the structural elements."

RIGHT: Murray & Roberts Buildings' tower crane dominates the skyline as construction nears its final height.



The multifunctional luxury Embassy Towers.



The Murray & Roberts Buildings team on the Embassy Towers project.



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FIRST BRIDGES ON N2

contract in KZN under construction

By offering an alternative construction methodology, Murray & Roberts Infrastructure reduced the proposed construction programme from 40 months to 37 months on the contract to construct 33 km of dual carriageway on the N2 between the Mtunzini Toll Plaza and Empangeni interchange on the KwaZulu-Natal North coast.

► The project which started in March 2016 is on track and scheduled for completion in the first quarter of 2019. Significantly this project, an initiative of the South African National Roads Agency SOC Limited (SANRAL), is currently one of the largest road infrastructure developments underway in the country.

Scope

It includes the construction of a new two-lane northbound carriageway, rehabilitation of the existing southbound carriageway and a large number of structures including bridges, overpasses, culverts and drainage.

Bulk earthworks will amount to 800 000 m³, with layerworks requiring 400 000 m³ of material and some 220 000 t of asphalt. The total concrete volume is 37 000 m³, of which the ancillary works will use over 16 000 m³ of concrete.

Contracts manager at Murray & Roberts Infrastructure, Jonathan Pearce says the project features the full array of civil engineering activities and includes the construction of 21 major culvert/under pass extensions and 11 bridges.

The construction of two major river bridges on the northbound carriageway is on the critical path and work on both has begun.

Preserving the environment

Pearce explains that all the requisite environmental assessments have been conducted, and construction work is being done in accordance with these. This is in line with Murray & Roberts Infrastructure's solid commitment to preserving the environment for future generations and ensuring minimum harm to the areas in which construction is taking place.

The water use licence dictates stringent measures as to how the rivers may be worked in as well as restrictions to limit the footprint in and around these areas. In addition, there are strict rehabilitation programmes in place for after contract completion.

Bridge construction underway

The larger river bridge being constructed is over the Mhlatuze River which has its source over 100 km away. The river catchment area supports agricultural and industrial activities before it forms an estuary as it flows into the deep water port of Richards Bay.

The Mhlatuze Bridge will be 240 metre long and have a total of 70 900 mm diameter bored piles with oscillated liners below seven piers, some to a depth of 65 metres to reach competent founding material and ensure adequate load bearing capacity for the final structure. The bridge construction consists of eight deck spans comprising a total of 48 30 metre long post tensioned beams. Each span has six 1,83 metre high beams which are cast elsewhere on the site.

"Complex geological conditions encountered in this area, with stiff clay that has similar properties to soft rock found at around 35 metres, has caused delays in completing the piling activity", Pearce says.

The stiff clay creates a syringe-like effect on the piling casings causing complications when liner extraction takes place. "While delays have put pressure on the construction, we are adapting our construction schedule to ensure that we meet the deadline and SANRAL expectations," he says.

The second major bridge under construction is over the Mlalazi River and has its own set of challenges, largely emanating from the inclement weather experienced during February and March this year. Being so far up the KZN north coast, the tail end of cyclones in the Madagascar channel normally hit the region bringing heavy rainfall and major flooding. This was, indeed, the case with cyclone Dineo in February with rainfall reaching more than 300 mm in 72 hours.

The Mlalazi River is tidal and although the bridge is situated some 12 km from the ocean, the water level between tides can rise and fall by up to a metre. Geo-synthetic sand bags have been used to create working platforms to provide an adequate water channel with minimum environmental impact while providing safe working conditions.

The specialised sand bags provide an effective seal between the water and the construction works, preventing any seepage, such as unnatural siltation, from the construction site into the river channel.

The Mlalazi Bridge will have a final span of 120 metres with three piers and two abutments. Ten piles per pier, to a depth of 25 metres each, will support two of the piers and one abutment. A total of 28 post-tensioned precast beams will be placed on top of the piers and abutments.

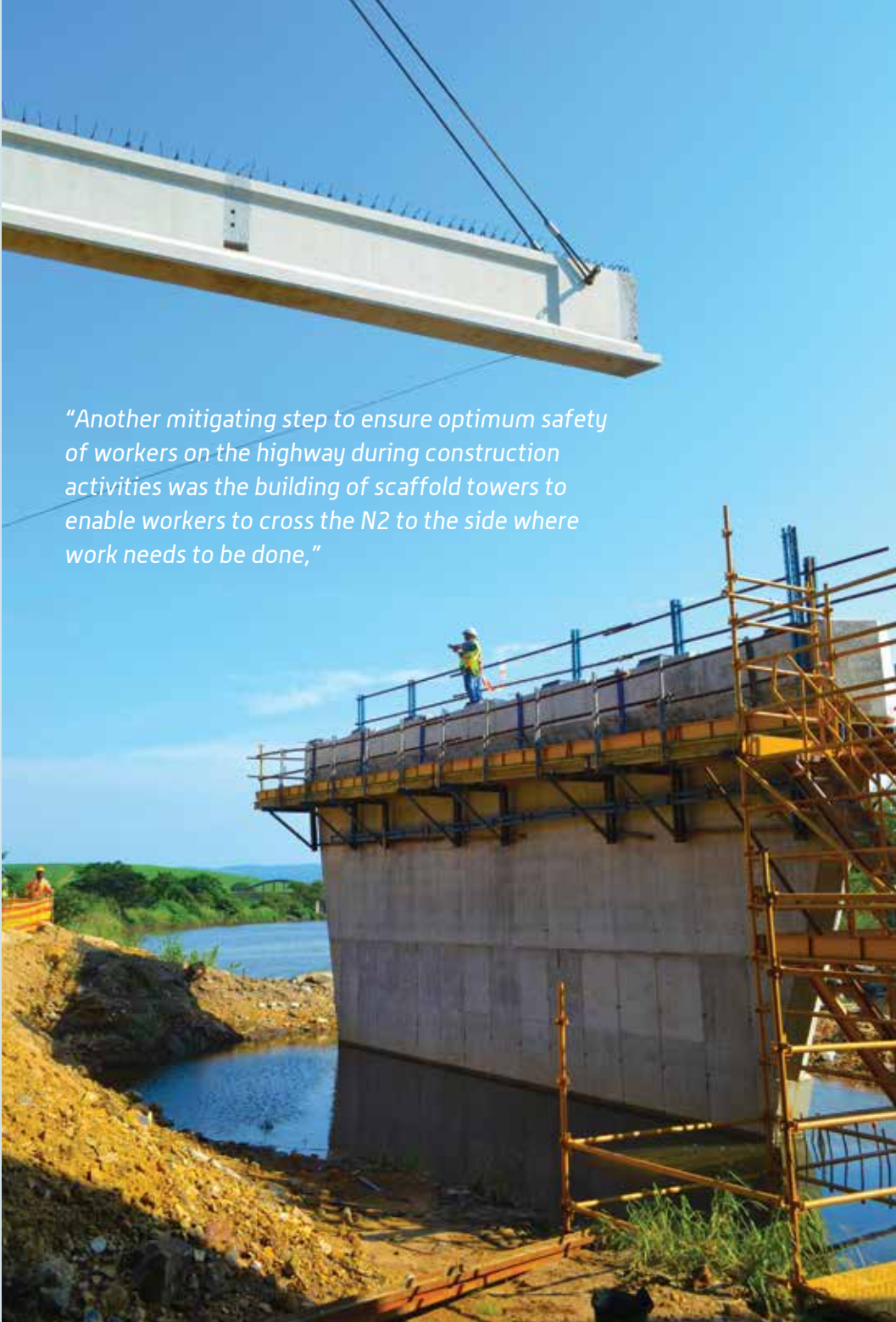
"Apart from the John Ross interchange bridge, yet to be constructed, and the extension to existing overpasses currently being built in-situ, precast beams will be used. This has allowed the construction process to be sped up and has negated the need for extensive scaffolding and formwork along this busy national route," Pearce says.

The precast yard is situated in a location that allows the beams to be easily transported to where required for installation. "Access to the structural and ancillary works was given special attention as the bulk of the works could not be accessed from the N2 highway. This necessitated optimisation of vehicle usage and haulage routes to remain as productive and cost effective as possible."

As on all Murray & Roberts Infrastructure sites, safety is a major focus and on-going safety training ensures that workers comprehend potential risks associated with construction activities and how to work towards a Zero Harm goal. On this particular construction programme, special attention has been placed on working at height given the number of high structures being built.

"Another mitigating step to ensure optimum safety of workers on the highway during construction activities was the building of scaffold towers to enable workers to cross the N2 to the side where work needs to be done," Pearce concludes.

Murray & Roberts Infrastructure is a division of Murray & Roberts Construction which has been purchased by a consortium led by the Southern Palace Group of Companies, creating the first major black-owned infrastructure and building construction business in South Africa. ●



"Another mitigating step to ensure optimum safety of workers on the highway during construction activities was the building of scaffold towers to enable workers to cross the N2 to the side where work needs to be done,"



TOP LEFT: A post tensioned beam being manoeuvred into position at Mlalazi River bridge.

TOP RIGHT: A post tensioned beam loaded ready for transport to site.

ABOVE: A 440 t crane is used to manoeuvre a precast post tensioned beam into position at Mlalazi River bridge.

LEFT: Precision positioning of precast beam at Mlalazi River bridge.

NEARING COMPLETION

of Sandton Rea Vaya BRT project

The Sandton Rea Vaya Bus Rapid Transit (BRT) project, for which Hatch has provided design and construction supervision services, is nearing completion. This has been a particularly challenging project for the consulting engineer, as it involved both roadworks and an iconic cable-stayed bridge structure.

Hatch is the consulting engineer for the implementing agent, the Johannesburg Development Agency (JDA), explains Cliff Weideman, who is design lead, project manager and contracts engineer on-site for Hatch.

The Johannesburg BRT system, known as Rea Vaya, will link central Johannesburg, Sandton, and Alexandra. The project was awarded to a Joint Venture (JV) partnership comprising Hatch, Royal Haskoning DHV, and Malani Padayachee & Associates (MPA).

This phase of the project was complicated by the fact that it was divided into five contracts, which meant five tender documents, adjudication reports, and five different sets of site meetings between the contractors involved.

"Our scope of work focused on Section 8, which commences from the Gautrain Station in Sandton, down West Street and Katherine Drive, whereupon we cross the M1 motorway and rejoin Louis Botha," Weideman highlights.

The Sandton section of the project is about 4 km in length, while the Louis Botha stretch is about 11 km.

The five contracts of the Sandton link are all being aligned for completion by end April, and are being designed and supervised by Hatch exclusively. Weideman notes that the major challenges on this project have been traffic accommodation, relocation of services, and the involvement of SMMs from the local community.

