

Benchmark

A Stefanutti Stocks Publication

Continuous pursuit of higher levels of performance

VOLUME 16 | NOVEMBER 2016

**Transnet's Maydon Wharf wins
SAICE's Railway & Harbour
Engineering Award**

**Liberty's Eastgate Mall crowned
2016 Steel Award Overall Winner**

**Rand Water's Zuikerbosch
Sedimentation Plant
progressing well**

**Construction of river arch
bridge for SANRAL**

**Stefanutti Stocks Coastal
positions itself as Africa's premier
marine & civil contractor**



Bridging your expectations



p.07



p.11



p.16



p.19

Contents

From the CEO	01
Projects	
Building	03
Mining & Mining Infrastructure	09
Transport Infrastructure	16
Water, Sanitation & Pipelines	24
Bulk Earthworks & Geotechnical	32
Industrial Plants, Oil & Gas	34
Stefanutti Stocks City	22
Safety Highlights	36
News	
Seven South African listed construction companies commit to joint Transformation Programme	02
Stefanutti Stocks's Gauteng building divisions merge in anticipation of market opportunities	02
In-house initiatives yield cost savings and reduce carbon footprint	12
Stefanutti Stocks Coastal positions itself as Africa's premier marine & civil contractor	14
A trip down memory lane - Mozambique	37
Our People	38
Group overview and contacts	44

Senior Appointments & Promotions

Building

- Dietmar Scriba has been appointed as managing director for Stefanutti Stocks Building Inland, with effect from 1 July 2016.

Roads, Pipelines & Mining Services (RPM)

- Wantz Klopper has been appointed as an alternate director for the Stefanutti Stocks Zambia division, with effect from 1 October 2016.
- Billy Howes has been appointed as full director for Stefanutti Stocks Swaziland, with effect from 1 March 2016.

Structures

- Benny Howard has been appointed as full director of Civils KZN, with effect from 1 May 2016.

2016 Stefanutti Stocks photo competition winners

Placed, from left to right, top to bottom:

- 1st place: Tim Smith, Horizon Towers in Maputo, Mozambique.
- 2nd place: Sean McIntyre, Sasol Secunda.
- 3rd place: McDonald Ramoroka, Maydon Wharf, Durban Harbour.
- Adele Brits: Titan installation for Eskom power line.
- Annell Welsch - Kusile Power Station.
- Bruce Stevens - Exxaro Conveyor Idlers.
- Christopher Gird - AOC Unit 3 condensate polishing, Kusile Power Station.
- Debbi Kannemeyer - Dainfern pipeline installation.
- Debbi Kannemeyer - Panoramic view of Liquobong Mine, Lesotho.
- Esmond Robertson - East London rock revertment.
- Eswee Kruger - Maydon Wharf Berth 1.
- Pierre van Vuuren - Senqu River Bridge.
- Warren Kaufmann - Eastgate Entrance 2 Wind Lobby.



Stefanutti Stocks Holdings Limited

Tel: +27 11 571 4300 | www.stefanuttistocks.com | benchmark@stefstocks.com
We would like to thank all contributors to the publication and welcome any suggestions or articles. This publication is also available online on our website.



Volume 16 of the Benchmark was compiled on behalf of Stefanutti Stocks by Gerbera Brand Management. Cell: +27 82 371 1005 / www.gerberabm.co.za



From the CEO

The ongoing lack of both private and public infrastructure spend in Southern Africa continues to challenge the construction industry. The group's financial performance for the first half of the year reflects this extremely difficult trading environment.

Our contract revenue decreased by R865-million to R4,4-billion compared to the previous period and the group's operating profit decreased from R176 million in the previous period to R100 million in the current period. Included in these results, we have seen a combination of the strengthening of the Rand and the weakening of currencies in the African countries in which Stefanutti Stocks operates, negatively affecting the group's results by R50 million.

The current order book is R14,1-billion and is comprised of mainly medium-sized projects, with 30 per cent of this work stemming from beyond South Africa's borders.

We have identified potential growth areas in certain sectors of the economy, and these should provide opportunities for our Roads & Earthworks, Mechanical and Building operations, both locally and cross border. There are also opportunities in the construction of petrochemical tank farms and existing markets for our Oil & Gas and Electrical & Instrumentation businesses.

A few exciting current projects that the group is participating in are detailed in this issue, including the construction of a world-class production plant for BMW in Rosslyn (p6), contract mining operations at the Silver Lake Thutsi Mine (p9), and a number of Water, Sanitation and Pipeline projects including two joint ventures with our strategic enterprise development partners (pp24-30).

Excellence in execution

Being part of a successful group requires each of us to continue performing our duties to the very best of our abilities, even in these tough times, as we pursue our mission of excellence in execution. Our efforts are acknowledged in the one instance for example, by industry awards. Two of our Building business unit projects recently won their categories in the Steel Awards (pp4-5), and two of our Structures business unit projects were acknowledged in the SAICE SAFCEC Awards, with the Maydon Wharf project winning the Railway and Harbour Projects category. (p16-19).

Safety

As always, safety is a key focus across the group, and we remain committed to a safe and healthy work environment for our staff and subcontractors on site. The group's Lost Time Injury Frequency Rate (LTIFR) at end August 2016 was 0,12 (Feb 2016: 0,10) and the Recordable Case Rate (RCR) was 0,70 (Feb 2016: 0,59).

A number of our sites have reached safety milestones over the past few months (p36) including Stefanutti Stocks Botswana's Kasane Airport team, that achieved 1-million LTI-free hours and our E&I maintenance team at Sasol in Secunda that achieved 1,5-million LTI-free hours. Another highlight is the award of first regional and third national place to Stefanutti Stocks Building Western Cape's Climor distribution warehouse, in the R500-million category of the Master Builders South Africa Safety awards.

Voluntary Rebuild Programme

Since 2013 the seven listed construction companies have been engaging with the Government of South Africa to jointly promote

meaningful transformation within the industry and in the interest of settling potential civil claims and CIDB registration issues.

This initiative, called the Voluntary Rebuild Programme (VRP), was developed under the umbrella of SAFCEC, and at the beginning of October 2016 Stefanutti Stocks and six other listed construction companies reached agreement with national government on a programme of initiatives that will primarily accelerate transformation in the industry. The commitment from industry involves a financial contribution, an integrity commitment, as well as certain transformation commitments, over and above the existing industry score card requirements. The article on page 2 explains the agreement and our commitment in more detail.

Sustainability

The third edition of our group's sustainability report, Sizimisele, has been printed and is also available on our website. I encourage you to page through this and familiarise yourself with some of our enterprise development, skills development, socio-economic development and environmental initiatives. From my side, it is heartening to see how our development relationships continue to bear fruit, in spite of tough economic times.