Apart from the iconic cable-stayed bridge over the M1 motorway, the project included the major rebuild of the old two-lane Sandspruit Bridge, which could no longer accommodate the heavy traffic volume on Katherine Street between Grayston Drive and Marlboro Drive.

Cliff Weideman is design lead, project manager and contracts engineer on-site for Hatch.



This has subsequently been expanded to accommodate six lanes.

The multi-million rand Sandton BRT bridge is, in fact, one of two new bridges being built over the M1 motorway between Alexandra and Sandton as part of the Rea Vaya network extension. The other, about 1,5 km south of the Sandton BRT bridge, is the cycling-pedestrian bridge that will run alongside the Grayston Drive bridge, according to the JDA.

Construction commenced in March 2015, with the bridge itself largely completed in February this year. The new iconic landmark comprises the approach ramps, the cable-stayed bridge over the motorway, and the twin pylons climbing into the sky.

The cable-stayed bridge option was chosen partly because of its prominent position, but also for construction practicalities over South Africa's busiest urban freeway. An architect was commissioned to develop the concept and aesthetic design, while Hatch carried out the structural engineering and detailed design.

Commenting on the pavement specification used on the project, Weideman elaborates: "Obviously, the existing pavement cannot handle the bus loads, so we used a 150-mm-thick bitumen treated base. In addition, at the BRT stations and intersection approaches, we used an open-graded asphalt containing cement.

"This is to strengthen the road surface, and make it more resistant to the acceleration and deceleration forces of the buses at the station."

Hatch resident engineer Trevor Nxumalo explains that the western ramp for the Sandton BRT Bridge is about 1 km from Grayston Drive, with the eastern ramp terminating on Lees

Street in Alexandra. The ascending and descending ramp connections are supported by reinforced concrete bases that support



the concrete cladding on the reinforced earth ramps on either side of the M1.

Taking into account the existing road infrastructure posed a major challenge, Nxumalo highlights. With most of Alexandra and Sandton already highly developed, careful attention had to be paid to accommodating the new BRT lanes. In addition, there was existing water reticulation, electricity mains, and fibre-optic cabling.

"This has been a fantastic project from an engineering point of view, as it encompassed roadworks, the iconic bridge, and related infrastructure, all in a live environment. It showcased our exceptional bridge design, project management, and construction supervisory capabilities," Weideman concludes. ●



PICTURED CLOCKWISE:

The new iconic landmark comprises the approach ramps, the cable-stayed bridge, and the twin pylons.

The ascending and descending ramp connections are supported by reinforced concrete bases.

The twin pylons climbing into the sky are integral part of this iconic new landmark.

The cable-stayed bridge option was chosen due to its prominent position over South Africa's busiest urban freeway.

"Obviously, the existing pavement cannot handle the bus loads, so we used a 150-mm-thick bitumen treated base. In addition, at the BRT stations and intersection approaches, we used an open-graded asphalt containing cement. This is to strengthen the road surface, and make it more resistant to the acceleration and deceleration forces of the buses at the station."

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Reinforced Earth® structures behave as a coherent gravity mass comprising a selected *granular fill* combined with strong steel or geosynthetic *reinforcing strips* and a modular *facing* system, generally in the form of precast concrete panels, welded wire mesh or semi-elliptical steel panels.

This unique combination creates a durable mass gravity structure which in addition to carrying its own weight, is capable of withstanding significant static and dynamic loads generated by all stresses external to the structure.

The Terre Armee Group

The invention using earth as a raw ingredient, led within a few decades, to the development of a company with a presence in five continents. Easy to install, Reinforced Earth® rapidly established itself as an ideal construction material in

numerous applications, in particular road systems. Vidal founded the company Terre Armee Internationale, and so the story of an invention turned into one of legendary entrepreneurship.

Reinforced Earth or RESA is the name of the TAI South African company established in 1975 to provide a Reinforced Earth® service in sub-Saharan and Eastern Africa and in Ghana and Nigeria.

Trademarks

Reinforced Earth® is a trademark belonging to Terre Armee Internationale. It is registered in numerous African countries including South Africa.

Wikipedia defines Mechanically Stabilised Earth as follows: "Mechanically stabilised earth or MSE is soil constructed with artificial reinforcing. It can be used for retaining walls, bridge abutments, seawalls and dikes. Although the basic principles of MSE have been used throughout history, MSE was developed in its current form in the 1960s. The reinforcing used can vary, but include steel and geosynthetics. MSE is the term usually used in the USA (and Africa) to distinguish it from the name 'Reinforced Earth, a trade name of the Reinforced Earth Company, but elsewhere Reinforced Soil is the generally accepted term'".

Reinforced Earth® today

The TAI Group

The group has 50 companies worldwide and has contributed to more than 50 million square metres of structure face area in over 100 countries. The companies are

staffed with local employees driven by a shared passion that is a central element of the corporate culture and unites the teams across all geographic borders. RESA has contributed significantly to road, rail and bridgework in Africa. Hundreds of contracts have been completed. Four major contracts are listed:

- N1 Diepkloof, Johannesburg 1980 – one of the first true bridge abutments in Africa. Since then some 200 such abutments have been completed or are under construction.
- N1 Du Toitskloof, Western Cape 1994 – numerous retaining walls constructed on a new dual carriageway alongside the Molenaars River.
- Mbabane Bypass, Swaziland 2004 – 24 true bridge abutments 15 retaining walls and four tiered fills. The most notable and spectacular, are the tiered fill structures which were designed as alternatives to incrementally launched bridges.
- Gautrain, Gauteng 2008 – 80 structures were constructed on 38 separate sites including true rail over road bridge abutments.

John Vorster offramp to Viaduct 5.



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THE INVENTION

"It all began one fine September day on a white sandy beach. I put some pine needles into a heap of sand and noted a certain cohesion. I had in fact created the first Reinforced Earth®.

"Structure made up of two components: granular particles and reinforcing strips. Man's first building material comprised just one component, granular particles in the form of stones. And then concrete, so two components: granular particles and a bonding agent, in this case cement. Then man invented reinforced concrete made up of three components: granular particles, a bonding agent and reinforcing bars. In simple terms, Reinforced Earth® involves eliminating the bonding agent and keeping only the granular materials and reinforcement. But it wasn't easy.

"It took me five years to establish the theory based on friction between particles and reinforcing strips and to design a technology that was both economical and quick to install. Then I filed patents and realised that there was nothing else like this in the world. I began building the first structures and started developing an international organisation to allow the structures to be installed rapidly across all continents." – Henri Vidal



Henri Vidal.

Specifications and standards

The original concept of MSE is that of a composite material consisting of frictional fill, flexible reinforcements and a flexible cladding. In order to protect Road Authorities, local generic specifications for MSE should ensure that state of the art sustainable MSE solutions which comply with recognised International norms are tendered. ●

Now widely accepted

Terracrete, manufactured locally and internationally by Terraforce licensees, is a versatile eco-surface hard lawn block that was introduced to the South African market by Terraforce in 2002.

The units can be laid in different patterns and may be used with or without ground anchors for the lining of riverbanks and other areas subjects to soil erosion.

The paving of grassed roads and parking areas, as well as the stabilising of steep embankments such as bridge abutments, can be undertaken with these versatile blocks.

Holger Rust, managing director, Terraforce, says landscape contractors are finally recognising the many benefits of installing permeable interlocking concrete pavers. "From an aesthetic point of view, they are very versatile," explains Rust. "A grass driveway, a rustic gravel driveway, or an attractive pattern of pavers can add the finishing touch to a residence or development that is looking to stand out. Permeable grass pavers can add a park-like or pastoral feel to many areas that normally require hard paving.

"It is an alternative to impermeable urban surfaces, as the block allows for unrestricted water penetration and can help manage stormwater run-off by temporarily storing rainwater runoff before filtering it back – cleaned of impurities – into the soil. Rainwater that would normally run off into rivers and streams is returned directly into the ground." ●



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RAIL – THE FUTURE of Africa's Industrialisation

Rail infrastructure upgrades remain a core focus of the ongoing industrialisation of Africa, where the transportation of goods and commodities is often difficult and costly, due to underinvestment in rail infrastructure.

China's October 2015 announcement to pledge USD50-billion towards the industrialisation and development of African infrastructure – together with Transnet's R300-billion seven-year Market Development Strategy (MDS) – is a clear indication of the tangible commitment to this lucrative sector.

The MDS is part of Transnet's ambition to accommodate the fifth-largest railway system in the world by 2019. According to Statistics South Africa, over 734 million tons of freight was moved in South Africa in 2013. It is estimated that over 70% of this freight was moved by road, despite the fact that railways make up a substantial portion of Africa's transport infrastructure – further highlighting the need for rail upgrades.

Since its announcement in 2012, the MDS has made significant strides and, as a result, South Africa will continue to shift its freight from road to rail, cutting both logistical costs and carbon emissions in the process. According to the MDS

overview, rail volumes are projected to increase from approximately 200 million tons to 350 million tons by the end of the programme in 2019.

In March 2014, Transnet announced a R50-billion contract with four manufacturers to build a fleet of 1 064 new locomotives to drive forward the MDS. Power, efficiency, and reliability are key to powering these machines, which are responsible for pulling multiple wagons that carry substantial amounts of precious cargo across vast distances. Any engine failures and associated downtime is too costly and therefore not an option.

The first Cummins QSK95 engine designed specifically for the rail market began production at the Seymour Engine Plant (SEP) in the USA in September 2015. At 2 983 kW, the QSK95 is the highest-output 16-cylinder high-speed diesel engine available in the market.

Combining Cummins' latest-generation Modular Common Rail Fuel System (MCRS) technology with quad-turbocharging and integral Selective Catalytic Reduction (SCR) after-treatment, the QSK95 delivers reduced noise, excellent response and ultra-low emissions capability in a smaller footprint than the medium-speed diesel engines traditionally used in locomotives.

Cummins has delivered the first QSK95 engine built to a rail specification to Siemens for installation to its Charger locomotive, a new diesel-electric locomotive designed for the North American passenger rail market. The Charger locomotive was delivered

into the market in 2016. Although it is currently being manufactured for passenger operations, the Cummins QSK95 is just as suited to freight applications, in any operating conditions.