As another year draws to a close, I would like to thank our board, our management teams, staff, suppliers, service providers, shareholders and clients, for their commitment and continued support. I wish you all a safe, restful and regenerative holiday season. I am confident in facing the challenges of next year, with a well-rested, motivated Stefanutti Stocks team, and that we will continue to bridge all expectations in 2017.

Willie Meyerhans



Seven South African listed construction companies commit to joint Transformation Programme

Source: Charles Wright, Stefanutti Stocks group development director

Since 2013 the seven listed construction companies have engaged with the Government of South Africa to jointly promote meaningful transformation within the industry in the interest of settling potential civil claims and CIDB registration issues. The initiative, called the Voluntary Rebuild Programme (VRP) was developed under the umbrella of the South African Forum of Civil Engineering Contractors (SAFCEC).

On 6 October 2016, SAFCEC announced that the seven listed construction companies and the South African government had signed the VRP. "The agreement is comprised of three initiatives, the first being a financial contribution by the seven companies to a transformation trust, the second being the development of black-owned construction companies with strict criteria and objectives to be met on an annual basis and thirdly an integrity commitment between government and the construction companies" says Charles Wright, Stefanutti Stocks enterprise development director. All the VRP commitments are in addition to construction scorecard-related initiatives.

A brief overview of the VRP commitments

Financial contribution

The seven companies will collectively contribute R1,5 billion to a transformation trust, over a period of 12 years. This financial contribution will be used for the purposes of the development, enhancement and transformation of the industry, as well as the promotion of social infrastructure development for all South Africans.

The fund will be managed by a board of trustees with equal representation by State and the construction companies, with one trustee from SAFCEC. The trust fund money will be applied to initiatives, projects and programmes that are designed to further the purposes of transformation, for example:

- The development and promotion of construction firms owned and managed by black people.
- Where feasible to provide bursaries, mentorship and employment to black persons studying construction-related occupations.
- Supporting and enhancing mathematics and science education at public schools.
- Promoting social and economic welfare, including funding social infrastructure build programmes for underprivileged communities.
- Funding the appointment of seasoned professionals who will provide engineering, project management and other services to government (in particular local government), in order to strengthen its capacity, to design, construct, operate and maintain public infrastructure.

Enterprise development commitment

"The agreement stipulates that in addition to our existing enterprise development programmes we must either ourselves become fully transformed (40 per cent of equity in the hands of black people) or commit to initiatives that will result in the construction companies each mentoring up to three emerging black-owned enterprises," says Wright. "Our objective is to develop the necessary skills, systems, and resources that will allow our emerging black-owned enterprises to achieve a cumulative combined annual revenue equal to at least 25 per cent of our annual South African Civil Engineering and Building turnover by 2024."

Integrity commitment

The seven companies participating in the VRP, together with government, have signed a declaration confirming their commitment to creating an ethical culture across the industry, where collusion or corruption will be exposed, confronted and eradicated from all operations.

Stefanutti Stocks's Gauteng building divisions merge in anticipation of market opportunities

Source: Howard Jones, Stefanutti Stocks Building business unit managing director

Looking ahead at what the infrastructure requirements of South Africa will look like over the next five years, it is clear that there is a massive requirement for the development of social infrastructure including affordable housing, schools, student accommodation, clinics, police stations, educational facilities and community spaces.

"The most efficient way to position Stefanutti Stocks Building to best address the likely market over the next three to five years was to merge our housing and our Inland building division into one entity," says Howard Jones, the Building business unit's managing director. "The

Gauteng-based Building division will offer a complete service to the building sector from social housing all the way through to sophisticated high rise structures. We are also very capable contenders within the warehousing and distribution centre construction sphere, across all our divisions."

Bheki Vilakazi, who joined Stefanutti Stocks in 2012 as managing director of what was previously the housing division, and under whose leadership the division has grown to become one of South Africa's leading contractors in this sphere, has been promoted to the role of deputy managing director of the business unit, with the view of replacing Howard Jones when he retires in 2018.

Dietmar Scriba, who recently took over from Andrew Owens as the managing director of what was previously the inland building division, will assume the responsibility of managing director of the newly merged division.

The Building business unit and the newly merged division will be based at Stefanutti Stocks's Barbara Road offices, and it is anticipated that the move will be completed by the latest at the end of February 2017.

"In spite of very difficult trading conditions in South Africa, it is an exciting time for the whole Building business unit," says Jones. "Our order book includes some fantastic current and newly awarded projects; and we are a dynamic team, comprising of strong managing and contracts directors, whose energy and vision for our business is one of our strongest assets."

Stefanutti Stocks builds

Westgate Housing Development in KZN

Source: Paul Andrew Dykes, Stefanutti Stocks Housing contracts director



The Westgate Housing Development in Pietermaritzburg will see the construction of 952 residential units in circa 100 three-storey face-brick blocks that are cut into a ridge. Stefanutti Stocks Housing began construction, on a greenfield site, in January 2015 and is undertaking all the construction-related work, right through to completion of the project.

This spans earthworks, civil construction, building and finishing, roads and earthworks, below ground services and the water main from a distant hilltop reservoir. The 28-month project is being undertaken for the Msunduzi Housing Association (MHA) and is due for completion in May 2017.

A fast-track, large project such as this housing development is uncommon in the hilly Pietermaritzburg area. The areas topography and ground conditions are challenging to the construction process, in particular as the weekly rainfall makes site access and vehicle movement across the site, more difficult. Phase 1 and 2 of the project are located in separate villages and are on track for handover on 1 November 2016. Phases 3 and 4 are also on track and due for handover on 1 May 2017.

As part of the localisation requirement Stefanutti Stocks Housing has been developing the skills of the community, in order to be able to employ them as labourers or as subcontractors. In order to meet the programme 100 brick layers from the community are required to constantly be producing on site, and to date roughly 1000 community members have received training, in order to meet the targets. Extensive liaison between the community, its leaders, and Stefanutti Stocks Housing contracts director on the project was required in order to ensure that workable solutions, for all stakeholders, were reached.

"In addition to proper planning and competent execution of works, the success of this project relies on open communication between all stakeholders, as well as commitment and ownership by all players," says Paul Andrew Dykes, contracts director for the development. "The team is on target to meet the May 2017 completion and is looking forward to completing this landmark development on time, and to the satisfaction of our client."



"This is the first Social Housing Project of this magnitude, for both our client (MHA) and ourselves," says Bheki Vilakazi, Stefanutti Stocks Housing managing director. "With the South African government's drive and an increasing focus on developing social housing in lieu of RDP houses, we are seeing more of these types of projects in the market. Furthermore, and as a result of successes associated with this project, we have been awarded two more Social Housing Projects in the North West and Gauteng Provinces."

Captions:

1. Typical face-brick blocks at the top of the site, with finishing underway.
2. This perspective across the roofs shows the length, which is 1,5 kilometres, of the construction site.