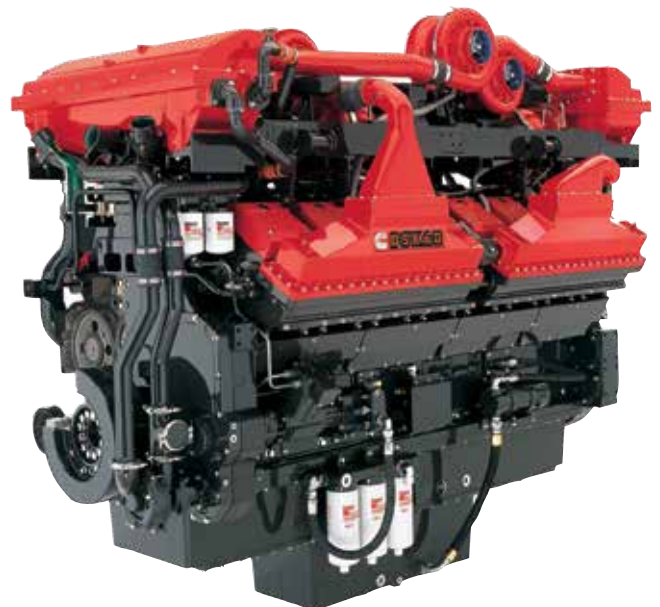
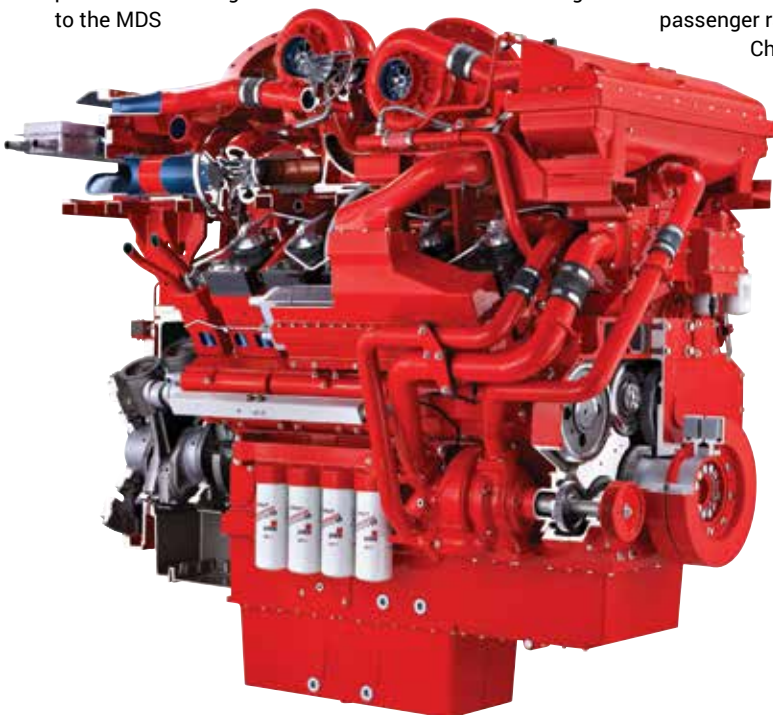
"Cummins welcomes the opportunity to partner with customers globally to help them succeed," says Madelyn Pretorius, leader, rail sales & business development. "We are pleased that our ultra-clean diesel engine technology is helping them operate efficiently while significantly reducing emissions and improving the environment."

Cummins has 70 years of experience, with proven reliability and durability in high speed diesels in rail. The company currently has over 13 000 engines in railway service globally. Locomotive, railcar, track maintenance and auxiliary power applications are all available in the Cummins engine product range in the rail segment, covering a complete power range up to 4400 hp using the QSK95 for both new and repower needs in this sector

"Cummins boasts extensive distributor coverage in Africa, with engine rebuild and service capability to support our product. We are able to offer best in class solutions to reduce customer total cost of ownership and still meet the harsh conditions of the African continent," adds Andy Pilkington, director Africa rail business. ●

LEFT: Cummins has 70 years' experience in high-speed diesel engines.

RIGHT: The QSK95 delivers reduced noise.



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World leader in OSCILLATION COMPACTION

Over 30 years ago, HAMM became the first roller manufacturer to offer an oscillation drum for tandem rollers, and these rollers have become an integral part of its product offering. In the past five years alone, the specialist for compaction technology has delivered more than 3 000 machines with this innovative technology.

Today, one in four of the tandem rollers made by HAMM is equipped with an oscillation drum. With more than 30 models to choose from, HAMM has by far the widest offering of oscillation rollers in the world. And only HAMM builds oscillation tandem rollers in the compact class, as well as soil compactors with oscillation compaction capability.

Fast, cost-effective high-quality

The reason for this success is simple: oscillation rollers make for fast, cost-effective and high-quality dynamic compaction. In particular, tandem rollers with one oscillation drum and one vibrating drum achieve at least the same degree of compaction as double vibrating drum rollers, but with fewer passes. Another benefit is the extremely low vibration provided by oscillation, making dynamic compaction on bridge overlays, of thin layers, and in

sensitive areas – such as near hospitals, city centers, rail tracks, or industrial plants – possible for the first time.

Compaction at every phase

Another bonus is that oscillation rollers can start dynamic compaction directly behind the paver (breakdown phase). They can then also deal with the main compaction (intermediate phase). And even with lower asphalt temperatures at the end of compaction (finish phase), oscillation ensures an increase in compaction without crushing the aggregate. Overall, when using oscillation rollers, the time available for compaction is significantly greater than with vibratory rollers.

Experience shows

When building oscillation drums, HAMM – unlike its competitors, which have all entered the market with this technology in recent years only – can draw on decades of experience. And it is precisely this experience that makes the difference, as Richard Evans, vice president, HAMM, explains: "You can copy technical solutions, but you can't copy experience."

Comprehensive portfolio

The HAMM portfolio encompasses tandem rollers for asphalt paving ranging from 2,5 t to 15 t. When it comes to the pivot-steered rollers in the DV+ series, a popular choice for demanding road building projects, the share of oscillation rollers is particularly high:



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HAMM offers over 30 different rollers with oscillation - including machines with Tier 3 and Tier 4 engines.

In 2016, around 40% of all DV+ series rollers were delivered with oscillation drums.

The oscillation rollers for the compact class from 2,5 to 4,5 t also experience great market demand. Hardly surprising, because HAMM is the world's only manufacturer in this market segment.

This also applies for earthwork. Customers worldwide seeking a solution for compactors with the facility to choose between oscillation and vibration find that only HAMM has the answer in the form of its VIO drums.

The oscillation principle

But what exactly happens in an oscillation drum, and how does oscillation differ from vibration? With vibration, a single unbalanced shaft generates the upward and downward movement of the drum, causing it to strike the ground at a rapid rate. In oscillation drums, two unbalanced shafts rotate synchronously, driven by a toothed belt. The unbalances are offset by 180° relative to one another. As a result, the drum performs a rapidly alternating forward/backward rotary movement.

Due to this movement, the drum directs the compaction force into the substrate tangentially to the front and rear in the form of shear forces. Here, unlike with vibrating drums, the compaction force acts continuously on the substrate because the drum is in contact with the ground at all times. This is why oscillation rollers compact dynamically as well as statically with their intrinsic weight the whole time.

Maximum wear resistance

HAMM's experience of more than 30 years is also reflected in the way in which the technology is incorporated in the design. An example of this is the drum shell. On oscillation drums, it is inevitably subject to greater stresses, due to the constant ground contact, than is the case with vibrating drums.

Thanks to ongoing product and material development, the operating life of HAMM oscillation drums is today nearly the same as that of vibrating drums.

Low-maintenance operation

A glance at the exciter system drive inside the oscillation drum also shows that it is based on a great deal of experience. HAMM has continuously optimised the position of the unbalanced weights in the oscillation drum to enable the resulting forces to be utilised as effectively as possible.

At the same time, HAMM's oscillation drums are designed to require very little maintenance. The toothed belt, the core element of the drive, has been perfectly attuned to the overall system: its operating life corresponds to that of the entire drum. Checking the belt tension after 2000 operating hours is all that is recommended.

Use for all layers

Oscillation rollers can be used to compact all earthwork and road building layers. They come into their own in earthwork, where re-loosening of the upper layers has to be effectively prevented, such as in garden and landscaping work. Another important application is the compaction of soils in vibration-sensitive areas, for example above gas, water and other pipework.

In asphalt paving, base courses, binder courses and surface



A HAMM HD+ 120i OV tandem roller compacting the surface course of a busy highway.



Oscillation involves two unbalance shafts rotating synchronously. The unbalances are offset by 180° relative to one another.

courses can be reliably compacted with oscillation rollers. They perform especially well in the compaction of generally hard-to-compact asphalts such as SMA or in the case of polymer-modified material mixes. This is because, in contrast to vibration compaction, the effective direction of the vibrations during oscillation promotes the desired redistribution of long-chain binding agents.

Six benefits of oscillation

Oscillation offers a wide range of benefits, enhancing efficiency, quality, productivity and profitability. Here are the most important ones:

- High compaction power – great efficiency.
- Easy operation.
- Smooth, skid-resistant surfaces.
- Low vibration emissions.
- Material-friendly compaction.
- Wider temperature window. ●

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IN THE FAST LANE

The Bakwena N1N4 freeway is an important arterial connecting the country's economic hub, Gauteng, with the Limpopo Province on the N1 and the platinum-rich North West province on the N4, while ensuring the efficient movement of goods and people between South Africa and neighbouring Botswana.

Over the past two years, the Bakwena Platinum Corridor Concessionaire (Bakwena), which operates the highway on behalf of the South African National Roads Agency Limited (SANRAL), has been upgrading specific toll plazas along the route to ensure improved flow of the many vehicles, including the trucks, using the corridor every day.

The focus has been on widening four mainline plazas, namely Pumulani, Doornpoort, Brits and Marikana, as well as two ramp plazas, Stormvoël and Zambesi, by adding extra lanes on the existing infrastructure to improve traffic throughput at the various plazas.

Work undertaken at the Zambesi plaza also forms part of a SANRAL/Bakwena pilot project to drive the uptake of its 'e-Tag' concept by providing users with a convenient and faster alternative for passing through these pay-points

e-Tag holders

Registered e-Tag holders can now fast-track their drive time by using an exclusive e-tag lane that exits directly from the highway without having to queue at the conventional plazas.

"This is a pilot project," says Phaks Ngqumshe, a director of JG Afrika, "and depending on its success, the concept may be rolled out elsewhere on the corridor and on other national roads."

Ngqumshe has project managed the plaza upgrade programme since JG Afrika was awarded the design and construction supervision contract in 2015.

"This was a unique project in that the dedicated e-Tag lanes, with separate dedicated e-tag lanes off the freeway are a completely new concept in the country. One of the complexities in the design and drawing stages is that we did not have similar projects that we could reference, in



Phaks Ngqumshe, a director of JG Afrika.

terms of standards, with the design teams having to largely innovate from scratch," says Ngqumshe. "

Sharp learning curve

A meeting of minds between representatives of JG Afrika, SANRAL and Bakwena resulted in a solution that was not only feasible and practical, but also safe for road users.

This sharp learning curve challenged the experienced professional team and provided a sound platform to mentor the some of the young engineers and new engineering graduates making up the engineering team.

The project

Working to extremely tight deadlines, implementation started at Zambesi toll

Appointed for masterplan review

Royal HaskoningDHV in a Joint Venture with HaskoningDHV Botswana has been awarded the master plan review of the Sir Seretse Khama International Airport Special Economic Zone (SSKIA-SEZ) located in Gaborone, Botswana, South West of the Sir Seretse Khama International Airport.

The SSKIA-SEZ project is part of an initiative that is the brainchild of the Business and Economic Advisory Council of Botswana (BEAC), which recommended the development of the Special Economic Zones (SEZs) Policy for Botswana.

The SEZs are geographically delineated economic areas run by their own SEZ Authority, responsible for providing an investor-friendly business environment with a view to attracting both domestic and foreign investors. Eight strategic areas across the country have been identified for promoting the development of a variety of world-class industries that will lead to the diversification of the country's economy

through public sector, private sector and public-private partnerships.

Manfred Uken, director strategic business development for transport and planning in Africa at Royal HaskoningDHV states, "The SSKIA-SEZ is an exciting six-month project that is planned to be completed by the end of August 2017 suits our goal to help develop business and job opportunities on our continent."

It also complements the work we are already carrying out at the Aerotropolis for King Shaka International Airport (in Durban, RSA). The SSKIA-SEZ will offer business in Botswana the opportunity to develop in a modern, focused and efficient environment". Royal HaskoningDHV will provide the Urban Design Master Plan; the Landscape Design Master Plan; a Strategic Environmental Assessment; a Hydrogeological and Geotechnical Survey; a Traffic Engineering

Study and a Topographical Survey.

The SSKIA-SEZ will be a mixed-use economic zone that will house several 'high tech' organisations such as the Civil Aviation Authority of Botswana (CAAB) and the Botswana Innovation Hub (BIH), which is a science and technology park to aid in diversifying the economy and help transform Botswana into a knowledge economy, thereby promoting research, development, education and innovation. In addition, the Botswana Investment and Trade Centre (BITC), an integrated Investment and Trade Promotion Authority (ITPA) with an encompassing mandate of investment promotion and attraction, export promotion and development, including management of the National Brand will also be incorporated within the mixed-use economic zone. This is topped off with the addition of the Diamond Hub which was established to coordinate economic activity in the Diamond Sector, administering beneficiation activities in rough and polished diamond trading, cutting and polishing industry, jewelry manufacturing, and secondary trading of rough and polished diamonds. ●





plaza, providing ample scope for both the consulting engineer and civil contractor, G4 Civils, to refine operations and achieve a desired production rate over the duration of the project.

The Stormvoël plaza was next. Located in a built-up urban area, it required extensive rerouting of both vehicles and pedestrians. The relocation of the many services, including water reticulation, optic-fibre cable networks and traffic lights, as well as other temporary and permanent road signs, added another level of complexity to the project.

Ngqumshe says most of these challenges were overcome by an extremely proactive approach taken by JG Afrika and G4 Civils, prior to mobilising to site.

This was complemented by excellent team dynamics between both parties right from the outset.

"G4 Civils is an extremely competent contractor with a solid track record in road construction, which was a major advantage for us. However, we left nothing to chance. All participants in the professional team

were very aware of the need to plan well in advance and work together to overcome any contingencies to the benefit of the client," he says.

Pumulani and Doornpoort toll plazas were next in line and these are due for completion in March 2017. These two are followed by the Brits and Marikana facilities, with the entire project scheduled for completion in October 2017.

All the new Plazas comprise a 300 millimetre-thick concrete pavement supported by stabilised layers, while structural work was required to also extend the existing toll plaza canopies.

This is over-and-above the work required to install the new signage and signalling as part of the overall work scope.

The only delays are as a result of the recent heavy rainfall, reflecting the efficiencies of the professional teams on site, and Ngqumshe is just as pleased by the impressive safety levels maintained throughout the programme, with no major incidences, or loss time injuries reported, to date.

This is a significant achievement considering that the extensions were undertaken in operational areas, where impatient driving behaviour and pedestrian movement alongside the highways were major risks that had to be thoroughly managed.

He says that successes in this regard can largely be attributed to the professional team, G4 Civils, as well as Bakwena's emphasis on safety.

"Health and safety have always been paramount for JG Afrika and G4 Civils, and our client insisted on this – even if it was at the expense of production. Bakwena was well aware of the challenges that we would encounter in this regard and were, therefore, more than willing to accommodate any of our suggestions to ensure a safer site," says Ngqumshe.

With a just a few months left before this project is completed, he believes that it will be another milestone in the firm's long legacy in transport infrastructure, as well as its close affiliation with both SANRAL and Bakwena. ◉

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INVESTING in response to worldwide GROWTH

Screening and crushing industry leader McCloskey International has continued its expansion over the past three years, with close to 35% growth overall, increased market share, major investments in its manufacturing facilities, and the introduction of a new division. In lockstep with this growth was the addition of over 30 dealers to the global distribution network.

▶ A new Manufacturing Centre of Excellence is set to open its doors at the Granville Industrial Estates in Dungannon, Northern Ireland this month to house additional production for the McCloskey range. The new site will deliver increased assembly and production space for the crushers, screeners and stackers, as well as the new washing systems range.



The new building and site represent a £7-million investment into the business, and is expected to deliver 50% increase in production over the next 3 years.

The new site will also house the production for new business division McCloskey Washing Systems (MWS), focused on washing and classifying across multiple applications. The new unit designs and manufactures a full range of mobile, modular and static material and mineral washing equipment.

Also contributing to the company's growth has been its commitment to after sales service and support. Two new Parts Hubs have recently opened their doors to serve customers around the world, one in the United States, and the other in Northern Ireland. The Milwaukee, Wisconsin parts and service depot offers same day air or ground dispatch throughout the Americas, while the facility in Coalisland serves Europe and an expanding worldwide market. The dedicated sites allow for expedited delivery of parts regardless of physical location.

McCloskey has also expanded to support its growing crusher business with the acquisition of Milwaukee Crusher, based in Wisconsin. The site serves as a dedicated crusher repair facility, with the ability to rebuild and repair all makes of crusher, portable and stationary, as well as provide expert crushing system analysis and advice.

"Accelerating sales of our equipment show that the quality, reliability and durability of McCloskey products is increasingly recognized around the world, and important to our customers," said John O'Neill, VP, sales for McCloskey International.

"As important for McCloskey is the relationship after the deal is done, and the opening of facilities to continue to support our customers with parts and service allows us to provide both quickly and effectively."

Between 2008 and 2012, the footprint of the facilities increased by over 50%, with five new buildings and production areas in Canada alone. 2017-2020 will see more expansion to accommodate demand, including the new Manufacturing Centre of Excellence in Dungannon.

In addition to its physical expansion, the company has continued to add new international dealers across all regions to represent the number of new products that were added to the company's portfolio.

The over 30% growth has resulted in a network of close to 100 dealers in virtually every region of the world from South America to South Korea, Alaska to Australia.

Reflecting back, Paschal McCloskey, President and CEO of McCloskey International noted "three years ago we had 65 dealers, and our goal was to grow to close to 100. We have achieved that goal, and continue to work to expand our reach, and our markets, worldwide. There have been many contributors to our success, but one of the greatest is the loyalty of our customers worldwide. Their commitment to our products is the engine behind our growth." ●

Quarries create employment for surrounding communities

The value of well-run quarries in our cities and towns was recently underscored by research suggesting that every job in the quarrying industry creates a further five jobs in downstream operations.

These figures therefore suggest that quarries are major contributors to regional job creation efforts; and as an industry is a major driver of the national economy accounting for substantial revenues and the creation of many thousands of direct and indirect jobs.

Aspasa director, Nico Pienaar, says these job creation figures are yet another compelling reason for communities to be excited about the proclamation of a new quarry. "A registered legal quarry, especially one belonging to Aspasa should be an asset to a community by creating jobs and allowing for the construction of houses and infrastructure to be developed within the surrounding areas.

"The research done in the USA by the Phoenix Centre for Advanced Legal and Economic Public Policy Studies shows that quarries are not only beneficial to the development of physical infrastructure, but are also major contributors to the building of strong local economies. Furthermore, it showed that the benefits lasted for an extended period of time ranging from 20 years to longer.

"This effectively means that people can be employed within the supply chain of a quarry for a lifetime. That means that everyone from the quarry manager, to the machine operators, transport providers, financial services, surrounding store owners and a host of



other beneficiaries can build long term plans and rely on the quarry as a constant source of income.

"Given today's requirement for strict health and safety requirements, and with tight legislation guarding all environmental aspects of a quarry, perhaps the time has now come for communities to change their misconceptions about quarries and to start viewing them as enablers of strong communities with solid infrastructure that is sourced locally with lifelong benefits for the entire community," concludes Pienaar. ●



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ROCK-SOLID RELIABILITY

Three SDLG wheel loaders are working day and night feeding crushing and screening equipment in Qatar, without any significant downtime.

► These three SDLG LG958L wheel loaders have racked up almost 2 000 operational hours in four months at this quarry.

The site is owned by Doha-based contracting company Al Maram International, which uses crushing and screening equipment to reduce and sort limestone, primarily for asphalt applications for its customers.

“Our customers excavate large rocks from their quarries and then give them to us to be broken down into bespoke sizes,” said Aby Joyce, divisional head of the company’s crusher department. “We are using the LG958Ls to feed the crushers and sub base mixing plant, and load the processed aggregate into waiting dump trucks and trailers.”

Two shifts: No sweat

Al Maram ordered the machines in October 2016 from regional dealer Arabian Agencies Company (ARACO), and within a month they had already been delivered and were in operation on site. The LG958Ls

were the first SDLG machines Al Maram has purchased.

“For the past four months, the machines have been working two shifts a day, equalling between 16-18 hours in total,” said Joyce. “During that time we have encountered very few technical issues.”

This is thanks to the LG958L’s superb traction, excellent breakout force and improved reliability through the use of new high-performance materials, the development of computer-assisted design techniques, and intensive and systematic test programs. All of these combine to increase the life of vital components and reduce operating costs.

“Even when we do encounter issues, we receive fantastic customer care support from SDLG,” Joyce added. “If we have any issues, ARACO will arrange for a service technician to be on-site within 2-3 hours, day or night. This has enabled us to keep downtime to an absolute minimum. We will definitely be renewing our contract when it expires.”