Liberty Property's mall redevelopment wins prestigious Steel Award

Source: Bradley Nortje, Stefanutti Stocks Building contracts director

On 21 September 2016 the Eastgate Phase 2 Redevelopment was crowned both category winner of the Commercial Architectural category as well as the Overall Winner of the 2016 Steel Awards. The bulk of the construction of this highly visible redevelopment took place over a 24-month period and saw approximately 1 500 ton of structural steel work applied across the project.

Liberty Property Portfolio Fund Manager, Alex Phakathi says that the SAISC Steel Award is a tribute to the successful completion of a challenging task. "The refurbishment of Eastgate Shopping Centre was a massive undertaking, and the recognition received from SAISC is a feather in the cap of all those who contributed to the challenging task of redeveloping the building, while keeping the retail spaces functional and delivering a structure that is both eye-catching and satisfies a complex set of engineering criteria that most visitors to the property will never even have considered," Phakathi says.

This complex contract which changed the face of the Eastgate Mall was undertaken for Liberty Group Properties (PTY) Ltd. It included the construction of a new cinema complex on a section of the roof-level carpark; 15 000m² of additional retail space; upgrades to the mall and various entrances including upgrading the now spectacular centre court; upgrades to the 22 000m² external facade as well as two additional parking levels.

Construction logistics

"Undertaking a project of this absolute scale and technical complexity in a trading mall added to an already demanding undertaking," explains Bradley Nortje, Stefanutti Stocks Building contracts director. In order to cause as little interruption as possible to the stores and the visiting public, Stefanutti Stocks's construction team and subcontractors worked day and night shifts. "Material deliveries were scheduled for after nine, once the mall had closed its door to the public," continues Nortje. "The majority of the heavy lifting also had to take place after trading hours."

Cinema Structure - 1 200 tons of structural steel

The entire cinema structure was constructed using structural steel weighing approximately 1 200 tons with a lightweight walling system that in some areas extends up to 20-metres high and 560mm wide.

Prior to any of the work taking place the existing structures had to be accessed to establish loading tolerances. The loading on the rooftop carpark slab was limited to five-tons, and a tower crane was installed that covered sixty per cent of the rooftop complex.

As the crane was not allowed to be established on the main car park on the operating side of the mall, this meant that steel loads of up to 3,5 tons and over 18-metres long were trolleyed through and around the cinema structure, and then hoisted into place via chain blocks and pulleys.

Centre Court - 60 tons of structural steel

The centre court was by far one of the most challenging sections on the project as all the work had to be undertaken without interrupting the trading of the stores. The existing roof was removed and temporarily sealed.

The new skylight extends 16 metres higher than the original and required the additional application of around 60 tons of structural steelwork, in and around the area, to accommodate the now far greater structural forces.

Mall Entrance 2 - 80-ton structural steel canopy

The Eastgate Mall Entrance 2 upgrade consists of the new 6 500m² Woolworths extension and the inclusion of a glass window façade; an approximately 80 ton structural steel canopy and a "glass box" entrance that will accommodate two new restaurants; a new external pedestrian piazza and upgraded parking.

Safety

The health and safety considerations on the project had to be incredibly onerous to ensure that operations across the seventeen concurrent work sections which employed 1 900 people at peak, progressed with out any incidents.

The project was placed first in the R300-R500-million category in both the 2015 and 2016 Master Builders Association North Regional Safety Competition.

"We have always felt very proud of this project, and the completion of this contract crowned with the two Steel Awards are an absolute highlight of our construction year," says Nortje. "The completed revamp is an absolute credit to the whole team that was involved in creating and constructing it."

Caption:

1. Eastgate Malls revamped Entrance 8.
2. The new cinemas, for which a new structure was constructed comprising of 1 200 tons of structural steel.
3. The Centre Court that was constructed using 60 tons of structural steel.



SS Construções builds Maputo's Marginal Mall

Source: Tim Smith, SS Construções senior contracts manager

SS Construções Mozambique is undertaking the construction of the Marginal Mall project for Autódromo Gestão Imobiliária. Negotiations took place in the months leading up to the project's start.

The retail project entails the construction of a largely single-level shopping centre that will accommodate 100 shops, with a post-tension concrete parking slab covering the full mall area. The two new anchor tenants, Woolworths and Super Spar will abut upon the existing Game store building.

The project started in mid-May with the relocation of services and the construction of a temporary pedestrian walkway tunnel to link the car park to the Game store, which will trade throughout the construction period. Bulk earthworks were then followed by the piling operation which was undertaken by Stefanutti Stocks Geotechnical and comprised of 697 continual flight auger (CFA) piles.

To achieve the programme, a two-pronged approach needed to be adopted, which means construction starting from either end of the mall, where each of the two anchor tenants are situated, and progressing inwards towards the centre of the mall. The current parking area must remain intact for Game customers, until parking can be re-located onto the new roof parkade. This move is planned for mid-November this year.

In addition to this contract, SS Construções is negotiating a contract to build a seven-floor, 150-room hotel located above the mall parking level for the Tsogo Sun group.

The grand opening for both projects is set for 27 October 2017.

Captions:

1. An aerial photograph shows construction progress as 20 October 2016.
2. An artist impression showing the front elevation of the mall.



Mr Price Distribution Centre wins Steel Award's Safintra Factory and Warehouse Category

Stefanutti Stocks Building KZN completed the distribution centre in July 2016.

One-stop design and construction solution for BMW's body-in-white assembly plant

Sources: Andreas Krafft, Stefanutti Stocks Building contracts director and John Rippon, Stefanutti Stocks Building contracts manager



German efficiency and high productivity levels have contributed to the high esteem many of Germany's luxury brands enjoy internationally. This same approach has informed the construction methodology implemented at BMW's new production plant in Rosslyn, Pretoria. Stefanutti Stocks Building credits direct access to its client; lean programming; stakeholder engagement, participation and sound relationships; as well as the precast technology utilised, with the efficient roll-out of this landmark industrial construction project.

In November 2015 Stefanutti Stocks was given a functional description by BMW that specified their requirements for a 22 500m² production facility, including energy levels and other criteria. "We worked with a professional team to propose a modular design based on these specifications, which we submitted in our tender," says Andreas Krafft, Stefanutti Stocks Building contracts director. Following some negotiation Stefanutti Stocks Building was awarded the contract as a lump sum project, with full responsibility to deliver a complete solution for BMW's Rosslyn-based production plant. "It is an incredible opportunity for us to present our competence directly to our client, rather than through a professional team, and it is an absolute pleasure working with the BMW team."

Managing the project

BMW has introduced the concept of lean programming into their construction projects, which sees the required tasks flow reliably and predictably, by ensuring that the entire construction supply chain is aligned. "In a nutshell lean programming aims to optimise efficiency and minimise waste of materials, time and efforts," explains Stefanutti Stocks Building contracts manager John Rippon. "It requires the collaboration of all parties involved in the construction project, and is a fantastic tool for anyone coming on to the site to view programme progress."

A lean programme is a diagrammatic way of showing the entire programme at a glance and Stefanutti Stocks has covered an entire

wall of the site boardroom with the production plant programme. Stefanutti Stocks generally utilises Construction Computer Software (CCS) for programming their projects, which is more complex, and the Lean Programme simplifies this complexity, making it more user friendly by offering a clear view of the status of construction on site.

At the beginning of the project a representative from BMW held a workshop, where all of the site team and subcontractors were invited to construct a typical model, based on the lean programme principles.

What the production plant contract comprises

Design and construction of a vehicle production facility which consists of :

- A 22 500m² production hall which is the main structure;
- plant room;
- offices;
- metrology and transformer room;
- conveyor; and
- external concrete hardstand.

Summary of quantities:

- 600 tons of structural steel;
- 200 tons of reinforcing;
- 30 000m² of roof sheeting and side cladding;
- 60 000m³ of bulk earthworks; and
- 10 000m³ of concrete.

The entire project was split into areas including the production hall, the plant room, the offices, the metrology and transformer room, the conveyor and external work. The production hall was further split into three sections that were again split into three sections. The activities required to complete individual areas were listed in the order they needed to happen. In the case of the production hall this started with the building structure, then the roof structure, the concrete floor, the MEP (mechanical, electrical and piping) installation and concluded with commissioning and sign-off.

"We adapted our CCS programme, and where it had periods of float, we took that float out on the lean programme to ensure that as one activity finishes, the next starts immediately," says Rippon.

Contracts manager, Corne Pienaar also updates a two-weekly programme that is visible at the opposite end of the boardroom, where daily activities required to meet weekly goals are listed.

Resources

The project is very resource intensive with about 85 to 90 per cent of work on site being conducted by sub-contractors. At peak 35 pieces of plant were operating across 50 per cent of the 22 500m² area. "We have some of our own very highly competent people in the BMW plant area, including a site agent and senior foremen," says Krafft. "In total about 20 Stefanutti Stocks employees are on site, and overall the project is creating employment for approximately 300 South Africans, 40 per cent of whom are from the Rosslyn and surrounding area."

Accelerated work environment

Although the tilt-up technology is more costly, the time-saving and less challenging logistics make it a worthwhile construction methodology. It is also a cleaner, more open process that allows follow-on trades earlier access than traditional construction methods would. "If we hadn't implemented the tilt-up technology we would certainly not be where we are in terms of progress date," said Krafft at the end of October 2016. The contract start date was 7 March 2016, the Permit to Work was granted to BMW approximately a month later. Stefanutti Stocks commenced with the bulk earthworks on 15 April 2016 and over eight weeks moved approximately 60 000m³ of soil (peaking at a rate of 2 000m³ a day), brought back 20 000m³, and started with foundation work in May.

"A further reason for choosing the precast, tilt-up route is that we didn't want to delay getting started on site, while we were waiting for the Building Permit approval as well as the site development plan (SDP) and Section 7(6) approval," explains Krafft. Stefanutti Stocks was able to start excavations, start pouring the blinding and pour the columns for the plant and the conveyor on the ground, in anticipation of the approval of above

ground level construction. "This approach helped us achieve a greater scale of efficiency since as soon as the SDP approval came through, we could start tilting up."

The lean-programming and staged approach to the three sections within the 22 500m² plant, also meant that individual activities could roll out, and even run concurrently across the areas, which meant that follow-on trades were not delayed.

The floor specification requirement is FM 2 with light grey coloured floor hardener classified to DIN 1100 specification, and it includes a high tolerance DM 1 specification in the racking area. Stefanutti Stocks chose PC-floors (an affiliate of the internationally renowned RCR Industrial Flooring Company) for the floor installation. "BMW wants to move into the plant by the 1 December 2016 by which time the floor must be finished," says Krafft. "We have one chance to get the floor right, and we chose PC-floors as partners, to ensure that we deliver a floor that will fulfil BMW's production specifications."

The outside hard stand will also be mostly completed by 1 December 2016, the remainder of the work will be completed by February 2017, and the office section by May 2017. "A 7,5-month turn around on the bulk of the production plant is an achievement everyone involved in this project should be very proud of!" says Krafft.

BMW sees this project as a benchmark project, on how they want to construct going forward. As it is also a pilot project they appointed AECOM, to confirm that they were getting the package they wanted and are paying for. This verification is currently being completed with AECOM confirming that this was the case.

"We are delivering a world-class project that we are very proud of, to a first-world client who is very hands-on and engaged. Our objective is that every single stakeholder on the project experiences Stefanutti Stocks as a company that is a pleasure to work with, one that is willing to engage, listens to concerns, and finds solutions through consultation and team work," concludes Krafft. "We'd certainly like to be a preferred contractor in the supply of a complete solution to our clients, and one that is perceived to deliver genuine value for money."

Captions:

1. An aerial photograph showing the commencement of bulk earthworks.
2. The tilt-up and structural steel construction underway at the BMW production plant site.
3. The inside of the production plant, with section 1 at 90 per cent complete.
4. The conveyor structure that connects the production plant with the existing paint shop.



Pick 'n Pay Distribution Centre

extension completed within eight-month programme

Source: Dawid Leonhardt, Stefanutti Stocks Building Western Cape contracts director



In August 2016, Stefanutti Stocks Building Western Cape completed its third project in two years for construction project management consultancy Betts Townsend. The existing Pick 'n Pay Distribution Centre in Philippi was extended by an additional 22 000m², 18 000m² of which is refrigerated. The extension was completed over an eight-month period and with a zero lost time injury frequency rate (LTIFR).

As no time was available to engineer and plan tilt-up precast columns, the twenty-four 15,5-metre high concrete columns were cast in-situ - in one cast! Column boxes were manufactured with Peri-VARIO board, girders and steel whalers, and external vibrators were used to compact the concrete.

A design change, entailing an 18 000m² steel sub-grid that was to be suspended from the steel trusses with chains, was added to Stefanutti Stocks's scope of work. This sub-grid was to form a platform for the refrigeration, fire prevention and electrical services for the refrigerated areas. This addition was absorbed into the programme through meticulous and clever planning. "Although we did experience some delays and see our scope of work substantially increase, we were still able to achieve both the original beneficial occupation date and the practical completion dates on time," says Dawid Leonhardt, Stefanutti Stocks contracts director. "These achievements enabled us to negotiate fair reimbursement for our acceleration costs, and also ensured our teams were able to be redeployed to their next projects."