SDLG’s fully supported service network was one of the primary reasons Al Maram chose to purchase machines from ARACO, as was its competitive pricing.

“Not only was the initial investment of the machines relatively low, but the operating costs are also very reasonable,” Joyce said. “Our productivity is increasing while our costs are being kept down. Plus, improved ergonomics, increased comfort and excellent all-round visibility ensure safe and pleasant working conditions for our operators.”

Rising market

Al Maram International is respected in Qatar for its advanced, effective and dependable technical & engineering services in the field of earthworks, civil construction, transportation & portable cabins. It has its sights on becoming the number one partner in industrial projects in the country.

“There is confidence that the country’s hosting of the FIFA World Cup in 2022 will generate a building surge,” said Joyce. “If we require more machines to meet future demand, we will of course look to SDLG. I have no doubt they will make a positive difference to our company in the future.” ●



Right support raises the game

Whether the aim is to extend workability, increase strength or enhance productivity, precast concrete manufacturers (PCMs) can look to construction chemicals leader CHRYSO Southern Africa not just for the right product, but for the necessary support to ensure an optimal solution.

According to Kabelo Sepotokele, sales manager (precast segment) at CHRYSO Southern Africa, it is the close contact with the customer and their precise needs that allows for win-win collaboration.

“Working with both heavy and light precast manufacturers, we recommend a particular product only after a careful process of material diagnostics, an analysis of the individual customer’s requirements and performance, and an assessment of options to suit their application,” says Sepotokele.

This allows a more holistic consideration of the value added by CHRYSO admixtures and additives, so that the benefit can be measured in terms of the cost per cubic metre of concrete used, rather than simply the cost per litre of specialised chemicals.

In the heavy precast segment, for instance, producers of pipes will want to ensure they are achieving the quickest possible turnaround as this has significant cost implications on the business. The use of steam is a common method of increasing temperature and accelerating the strengthening process.

Similarly in the light precast segment, curing time can be improved in brick manufacture, releasing the pallets earlier for the next batch and thereby improving productivity and lowering unit costs.

Supporting the customer also means understanding how their operational environment adjusts to the seasons, says Sepotokele, in terms of concrete’s varying performance in different temperatures.

“During winter, many customers will have to change their choice of cement – say, from a 42.5 to a 52.5 grade – to maintain

the required curing criteria, even though this means an increase in costs,” he says. “Alternatively, they add extra cement as they move between a ‘summer mix’ and a ‘winter mix’. We work with the customer to apply a solution that allows them to use the same type of cement, in the same quantities, to hold down costs.”

In addition to the focus on the structural qualities and performance of precast concrete items, CHRYSO’s support and interventions also help customers improve the aesthetics of their products.

“By analysing the customer’s materials and processes, CHRYSO Southern Africa can engineer the necessary solution to reduce these risks. In addition to this, the company also supplies a range of demoulding oils and repair products to assist in producing a blemish-free product,” says Sepotokele.

A global industry leader with research and development at its heart, CHRYSO consistently invests 3% of its sales in research activities. Its central laboratory in Sermaises, France, has about 55 researchers and CHRYSO Southern Africa has nine local laboratories.

This allows the group to focus intensively on its core business of developing and improving additives and admixtures for construction materials, based on its high level expertise in polymers, formulation physico-chemistry and organic-binder interactions as well as to offer customers technical assistance when required

CHRYSO Southern Africa’s footprint includes three manufacturing plants – in Johannesburg, Durban and Cape Town – as



CHRYSO’s support and interventions help customers improve the aesthetics of their products. The CHRYSO Dem Range of demoulding oils can play a significant role.



CHRYSO Southern Africa can select the appropriate product to reduce efflorescence.



Precast concrete manufacturers (PCMs) can look to construction chemicals leader CHRYSO Southern Africa for the necessary support to ensure an optimal solution.

well as seven branches, with a staff of over 20 in sales/support and 13 in technical and research functions. ●



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Getting a good grip with CRB

In 2015, JSE-listed Equites Property, signed a R155-million contract to develop 2,3 ha of its 5,4 ha land in Contermanskloof, Cape Town, to house a new A-Grade distribution centre and head office for apparel brand Puma Sports Distributors.

To maximise space for the buildings and infrastructure, the Terraforce retaining wall system was chosen to retain numerous cut and fill slopes needing earth stabilisation.

Dassenberg Retaining, appointed by Greymo Civils to install the Terraforce walls, started installing the Terraforce walls in mid-March 2016. Say George Brandt: “The construction of an office building with underground parking and a large storage warehouse that is connected by a fly-over bridge necessitated several retaining walls. A design was supplied by Fred Laker, Terrasafe Design Service, and in total, 21 800 Terraforce L11 blocks were delivered to site. The blocks are all filled with concrete for extra reinforcing, except those lining a steep slope along the detention pond that manages the stormwater coming off the roof.”

Brandt adds that here the blocks were rather filled with filled with 19 mm stone for extra traction and to ensure water flow through the pond as the water level rise or drop: “while the detention pond was constructed, a temporary berm was put in place to allow excavation and the placement of a concrete footing for the wall. All material had to be handled by hand to transport it to the top of the 6,75 m wall on the office side. Because the almost vertical wall is 6,75 m high and braces the loading and parking area of the warehouse, geofabric was placed into the compacted backfill every two row of blocks.” ●



New paving block launched

Aveng Infracast has introduced a fresh design option for landscape architects and paving contractors with the launch of Santiago®, a new paving block produced in an attractive textured finish.

Aveng Infracast landscape products sales manager, Brennan Small, says Santiago®, complies with current trends in landscape design, favouring larger more cost-effective pavers which are ideal for shopping and community centres, patios, driveways, walkways and pool surrounds.

“Santiago® is designed to be laid in conjunction with our Masonique® and Cottage Stone® pavers, creating greater scope for attractive design and layout options. These would typically comprise a Santiago® body combined with either or both Masonique® or Cottage Stone® as borders/header courses. “Santiago® is available in three off-the-shelf body-through colours, grey, charcoal and sahara, in addition to numerous other colour options and can also be ordered in bush-hammered and rumbled finishes for added visual and design diversity,” advises Small.

Requiring only 17 blocks per square metre, the 240 x 240 x 50 mm block is easy and cost-effective to install. An added advantage is that the blocks are manufactured with bevelled edges on one side and straight edges on the other. As they are cast in body-through colours, this

means they can be laid either way, ie they are fully reversible.

“Santiago® is a high-quality product which complies with SANS 1058:2012. It is cast to high tolerances at Aveng Infracast’s Columbia plant at Rossway, Centurion, using a vertical manufacturing process which guarantees that it is free of any highs and lows. Moreover, its textured finish ensures that is non-slippery when wet,” says Small.

“In addition we also produce paving blocks, kerbing and retaining wall blocks in our Masa plant which is also located at Rossway. Both Columbia and Masa manufacture state-of-the-art plant and equipment which enable us to introduce new, and in many instances, unique product options for landscape architects and other construction professionals.

“Our Masa plant includes steel production pallets for enhanced vibration transference, in-line washing and sealing, ageing and waving techniques and a specially-insulated curing chamber. It has an advanced colour blending facility which is faster and more accurate than earlier generation blenders,” concludes Small. ●

Providing tracks for access roads and trails

Technicrete’s interlocking Armorflex Blocks are ideally suited to Jeep Track (Strip Road) application, providing access to areas currently either without established roadways or with crumbling insitu cast concrete strips.

Technicrete’s Armorflex all-weather, non-slip Jeep Track solution is cost effective for property owners and developers who require vehicle access where roads may or have already become eroded by weather. The specialised design of the blocks, with earth filled gaps and varying height concrete areas, ensures greater traction for vehicles, particularly in mountainous environs and/or wet conditions. The ability to wire tie the blocks together into long mats and anchor these into the natural soil further assists in stabilisation of the blocks and road surface. Placement in Jeep Track orientation is cost effective due to a material saving by only paving two strips of approximately 600 mm wide (each) as opposed to paving the entire road width.

Traditionally, gravel roads or earth tracks require costly regular maintenance, such as grading. Insitu concrete surfaces start cracking up very soon after installation and degrade very quickly with large chunks of concrete spalling and breaking off. These type installations generally require regular repeated applications that become too costly to maintain. Technicrete’s Jeep Track allows for vegetation growth through the blocks (if required) and easy maintenance of this. A correctly designed and installed Armorflex Jeep Track project will offer a closure solution with minimal maintenance requirements that will not crack, break, shift or become unusable for vehicular access. Armorflex Jeep Track roads can be designed to accommodate low to high intensity traffic and a variety of loading from cars to heavy trucks. ●





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World-class TRENCHLESS TECHNOLOGIES

The acquisition of trenchless technology specialist Tuboseal by Esor is set to unlock a wealth of future business opportunities for the construction and civil engineering contractor.

Since its founding by local pioneer Jean-Louis Frey in 1987, Esor Tuboseal has established itself as a past master in a highly specialised discipline which enables pipes to be cleaned, rehabilitated or repaired almost completely underground without disturbing the surface area over the length of the line.

Through sheer drive and belief along with proven techniques and delivery, it created the Cured In Place Pipe (CIPP) market with customers and contractors in the Western Cape and a number of other provinces, before expanding its footprint as far north as Bulawayo.

Esor CEO Wessel van Zyl regards the development as a strategic diversification into the burgeoning market of infrastructure maintenance and rehabilitation, with a major focus on pipelines.

Preserving infrastructure

Using advanced trenchless techniques to replace pipelines in fragile and complex environments, Esor Tuboseal gained a reputation for successfully completing jobs its rivals chose to avoid. A byproduct of this process was the establishment of a solid track record among municipal authorities and major players in the construction

industry. It remains a key objective of Esor Tuboseal to build and retain the credibility of trenchless technology, for the greater good.

“We’ve reached a point where several municipalities and some businesses are piping water and sewage in lines that are 50 years old – and in some cases well beyond that,” says Van Zyl, making the point that what was constructed on the surface when the pipes were originally laid has often changed beyond all recognition.

“Pipelines will inevitably have to be replaced or rehabilitated, but in busy urban areas or major industrial installations, gaining access by digging is simply not an option.

“Safety is the first consideration. Many lines were laid at depths of between four and 15 metres, which would entail highly disruptive excavations to create a safe working area with adequate support to protect the crew. In any event, the likelihood of the presence of other utility lines like power cables would make this impossible,” he says.