More than half of the Stefanutti Stocks Building Western Cape's staff on the project were newly employed in the company, including the contracts manager, senior and junior foreman and the site engineer. "Despite being thrown in at the deep end, the support from their peers ensured they learned to swim fast and hard," says Leonhardt. A highlight of the skills development on the site saw Babalwa Mzaza, who was employed as a tea lady, trained as a document controller. She is now a full-time employee who is managing the document control at the the GLS project, which involves the construction of a new warehouse for Lieben Logistics.

"Delivering on time ensured a happy client," says Leonhardt, "and this is really down to the fantastic team work, trust, and the continuous positive attitude that prevailed on the Pick 'n Pay distribution centre site."

Captions:

1. An aerial view of the completed 22 000m² extension of Pick 'n Pay's Philippi-based distribution centre.
2. One of the twenty-four 15,5-metre high concrete columns that were cast in-situ, in one cast.
3. Stefanutti Stocks's site-team proudly pose inside the extension.



Contract Mining division signs mining agreement with Silver Lake Coal Mine

Source: Freddie Strydom, Stefanutti Stocks Mining Services Contract Mining contracts director

In the three years leading up to the finalisation of a contract mining agreement on 11 May 2016, Stefanutti Stocks Mining Services's (SSMS) Contract Mining division has worked with Silver Lake to establish the feasibility of mining two coal mine reserves that form part of the Thutsi Mine, about ten kilometres outside Ermelo. All necessary government approvals were also obtained during this period, and Silver Lake secured their Coal Sales Agreement with, amongst others Vesquin, a BEE entity owned by Vitol.

Various mine designs were explored, with the design that was ultimately chosen allowing for both reserves, respectively named Uitgevalen and Leliefontein, to be mined simultaneously. "It is important that the coal we supply is of high quality, and meets Vesquin's specifications for export," says Freddie Strydom, Stefanutti Stocks Mining Services Contract Mining contracts director. "Mining both reserves at the same time, and blending the two, allows us to deliver the grade of coal that meets these requirements."

The project has an estimated lifespan of six years over which approximately 5,7-million ROM tons of coal, and 28,5-million bank cubic metres (bcm) of waste material will be moved. "As we advance the mining faces, the overburden material that is mined out goes back into the void created, where we have completed mining operations," explains Strydom. "We stock pile material up front, we rehabilitate as we go along, and at the end of the life-span of the contract, restore the reserves to the original ground level."

Mining operations, including drilling explorations and blasting, commenced in the second week of September, and the first coal was ready for processing by mid-October. The project is utilising 40-ton ADTs for coal removal, 87-ton excavators and 60-ton rigid dump trucks for waste removal.



"We would like to express our thanks to the Silver Lake management team who has walked a long road with us prior to operations commencing," says Strydom. "We are proud of what we have achieved thus far and look forward to a successful partnership over the next six years."

Captions:

1. At the Silver Lake Mine contract signing at Stefanutti Stocks Mining Services' (SSMS) offices in Chloorkop are, seated from left to right: Tommy Crowe (Silver Lakes), Ian Ferguson (SSMS), Josiah Mashigo (Silver Lakes). Standing from left to right are Eddy Rikhotso (SSMS) and Freddie Strydom (SSMS).
2. Mining operations at Silver Lake's Uitgevalen Mine.
3. First coal stockpiled and ready for processing.



Stefanutti Stocks's Technical Services division offers turnkey mine design & construct service

Source: Dominique Tursini, Stefanutti Stocks Mining Services project administrator

It is a well-known fact that multidisciplinary construction group Stefanutti Stocks has the capability to construct the full spectrum of mine infrastructure. In addition to this, the group's Mining Services division offers operational mining services that include open cast contract mining, bulk material handling, waste residue disposal and recovery services.

What is becoming an increasingly valuable service, offered from within the Stefanutti Stocks Mining Services fold, is its ability to offer a comprehensive turnkey service to mining clients, starting from feasibility, to detail design, project management, construction services, moving on to operational services for the full period of the life of the mine, rehabilitation, mine closure and environmental rehabilitation.

"The Technical Services division offers mining projects tremendous value, a long time prior to any large machines rolling onto site," says Lourens de Koning, contracts director for the Technical Services division. "The journey to the point at which the mining infrastructure begins to be physically constructed or actual operations start on site, is a long, and sometimes an incredibly complex one. We are able to accompany clients on this journey from the point where their mining dream is born."

Lourens de Koning, a Civil and Geotechnical engineer started his career at Stefanutti Stocks Mining Services in 2007, and today leads a professional team of engineers and drafting staff in executing:

- Site selection studies;
- Hydrological investigations;
- Geotechnical investigations;
- Geohydrological investigations;
- Feasibility studies and conceptual designs;
- 3D modelling and detailed drawing preparation;
- Detailed design of earthworks, under-drainage systems, penstocks or barge decant arrangements, return water facilities, and so forth;
- Detailed design of paste thickeners including paste distributions systems;
- Detailed design of slurry transport systems including pump and pipe networks;
- Detailed design of multi-layered lining systems (clay and/or plastic and/or geosynthetics) incorporating complex under-drainage systems;
- The preparation of detailed specifications, schedule and quantities, tender and contract documents;
- Project management; and
- Turnkey management: design and construct.

The Technical Services division also offers a broad spectrum of environmental and water supply services, and when necessary utilises specialist associate consultants. These services include environmental management programme reports (EMPR's); preliminary environmental assessments; baseline studies; public participation and public scoping; environmental impact assessments; environmental control plans and



monitoring; closure plans; environmental audits; water supply; water management and specialist piping and pump design.

In conjunction with the above, Technical Services also offers, together with the assistance of Stefanutti Stocks's construction divisions, the following capabilities:

- Bulk earthworks;
- Layer works;
- Terracing;
- Water dams;
- Rehabilitation;
- Paste Thickeners;
- Pipelines;
- Concrete works;
- Pump stations;
- Roads;
- Culverts (precast and in situ); and
- Drainage systems.

Project: case studies

A recent, prominent project that Stefanutti Stocks Mining Services' Technical Services division worked on is Universal Coal's Kangala Mine in Delmas. Universal Coal needed to optimise the infrastructure scope of work in order to minimise the capital requirements for the development of the mine, and a "one-stop-shop" solution was presented by Stefanutti Stocks. This included optimising the infrastructure design with the intent to enter into a turnkey contract for the detail design, as well as the fabrication, construction and commissioning of the infrastructure related to the project. Stefanutti Stocks Mining Services began engaging with Universal Coal in 2011, and in 2012 Technical Services's in-house design team got involved and work commenced in May 2013.

Another project that Technical Services worked on was for the Barberton Mines, which was a turnkey re-treatment project in a joint venture with Stefanutti Stocks Roads & Earthworks. Prior to the Roads & Earthworks division undertaking the civil construction services, the Technical Services division completed a detailed design, which included:

- Design of the TSF layout and capacity analysis;
- Safety classification, slope stability analysis and deposition management plan;
- Surface water management plan;
- Detailed structural design and drawing;
- Schedule of quantities, construction drawings and technical specifications;
- Project management for turnkey scope of work;
- Internal design review and value engineering with client's team;
- Design report and operating manual; and
- Engineering site supervision during the construction phase.

Projects - current

Currently the Technical Services division is undertaking a range of interesting and diverse projects. These include a feasibility study for a new mine development in Steelpoort as well as a number of revalidation and optimisation studies for new mine developments across the country; a turnkey project for a rail siding in Witbank; a feasibility study for an extension to the life of a tailings storage facility in Namibia; a detailed design and future development study for a number of tailings storage facilities currently being operated by SSMS tailings division; a tailings storage facility reclamation project for a client in Brits; construction supervision for modifications to a tailings storage facility; as well as a feasibility study for a new tailings storage facility in Zimbabwe.

Captions:

1. The general arrangement drawing of the new tailings storage facility, return water dam and associated works at Barberton Mines.
2. A view of the tailings storage facility, penstock and under-drainage systems at Barberton Mines.
3. Excavation for Kangala Mine's pollution control dam basin being undertaken by Stefanutti Stocks Roads & Earthworks.
4. The aerial view shows the initial starter walls as well as the herring bone drains and v-drains surrounding the slurry pond at Kangala Mine. The discard is tipped on top of the underground subsoil drains in order to protect the drains while the first layer of discard is being placed.
5. An aerial perspective of the early open pit mining operations at Universal Coal's Kangala Mine.
6. The Stefanutti Stocks Mining Services site office at Kangala Mine in Delmas.





India's growing demand for coal sees formation of 'Dalmia Stefanutti Stocks'

Source: Freddie Strydom, Stefanutti Stocks Mining Services Contract Mining contracts director

The official signing ceremony took place at the Dalmia Bharat offices in New Delhi, India with attendees including Mr Puneet Dalmia and Mr Gautam Dalmia, standing to the right of Ian Ferguson, Stefanutti Stocks Mining Services managing director, pictured in the centre holding the binder.

Traditionally coal mining operations in India have been nationalised and major coal production, to the tune of about 500-million metric tonnes per annum, undertaken by Coal India Limited (CIL). However, the increased domestic consumption of, and requirement for coal in the country has resulted in the Indian Government planning to auction some of its mining assets to private entities. Its short-term goal is to see domestic coal market production double by 2020 by combining CILs production capability with other Public Sector, State Governments and Private Entities.

In response to the opportunities created by this, Indian manufacturing conglomerate Dalmia Bharat, began looking for an experienced, international contract mining partner, with the same corporate culture as their group. About two years ago, they made contact with Stefanutti

Stocks Mining Services, and after eighteen months of getting to know one another, the relationship was formalised on 11 August 2016. Dalmia Stefanutti Stocks was established as a local, Indian contract mining company that will undertake surface, open-pit mining operations, mainly for CIL or any of the new mine owners.

"It is a privilege to be associated with the Dalmia Bharat group, and as soon as our registration process has been completed, we will be tendering for contract mining projects across India," says Freddie Strydom, Stefanutti Stocks Mining Services Contract Mining director. "We are looking forward to introducing our combined experience to the Indian market, and putting Stefanutti Stocks's best practices into play for the benefit of our new partnership."

In-house initiatives yield **cost savings and reduce carbon footprint**

Source: Eric Blom, Stefanutti Stocks Roads, Pipelines & Mining Services plant director

Eric Blom and his team at the Roads, Pipelines & Mining Services (RPM) plant division have been exploring innovative ways to keep the business unit lean and lessen its environmental footprint, while ensuring that the fleet remains in excellent condition.

"We initiated this environmental and cost saving process a number of years ago, and have already successfully implemented a number of these projects," says Blom. "These include extended service plans for our fleet of 60-strong Mercedes Benz Axor tipper trucks, with the blessing of Mercedes Benz; extended service plans for all our prime movers through the installation of high-density filtration systems; an

engine-idle management system; and our investment in an oil recycling plant at our workshop in Chloorkop."

Extended service plans - Mercedes Benz Axor tipper truck

The large number of units being utilised by the Roads & Earthworks division, motivated that potential savings for this fleet be explored. This resulted in the initiation of the first project, which looked at the potential for an extended service plan for these tippers.

Mercedes Benz themselves instituted a change from their normal minor service at 250 hours, to a major service at 400 hours. Although this did bring excellent savings, Stefanutti Stocks felt there was more to be gained.

In 2014 a test truck was selected and the service interval was changed to 500 hours. During this time, rigorous oil sampling was conducted to ensure the machine was never at risk, and to provide evidence to the manufacturer and dealer that a service interval at this length was viable. The unit performed well and, based on the data presented to Mercedes Benz, the manufacturer allowed the division to extend the service intervals on its fleet to 500 hours.

This has resulted in a clear saving on hourly running costs, and a total expected saving during the life of the machines of an estimate of over R2.5-million across the fleet of 60 machines. "This considerable saving was realised thanks to our world-class service team, which conducted an excellent oil sampling regime," says Blom. Further testing is underway to establish whether this service interval can be delayed as far as up to 1000 hours.

Extended service plans - prime mover

At the same time as the potential for the extended service intervals on the tipper trucks was being investigated, the viability of extending

the service intervals, in particular on the Contract Mining division's prime movers, was looked into. These machines generally get serviced frequently and have large oil compartments which the original equipment manufacturers (OEM) specify the need to be drained and refilled every 250 to 500 hours. If modern oils are used, and an excellent oil sampling regime is followed, this period can be extended, especially when the oil is still good for further use.

A high-density filtration system was sourced that can be installed on machines in the field. These filters help reduce the particulates and contaminants in the fuel and oils, extending oil life and protecting the machine components.

"A combination of an excellent oil sampling regime and the new filters, has seen the number of services required by a primary mining unit reduced by half," says Blom. "The potential running-cost saving, over the life of the current fleet, is forecast to be over R10 million."

The contract mining fleet that is currently operating 24/7 at the Kangala Mine in Delmas is the first to be fitted with high-depth filtration systems, and is being closely monitored for any changes in oil quality and life-term. All these machines will now receive a major service at 1000 hours, with checks and oil analysis being undertaken at regular intervals before that. It is expected that most units should easily achieve this goal and yield savings to the division.

In addition to the high filtration systems, a delayed engine shut down system is in the process of being fitted to Stefanutti Stocks's fleet of prime movers to eliminate premature turbo failures.