Van Zyl also makes the point that to restore the integrity and efficiency of pipelines installed under or alongside major freeways and link roads (he cites the William Nicol Highway as an example), would cause unacceptable disruptions to traffic flows. If this was not bad enough, resurfaced areas would be a fertile breeding ground for the South African motorist’s biggest bug bear – the pothole.

Technical challenges

Esor Tuboseal’s research and development technical solutions specialist, Daniel Bruwer, describes two recent projects in which trenchless technology was applied to mitigate some serious consequences.

“The first concerned the discovery of a damaged underground pipe at Eskom’s Kusile power station, which required repairs to a crack at a depth of 17 metres. The pipeline was impossible to excavate as it lies beneath permanent structures.

“Having established the exact location of the damaged section, we designed and installed a CIPP liner capable of withstanding ground water pressure and soil loads at a depth of 17 metres, thereby reinforcing and sealing the damaged pipe for a full design life of 50 years. The repair took less than 8 hours and there were no disruptions to services on site,” says Bruwer.

The second development is the rehabilitation of the BlackMac bulk sewage pipeline, a key conduit between the Cape Town suburbs of Blackheath and Macassar.

“The City of Cape Town approached





Pipeline before CIPP installation.

“Esor Tuboseal’s ability to offer a one-stop shop of tailored products and services is what sets it apart in the marketplace”



Pipeline after CIPP installation.

us in 2013 to investigate the possibility of rehabilitating the pipeline and utilising its much needed capacity after many years of being degraded beyond use.”

A CCTV inspection was the first and vital step in the rehabilitation process that ensued. The city conducted several viability studies and finally appointed Aurecon Consulting Engineers to manage the trenchless rehabilitation project, comprising the CIPP lining of more than 3 300 metres of bulk sewer pipes ranging from 800 mm to 1 200 mm in diameter, crossing underneath the N2 freeway and Baden Powell Drive.

Esor Tuboseal was awarded the project at a competitive rate and immediately began the careful logistical planning required in an environmentally sensitive and often inaccessible area.

The construction programme was expedited to ensure cleaning, final design, material manufacturing, shipping lead times and installation happened concurrently. The dovetail effect of these activities placed the project firmly on track for completion well ahead of the programme and the (hopefully) rainy Cape Town winter.

Environmental integrity

The work itself was not without its challenges, but it did vindicate the depth of professionalism demonstrated by Esor Tuboseal and its commitment to preserving the natural environment.

“The rehabilitated pipeline runs alongside an ecologically sensitive wetland and the use of trenchless technology ensures that the ecological impact of the project is negligible. Already 40% complete, we are on track to complete 3 300 metres of pipeline renewal without any significant excavations required.”

Esor Tuboseal also adapted its hot water curing process to incorporate a high performance water cooling system; enabling water recycling and a saving of more than three million litres of drinking water amid critical water shortages in the Western Cape.

Apart from delivering a world class

product on this project, Esor Tuboseal set some audacious goals of ‘safety first’, ‘first time right’ and an unwavering resolve to maintain integrity with all stakeholders.

On the horizon

Research and development is a strategic priority at Esor Tuboseal and 2018 is, quite literally, expected to be a watershed year. It will be introducing new high pressure CIPP products using specially developed resins and composite materials compatible for safe use in potable water systems and capable of withstanding pressures of up to 40 bar. Municipalities and other high volume users of water for domestic consumption can now have ageing pipe systems rehabilitated ensuring a clean, safe and efficient flow of drinking water to households and individuals.

“Esor Tuboseal’s ability to offer a one-stop shop of tailored products and services is what sets it apart in the marketplace,” says Van Zyl.

Best in the business

“With services as varied as CCTV inspection, pipe cracking, pipe cleaning, patch lining, CIPP and robotic cutting, we provide a range of options and methodologies under each of these categories. Esor Tuboseal also possesses the skills and expertise of arguably the best technical team in the business.

“Esor Tuboseal and Esor can think out 80% of the solution, but these are the people who provide the all-important 20% which is what makes things happen; and they have done so over the past three decades.”

Invaluable components of the Esor Tuboseal value chain are several overseas manufacturers of lining materials and associated equipment with which the company has built sound relationships over several years.

A valuable byproduct from these collaborations has been the refinement of CIPP technology for the local market, which Van Zyl rates as being the obvious way forward in meeting rugged African conditions. ●



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Roadshow for US customers

South Africa-based high-performance polymer producer **Vesconite Bearings** is arranging a roadshow to US earthmoving customers in June.

This is according to newly-appointed earthmoving representative Juan van Wyk, who is spearheading the company's drive to have the earthmoving industry use the company's advanced thermoplastic bushings in various types of earthmoving equipment, including load, haul and dump (LHD) equipment, back hoe loaders, excavators, wheel loaders, articulating dump trucks, graders, and crawlers.



Van Wyk, who is a recent graduate in mechanical engineering from the North West University, is passionate about problem solving and intends to discuss the development of custom components for specific machines and manufacturers.

The design of a particular component typically involves defining the problem, undertaking background research, specifying requirements, brainstorming solutions, performing development work, building a prototype, testing and analysing the results and possibly redesigning the component if necessary.

This approach, together with a partnering between Vesconite Bearings and earthmoving equipment users and manufacturers, should see the optimising of components and could result in improved efficiency, weight savings or longer component guarantees, among other potential benefits.

"The US is a significant market for earthmoving equipment and is expected to show impressive growth in the coming five years," says Van Wyk.

"We are expecting considerable growth from the construction sector with significant growth in new infrastructure development and renovation. The surface mining sector is also expected to support earthmoving equipment industry growth."

Vesconite has been developed and proven in many industrial applications and has become the preferred bushing material where high loads must be carried with small clearances, including on pivot and articulation points.

The thermoplastic is specifically suited to solve the problems experienced in the harsh earthmoving environment, with Vesconite bearings offering various advantages, including the elimination of greasing and down time and the extension of the life of shafts and mating pins.

Juan van Wyk preparing for the US roadshow to earthmoving customers.

Two Red Dot Design awards

Atlas Copco, a leading provider of sustainable productivity solutions, has won two prestigious Red Dot Design Awards for 2017 for portable compressors and a LED light tower.

"We are proud to once again be recognised with this distinguished prize for outstanding design," said Andrew Walker, president of Atlas Copco's Construction Technique business area. "As always, our product design has focused on providing true customer benefits such as boosting performance and operator comfort while reducing fuel consumption and service needs."

The Red Dot Design Award for 2017 recognises Atlas Copco's 8-series portable compressor range as well as the HiLight H5+ LED light tower. Both products are designed and manufactured by the Portable Energy division in the Construction Technique business area.

The 8-series compressors are recognised for raising the design standards when it comes to size, weight, efficiency and performance, partly by incorporating the latest tough and aesthetically pleasing HardHat® canopy. The light tower was recognised for its innovative optic lenses that maximise light coverage.

The official Red Dot Gala will take place in Essen, Germany, on 3 July.

Atlas Copco 8 Series Compressors win Red Dot design award.





Pipe Jack Gauteng's Kubota U50 compact excavator at work on the pipe cracking and pipe laying contract for Rand Water Board.

Pipe laying with compact excavator

Civil engineering company, Pipe Jack Gauteng (PJG), which is an important role player in the Pipe Jacking and Horizontal Boring Industry in South Africa reports that its Kubota U50 compact excavator is performing according to expectations in the pipe cracking and pipe laying contract for Rand Water Board.

"This particular job required a powerful excavator that was no more than 5-tons in weight. So, we bought the Kubota U-50 and its performance has been excellent," says Morris Valente, CEO of Pipe Jack Gauteng.

He adds that the power-to-weight ratio of the Kubota U50 is outstanding. "This is exactly what was needed on this job and the zero boom and tail swing feature adds to the machine's appropriateness for these conditions."

Valente emphasised the excellent service he has received from Kubota's Charl Kemp. "Downtime is expensive in my game and Kubota has been a great help to us," he says.

PJG, which undertakes a wide range of work in the industry including pipe jacking, pipelines, pipe cracking, demolition and more, says that its mission is to provide tunnelling and engineering solutions to its clients, whilst maintaining a lasting relationship and enabling sustainable growth.

"We are committed to building a competitive organisation with a sound value system based on respect for all people both in our organisation and out," concludes Valente.

In its 40 years' involvement in the mini-

excavator industry Kubota has continuously set the standard with technological innovations that have rocked the industry.

The integration of the zero boom and tail swing was one such innovation. Others, which also helped create the future of compact construction machinery, included the pioneering, advanced features of Auto Idle, which helps save up to 10% fuel.

In addition, a digital LCD panel and the Kubota Intelligent Control System (KICS), help reduce downtime and save on repair and technician costs; and Kubota's revolutionary 'three-pump' hydraulic system, which uses three independent pumps for boom, arm and swivel for more efficient bucket operation.

Kubota compact excavators are used the world over in a variety of construction applications including agricultural jobs, road-building, municipal works, pipe-laying, landscaping, water conservation projects and more.

"Our Kubota compact excavators' characteristics of being tough, reliable, efficient and easy to operate and service, enable them to work in the toughest conditions and take on any challenge," says Tom Bloom SPE General Manager construction equipment division. ●

New regional president in EMEA

Doosan Bobcat has announced Alvaro Pacini has assumed the role of president for the Doosan Bobcat Europe, Middle East & Africa (EMEA) region, effective immediately. Pacini will be responsible for Doosan Bobcat's EMEA business, representing the Doosan, Bobcat, Geith and Portable Power brands.

Pacini joined Doosan Bobcat in 2011 as the vice president of sourcing in EMEA before taking on additional responsibilities and leading total quality management in 2013 and then operations in 2015. Previously, Pacini worked for Faurecia in Brazil.

Doosan Bobcat has been expanding its product portfolio and growing its dealer channels across its heavy, compact and portable power equipment brands. Company officials believe Pacini can help maintain the positive momentum.

"With more than 30 years of global leadership experience, I am confident Alvaro will help us continue to deliver the innovative, quality products and services our dealers and customers have come to expect from us," said Scott Park, president and CEO of Doosan Bobcat Inc. ●



Alvaro Pacini.

New QUICK COUPLER for excavators

Doosan Bobcat EMEA has extended its excavator quick coupler offering with the launch of a new hydraulic pin grabber coupler for attachments used on the seven Bobcat compact excavators from the E25 up to the E55 models.

► The new Bobcat Hydraulic Coupler is available both as a factory installed option and as an aftermarket product for use with all the pin-on fitting attachments for the E25 to E55 excavators. The new quick coupler complements the existing full range of mechanical couplers from Bobcat including Klac and Lehnhoff systems.

Bobcat excavators equipped with the factory-installed hydraulic coupler are now supplied as tailormade systems, ready to go from the start. All controls are incorporated within the operator area, so there is no need for additional controllers, switches, displays, hoses and/or wire harnesses to be connected. The factory installed option is designed not to compromise machine efficiency, its robustness and overall performance.

Key features and benefits of the new quick coupler include its triple lock design for greater safety, exceeding the ISO 13031 norm and complying with all safety standards in the industry in Europe and the UK. There is a wide variable pin centre, to pick up multiple pin-on attachments. A robust, yet compact design ensures maximum breakout force and the system is essentially maintenance free, with few components for peace of mind. Powerful springs are activated in case of pressure loss to avoid any risk and reversibility is standard when the job requires it.

Important aspects include the increased safety and compliancy offered by a hydraulic pin grab coupler, which enables the operator to rapidly and safely change between non-hydraulic attachments from the comfort of the cab. The pins in the system are under constant pressure from the hydraulic cylinder ensuring the attachment is tightly gripped, even when there has been pin wear over longer term use. In the unlikely event of a hydraulic cylinder failure or hydraulic pressure loss, the attachment will remain securely connected thanks to two powerful springs. Front and rear locks ensure the attachment remains in position at all times.

The 'curl to release' safety protocol is an additional step to release the attachment in a safe position. A bucket, for example, must be in the fully curled position, locked on its hooks with the front lock, to allow the changeover process to start. The front lock, in green, is a highly visible indicator for the operator to check if the attachment is properly locked. An acoustic alarm will engage when releasing the attachment to warn everyone around the excavator that the operation is in progress.

The operator can change non-hydraulic attachments without leaving their seat. This means more comfort for the operator as well as higher productivity, because the attachments can be changed faster.

The operator simply activates two switches in the correct sequence, followed by moving the bucket joystick.

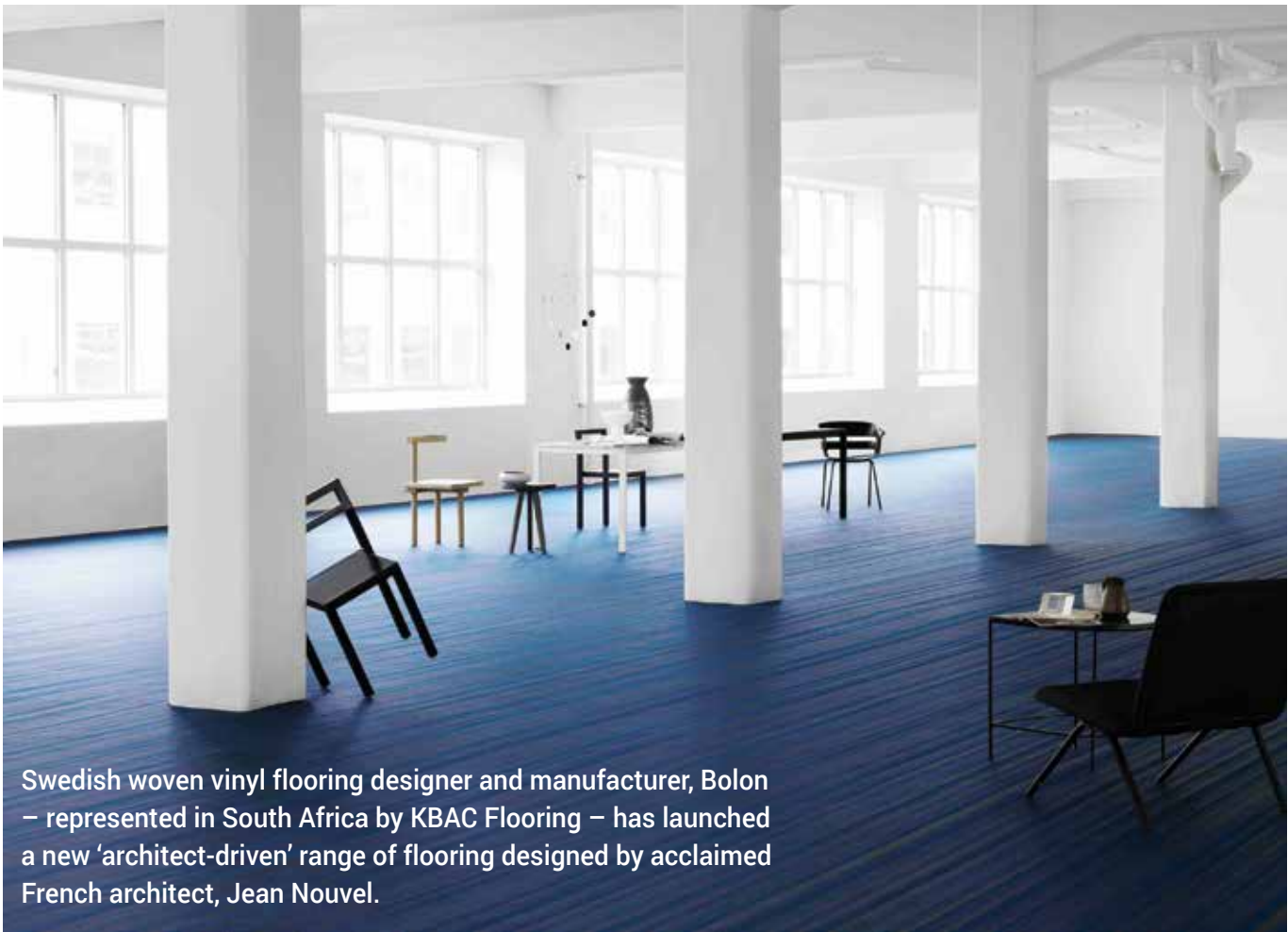
The proven and tested design has no greasing requirements and very few moving parts with no maintenance requirements (other than the daily inspection), guaranteeing a hassle-free coupler.

The open and simple design is meant to work in mud – so mud doesn't get trapped and block the release or unreleased mechanism. It is manufactured using extra-high-strength steel, increasing durability, while optimising weight and the excavator's performance.

With the pin grabber coupler, the operator can operate the bucket in both the normal position and in the reverse position, without any modification or extra components, to excavate against walls and under pipes for greater flexibility.

The pin grab concept allows the operator to connect to a widely available range of pin-on attachments for greater versatility. This makes this coupler an ideal choice for the rental business. It is also an economical option as unlike dedicated systems, only pins are required to secure the attachment(s). ●





Swedish woven vinyl flooring designer and manufacturer, Bolon – represented in South Africa by KBAC Flooring – has launched a new ‘architect-driven’ range of flooring designed by acclaimed French architect, Jean Nouvel.

Collaboration with **ACCLAIMED ARCHITECT** unveiled

► The ‘Bolon by Jean Nouvel Design’ flooring concept was first unveiled at the architect’s retrospective exhibition in Paris in October last year, and then introduced to the European design fraternity at Bolon’s ‘Innovators at Heart’ exhibition in Stockholm in February this year.

Jean Nouvel came to prominence in the 1980s, with groundbreaking projects like the Cartier Foundation for Contemporary Art in Paris and the Cultural and Conference Center in Lucerne, Switzerland. World-class projects followed, establishing Nouvel as one of the great architects of the century.

In 2008, he was awarded the Pritzker Prize, awarded annually “to honour a living architect whose built work demonstrates a combination of talent, vision and commitment, which has produced consistent and significant contributions to humanity and the built environment through the art of architecture”.

Bolon’s collaboration with Nouvel marks the Swedish manufacturer and designer’s

first architect-driven flooring concept and directly addresses the concerns of architects in its concept and execution.

The Bolon by Jean Nouvel Design collection features six signature colours. A departure from Bolon’s typically designer-driven flooring, the flooring was conceived with spatiality in mind and has a textural, hand-woven effect in combinations of black, grey, red and blue. The colour panes make it possible to have complete control and flexibility within the interior. The flooring amplifies the interior geometry, making it possible to experiment with the layout and natural circulation in an interior space.

“The freedom is yours to use the flooring to play with colour and light, and engage the windows of the space,” says Jean Nouvel. “It is not a decorative carpet, but an architectural floor. Using Bolon is a bit like choosing the fabric for a suit: it makes you want to look closely and to touch. I designed the striped pattern so that it could be arranged at a diagonal from a

“Using Bolon is a bit like choosing the fabric for a suit: it makes you want to look closely and to touch.”

window to appear as sunlight coming through glass. I’m a bit of a minimalist, so I enjoy it when the figurative theme disappears and one goes towards the most essential thing: the basis of the texture.”

Bolon by Jean Nouvel Design woven vinyl rolls are available in six colours: Black Warp with red, blue or grey weft; and Grey Warp with red, blue or dark grey weft. The new collection is also available in 50 cm by 50 cm tiles in Black Warp with blue weft, or Grey Warp with dark grey weft.

Bolon is a 70-year-old Swedish company that makes innovative flooring solutions for public spaces with a list of clientele that includes Armani, Google, Volvo Cars, Adidas, Skype, Missoni and Radisson Red. KBAC Flooring was appointed as sole Bolon distributor in South Africa last year. ●

CERAMIC PANELS bonded to office block façade

A new Dow Corning adhesive for non-glazed façade cladding was provided by a.b.e. Construction Chemicals for the extensive panel bonding required for the façade of the upmarket 4 Stan Road office block development in Sandton.

a.b.e. – part of the Chryso Southern Africa Group – is the South African distributor of the globally-acclaimed Dow Corning range of structural glazing sealants produced in Belgium. 4 Stan Road is a recently completed 'boutique office' development in the heart of Sandton.

Grant Batty, National Sales & Segment Manager: Silicones & Adhesives for a.b.e., says the composite 1,2 m by 2 m Laminam ceramic panels used to clad a 700 m² section of the façade of the building were bonded with Dow Corning 896 Panel Fix. "This revolutionary adhesive is a one-part, neutral curing alkoxy silicone sealant designed for non-glazed façade applications to structurally bond two substrates together – and was ideal for this project," Batty states.

a.b.e.-approved applicator, Rudolph & Van Vuuren, supplied the imported 3 mm thick Laminam ceramic panels and bonded the

panels to aluminium frames which were then fixed to the façade's concrete substrate. The tiling contractors have more than two decades of experience in the tiling industry and have handled major contracts at, for example, Sandton City, Monte Casino and Melrose Arch.

Grant Batty says the cost-effective Dow Corning 896 Panel Fix sealant system not only simplifies panel tiling but also substantially expands cladding design possibilities, while maintaining safety and control. "The elastic adhesive is specifically designed for non-glazed panel applications that require high durability and fast handling. a.b.e. previously supplied the same system for the façade cladding of the 30 Jellicoe Avenue office block in Rosebank for which Rudolph & Van Vuuren factory-produced and installed aluminium-framed ceramic panels.