Engine Idle management system

The business unit's large fleet of Mercedes Benz tipper trucks form a key part of its site operations where they are run continuously. The onboard monitoring systems revealed that the monotonous rhythm of some operations, that include waiting at the loading or dump area and at intersections were resulting in excessive idling. "We fitted engine idle-management systems that minimise the total idle time for these trucks, by shutting down the engine when certain criteria are met," explains Blom. "The truck senses that it is in a waiting cycle, safely shuts off the engine and when there is a need to get moving again, the engine will restart."

Over a three-month period, this project yielded savings of 1 426 litres of fuel per month, which equalled a monthly monetary saving of R166 000, as well as a reduced carbon footprint.

In-house oil recycling plant

Most of RPM's fleet undergo engine, transmission and hydraulic services at either 500, 1000 or 2000 hours. In spite of the extended service intervals on certain machines, a lot of oil is still drained at regular intervals from other plant, and on average the business unit spends R6-million on new oils every year. Traditionally once the new oil was purchased, the old oil was sold back to service providers at a low price. "The recovery is very low and the potential waste is very high, and this motivated our investment in an oil recycling plant where we will process the used oils and re-use as required," says Blom. "This investment will be paid off within months of the first oils being processed and cleaned for re-use or burnt in asphalt plants or furnaces."

The objectives for the recycling plant include:

- Engine oils are cleaned and then used in asphalt plants, sold as furnace fuels or blended with diesel to be burnt in generators.
- Hydraulic/gear oils are cleaned and tested for usability. The good oils are decanted into containers and used for top-up oils, the older oils are sold as furnace fuels or blended with diesel to be burnt in generators.
- Final certification is still underway for legal production of recycled oils for external use, so once this is completed the facility will be ready for bulk oil processing. Testing has so far produced excellent results with about 2 500 litres cleaned and recycled for internal use at the end of October 2016.

"We have a number of other projects still to be fully implemented, that will result in cost savings or reduce our costs through lower fuel, oil or component consumption," says Blom. "The accompanying environmental rewards are an exciting part of these innovations, and an integral part of our overall objectives."

Caption:

Three of Stefanutti Stocks Roads & Earthworks Mercedes Benz Axor tipper trucks hard at work. The 60-strong fleet is now serviced at 500 hour intervals.





Stefanutti Stocks Coastal positions itself as **Africa's premier marine & civil contractor**

Stefanutti Stocks has been constructing both land and ocean side marine infrastructure, along the Southern, West and East African coastline since the 1980s. Its comprehensive offshore and port development construction capabilities are complemented by its back-of-berth civil construction services which include the construction of industrial, petrochemical and transport infrastructure.

“Within the Southern African context Stefanutti Stocks’s marine and civils capabilities are amongst the best in the market. You cannot just wish this kind of expertise into existence,” says Matthew Horwill, managing director of Stefanutti Stocks Coastal. “It has come as a result of decades of experience, and working on complex and environmentally challenging marine and civil engineering projects - from pre-feasibility through to construction and commissioning stages.”

This wealth of experience has produced not only an invaluable human resource of high-calibre, highly-skilled construction teams, it has also resulted in the accumulation of a powerful fleet of specialist marine equipment, as well as the development of innovations and methodologies that focus on safe operations, improving quality, yielding savings on both time and budget, and increasing efficiency for clients.

In November 2016 the considerable expertise and resources of the two harbour-city-based divisions, Stefanutti Stocks Civils KZN and Stefanutti Stocks Marine were amalgamated into one, new, dynamic division - Stefanutti Stocks Coastal. “We are restructuring two

successful organisations, into one that is greater than the sum of its parts,” says Horwill. “As an organisation this will make us more efficient and dynamic, in particular in our ability to provide clients across the continent with comprehensive marine construction services right from specialist off-shore and berth construction, through to access roads, terminals, bridges, industrial and petrochemical storage.”

Stefanutti Stocks Coastal retains both of its offices in KwaZulu-Natal and in the Western Cape to ensure it continues to provide its customers with the level of services they have come to expect. It will also use the competitive edge these combined resources provide it to secure and execute more marine projects up the continent’s coastlines. “The international experience of what was previously our marine division has resulted in networks, contacts, and relationships that have been nurtured over time,” says Horwill. “In terms of our service offering, our combined resources will make us even better than before, and give us a stronger and more dynamic foundation to build on, as we venture into new markets.”

An additional marine specific initiative that the company has invested in over the past three years, is its strategic enterprise development partner Axsys Projects, with whom Stefanutti Stocks has been undertaking the rehabilitation of a number of berths at Maydon Wharf. In addition to its obligations and its will to make Axsys Projects succeed, Stefanutti Stocks Coastal would like to see this investment continue growing.

“There are a number of exciting projects within the marine space, both in South Africa and up our continent’s coastlines that we have tendered on,” says Horwill. “We are well-positioned to undertake these, and I’m optimistic that Stefanutti Stocks Coastal will become a main contender once public infrastructure spending recommences.”

Caption:

The multi-million Rand contract for the upgrade to the eastern end of Bayhead Road, from Langeberg Road to Pier 1 was completed in 2012. The project placed first in the Master Builders Association (MBA) Regional Civils: Bridges, Roads and Structures category, as well as achieving 1-million lost time injury free man-hours.



Some landmark projects undertaken by the divisions that now comprise **Stefanutti Stocks Coastal**

1. Bulk Terminal Grain Silos - completed 2008

The six grain silos are founded on 170 piles which are capped with continuous 0,9-metre ground beams. A one-metre thick transfer slab is supported by the hexagonal shaped walls (cast in one complete 9,9-metre lift) and the silos internal columns and interlocking beams. The storage cells of the silos were slip-formed to a height of 46,45 metres above the ground, and completed with a cast insitu hopper. The roofs consist of precast beams and planks topped with a reinforced concrete slab.

2. Khangela Bridge - completed 2009

The composite dual carriageway bridge structure, completed for Transnet Capital Projects, comprised three different types of bridge construction including 147.30 metres of incrementally launched bridge deck; 15.90 metres of cast in-situ deck; and 39.10 metres of precast beam deck. The structure was constructed over four main electrified Metro-rail lines serving the south of Durban, the eight-lane M4 Southern Freeway and six electrified Portnet lines into Durban harbour.

3. Berth 208 - completed 2010

The construction of Liquid Chemical Berth 208 for Transnet Capital Projects (TCP) included the positioning of 72 beams, which had to straddle adjacent pile caps. The beams, weighing between 65 and 75 ton were placed off a barge and this activity required careful planning in order to optimise safe working conditions. The beams could not be placed if the wind speed exceeded 40km/hr, if wave heights exceeded 0.5m and/or if tidal heights were not within a specific window.