Batty says some of the new Dow Corning 896 Panel Fix system's benefits are:

- Excellent adhesive properties to a variety of substrates such as mineral, ceramic, and mill finished aluminium;
- Immediate high tack upon application;
- High strength when fully cured;
- Ease of application;
- One-part, moisture cure, neutral, low-odour formulation;
- Suitable for indoor and outdoor applications; and
- Low squeeze-out that prevents excess wastage.

"The new Dow Corning 896 Panel Fix System eliminates the need for mechanical fasteners which means that unsightly connection and fixing points are totally hidden. Designers and developers can therefore select lighter, less expensive cladding options. Applicators, on the other hand, appreciate the sealant's time-saving features such as easy extrusion, and excellent compression resistance, as well as the dead load support provided by its instant strength.

"Bonding can be applied either in the factory or on-site. During on-site bonding, Dow Corning 896 Panel Fix system, and its 3,2 mm thick glazing tape, enable direct application of façade panels to the sub-frame without the need for temporary retainers," Batty explains.

The new system's silicone technology also provides safety and durability through improved fire resistance compared with organics, excellent weathering, resistance to UV radiation and ozone attack, as well as temperature extremes.

For additional peace of mind, the Dow Corning 896 Panel Fix System is available through the Dow Corning Quality Bond programme which combines state-of-the-art products, top quality standards, and application by Quality Bond members – such as Rudolph and Van Vuuren - who benefit from specialised technical support, including joint calculation assistance, adhesion testing, application training and regular quality control visits by a.b.e. Construction Chemicals technical staff.

The main contractor for the R79-million 4 Stan Road project was Tiber and the architects, MDS Architecture. A total of about 5 400 m² premium grade office space is provided in the new eight storey building which has achieved both four-star Green Star SA Design and As-Built certifications from the Green Building Council of South Africa (GBCSA). ●



A new Dow Corning adhesive for non-glazed façade cladding was provided by a.b.e. Construction Chemicals for the panel bonding for the 4 Stan Road office block development in Sandton.

Expanding into Mozambique

Afrox, sub-Saharan Africa's leading industrial gases and welding company, is expanding existing operations in Mozambique to support current customer demand and to position itself to service the country's fledgling gas resources sector.

Driving Afrox's strategy is a new 8 600 m² headquarters hub which will be the backbone of operations with a sales centre, storage facilities for cylinders and hard goods, filling facilities for oxygen, and ample secure parking.

The new headquarters hub will open in the Machava Industrial Area in Matola, Maputo Province, on 4 May 2017 and will provide full sales service, stock, equipment and technical support for Afrox's branches in Beira and Tete.

"As the leading gases and welding company in Africa, the new hub in Maputo Province reflects our commitment to fostering long-term relationships with our customers in Mozambique," says Prince Tsuro, managing director for Afrox Mozambique.

"There are further plans to expand services to include a workshop for cylinder inspection, maintenance and painting, as well as filling services for argon in the near future."

The new Afrox headquarters hub also includes plans for a demo centre which will be used to showcase product usage or applications, and while bulk and compressed gases and hard goods are imported from South Africa, the site includes sufficient space for future expansion.

"Our headquarters hub will benefit a wide spectrum of sectors in Mozambique ranging from mining, agriculture, sugar mills and transport through to manufacturing and fabrication, the hospitality, medical sectors and the future needs of the LNG industry and its spin-off industries."

The Afrox headquarters hub in Machava employs 20 people and expects to enhance customer experience right across the board, from the sales centre through to collection of hard goods and loading of cylinders.

The upgraded hub will offer all of the same comprehensive services available from other Afrox branches in southern Africa, including a full range of large-volume on-site installations and bulk gases, cylinder gases, scientific gases, refrigerants, packaged chemicals and helium, CO₂, medical gases and medical products, hospitality gases, gas equipment, welding products and ancillary safety products.

Afrox, which celebrates 90 years in business in 2017, is dedicated to capitalising on expansion opportunities



Prince Tsuro, managing director for Afrox Mozambique.

in other sub-Saharan African countries, with indicators suggesting these economies will far outperform South Africa in terms of growth and inward foreign investment. Sub-Saharan Africa is experiencing a resurgence in oil and gas and mining investment, and consequently Afrox is growing its existing footprint in support of these sectors.

"Afrox has been investing in the sub-Saharan African region and Africa's infrastructure and industry for 90 years and this latest investment in our headquarters hub in Matola is a clear demonstration that Afrox's business is still going strong, growing and expanding where profitable and will do so for many more decades to come," says Tsuro.

Afrox's business needs and customer demands had outgrown its former rented site which it has now closed as part of its investment in the headquarters hub in Maputo Province. ●

New Digital Environmental Impact Statement launched

Royal HaskoningDHV has pioneered the way environmental effects of projects are understood by launching the world's first digital interactive Environmental Impact Statement (EIS).

Salani Sithole, managing director at Royal HaskoningDHV South Africa states, "The EIS uses accessible, interactive visuals to revolutionise the way the results of an Environmental Impact Assessment are interpreted and shared between all project partners; saving time, accelerating decision-making and advancing stakeholder engagement".

Environmental Impact Assessment is required to ensure that the environmental effects of major projects and development proposals are fully investigated and taken into account before decisions are made on whether they should proceed. These results must be outlined in an EIS.

Previously an EIS used text to explain the nature of the issue and what the future situation will look like. It is now replaced by easily understood visuals and videos that clearly outline the assessment's findings.

Paul Eijssen, strategic advisor for

environmental impact assessment and a creator of the digital EIS at Royal HaskoningDHV said, "Responding to the increasing demand for digitisation and transparency, Royal HaskoningDHV is leading the way in which all data surrounding the impact of a project on the environment is interpreted. The traditional manner of reporting an Environmental Impact Assessment was outdated and I knew we needed to innovate and change to ensure that the EIS will continue to have relevance and impact in our collective decision making processes."

"The new digital Environmental Impact Statement is visualised via clickable maps and simple to understand tables and its unique interactive capability gives users the opportunity to walk through the virtual landscape and experience how the project will look once it is finished.

This will accelerate decision making, enhance transparency and create greater stakeholder engagement."

Developed in collaboration with the Dutch Ministry of Infrastructure & Environment, the digital EIS has also received positive advice from the Netherlands Commission for Environmental Assessment, in recognition of the major step this presents in making impact statements more accessible, thereby creating opportunities for greater stakeholder engagement. ●



Transformer services company acquired

Durban-based reliability solutions specialists, WearCheck, recently bought out Transformer Chemistry Services (TCS), adding an already-established transformer analysis and maintenance division to the company's condition monitoring portfolio.

Coupled with WearCheck's Africa-wide network, the expertise of TCS and a general growth in the number of transformers across the continent, WearCheck is now poised to provide large-scale and widespread comprehensive transformer reliability services.

The primary function of the newly-formed transformer division is the promotion of transformer health through the regular assessment of insulating fluid and diagnosis of the results.

Transformers are extremely critical apparatus for providing reliable energy. No-one can precisely answer when equipment will fail, but it is essential to manage risk. Compared with the cost of premature or catastrophic failure, regularly scheduled oil testing is a cost-effective and sound maintenance practice that is used to extend the life of transformers.

WearCheck has now added the transformer tests done by TCS to its existing transformer oil analysis programme, increasing the number of available fluid and non-fluid tests, such as Insulation Paper Quality Testing. This test provides a measure of paper aging, and correlates this with important physical properties such as resistance to tearing and bursting. This is a critical factor in estimating the real aging of the main transformer insulation.

TCS was established in Westville, Durban in 1992 by Ian Gray, who has run the company for the past 25 years.

Among some of the large customers serviced by TCS are companies such as Sasol, Mittal Arcelor and BHP Billiton.

A second TCS laboratory was built in Cape Town two years ago, in



Shaking hands on the deal – WearCheck MD Neil Robinson (right) and TCS MD Ian Gray discuss the details of the merger of TCS into WearCheck.

response to the needs of the burgeoning transformer industry in the Western Cape.

Offering the full spectrum of transformer reliability solutions by one condition monitoring company – this is one of the key benefits of the merger of TCS into WearCheck. So says WearCheck MD Neil Robinson, who constantly strives to provide customers with value-for-money services that reliably boost plant availability.

Says Robinson, "The transition of TCS into WearCheck is already underway and is an extremely smooth process, particularly since the two companies share an absolute dedication to the integrity of data and a parallel commitment to customer service excellence.

"From WearCheck's side, we extend a very warm welcome to all the current TCS customers, and we look forward to taking new transformer clients on board." ●

Resin dumping could lead to severe job losses

The beleaguered South African coatings industry is facing a new threat: the Egyptian dumping of what could be sub-standard resins used in the production of paint.

Deryck Spence, executive director of the SA Paint Manufacturing Association (SAPMA), says there are also reports that Kenyan manufacturers of raw materials for paint production are about to follow suit. SAPMA has informed the Department of Trade and Industries (DTI) that the coatings sector has learnt that 'free trade' agreements with Egypt are being negotiated and proposals sent to the Southern African Customs Union for the introduction of zero import duty being introduced for Egyptian resin imports.

Spence told the DTI that SAPMA is perturbed that – although it represented 90% of the coating manufacturers and raw material and services suppliers in South Africa – it was not included in the importation discussions and negotiations that could have a disastrous effect on local manufacturing, as well as substantial job losses.

"Apart from the damaging effect such an agreement with Egypt would have on local manufacturers, Egyptian raw material suppliers have dumped sub-standard, low priced material in South Africa before which then already caused significant problems and subsequent losses in the market place," he advised the DTI.

"To make matters worse, there is at present no SA mandatory quality filter – such as the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) in Europe – for the

SAPMA's Deryck Spence.

importation of coatings and raw materials in place which opens the door for unspecified, low quality finished products and raw materials being imported into the country.

The coatings sector is already under threat of finished coatings which contain hazardous lead being imported from SADC and BRIC countries that do not have legislation to control the use of lead in paint."

SAPMA also reminded the DTI that any product imported into SA would have to meet the compulsory specifications of the National Regulator for Compulsory Specifications (NRCS) and implored the DTI to utilise the services of the NRCS to control any imports that could threaten the survival of the industry.

"The coatings industry urgently requested the DTI to re-examine the details of the proposed tripartite free trade agreement and Egypt's proposal to the SA Customs Union, and to take cognisance of the effect such a free trade agreement would have on local manufacturers who are already struggling for survival," Spence states. SAPMA also asked the DTI to investigate the reports about imminent Kenyan imports being dumped in South Africa. ●



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