4. Kwale Mineral Sands - completed in 2013

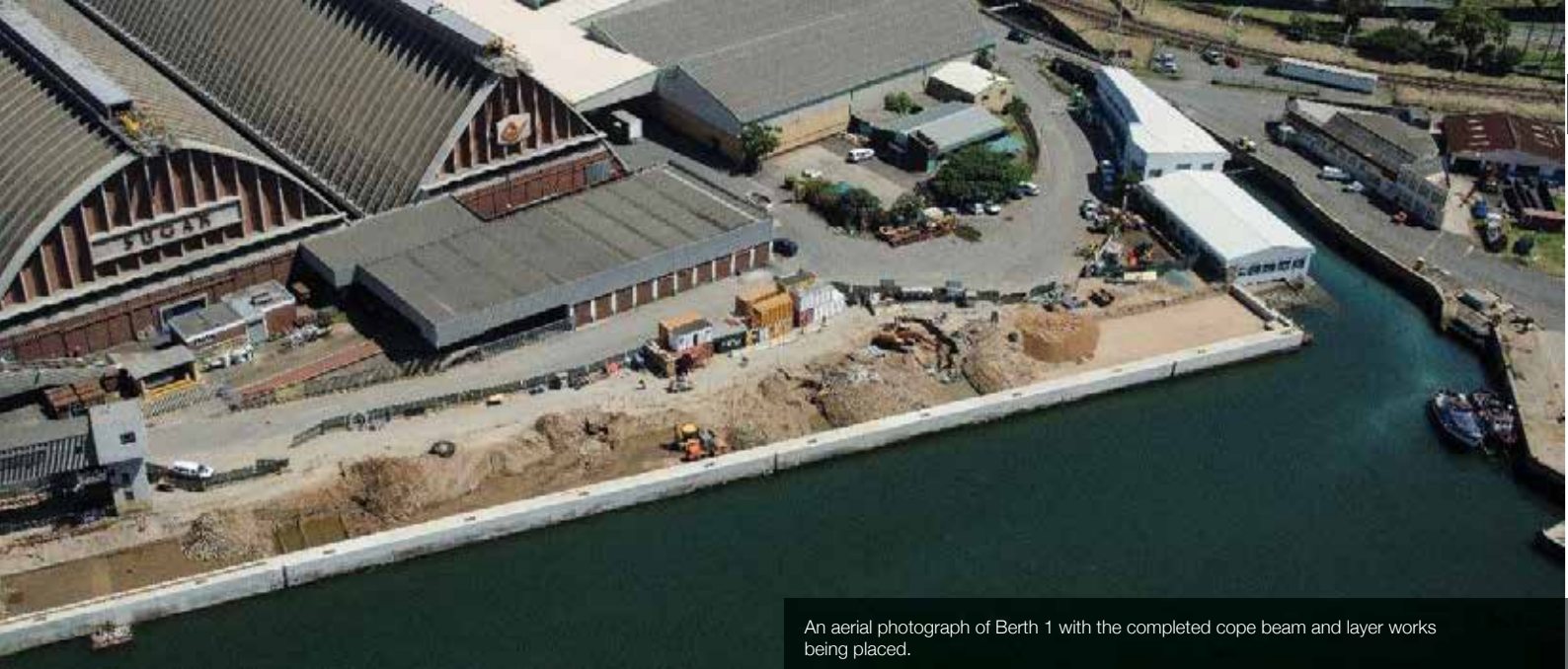
The Kwale Mineral Sands project was completed for client Base Titanium Limited, the Kenyan subsidiary of Australian Base Resources Limited. It was awarded based on an alternate design that allowed for a reduced contract price through a reduction of both the concrete volume and the pile steel quantities. The marine work consisted of a conveyor trestle, a concrete decked load-out platform supporting a ship loader, two mooring dolphins and two berthing dolphins. Structural steel elements were manufactured in South Africa and then shipped to Mombasa. The marine piling comprised of 60 steel tube piles including compression; tension piles up to 45 metres in length; upright piles; as well as 1:4 raker piles.

5. Pepel Fuel Jetty - completed in 2013

A third Stefanutti Stocks joint venture partnership with BAM International in Pepel, Sierra Leone, completed the construction of a fuel jetty for African Railway and Port Services Limited. The project included the design and construction of a fuel off-loading jetty with additional berthing capacity for barges and tugboats.

6. Transnet Division Wall - completed in 2014

The construction of a division wall supporting a giant u-beam to house the distribution conveyors for a new stockpile area for Transnet Port Terminals at the Port of Richards Bay. The construction of the 22m high x 347m long structure was completed within a challenging 8.5-month programme and utilised a total of 18 948m² of formwork, 1 221 ton of reinforcing and 15 747m³ of concrete.



An aerial photograph of Berth 1 with the completed cope beam and layer works being placed.

Award-winning mega-marine project for Transnet overcomes technical challenges

By: Tim Milner, Stefanutti Stocks Coastal bid manager
Contributors: Dean Bassett, Stefanutti Stocks Axsys Joint Venture site engineer, Berths 1-2.
 Ross Albertyn, Stefanutti Stocks Axsys Joint Venture site engineer, Berths 13-14.
Photographs: Eswee Kruger Stefanutti Stocks Axsys Joint Venture project planner



Introduction

The Stefanutti Stocks Axsys Joint Venture (SSA JV) has overcome a number of technical challenges at the Maydon Wharf Reconstruction Project. The May 2016 edition of the Benchmark featured an article on Müller Verpress Piling – A First for South Africa, and discussed the use of Müller Verpress Pile Anchors on the Maydon Wharf project. However, one of the greatest challenges on the project came in the form of the construction of a submerged cope beam. This article focuses on the cope beam construction including discussing the challenges experienced on site as well as the resulting triumphs.

Background

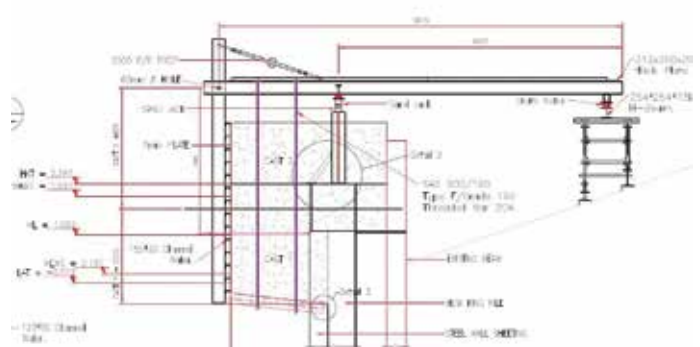
Traditionally, cope beams for quay structures make use of precast panels in the tidal zone. These panels are hung from steel piles which form the quay wall and are cast into position with an infill cast between the steel piles and the precast unit. Once set in position, formwork is fixed to the panels and the final in situ cast takes place above the tidal zone. Due to various factors such as the distance of the piled wall from the outside of the cope line as well as the logistics surrounding pre-casting, transporting and then lifting extra-large precast units into place this option was ruled out.

As an alternative to the pre-casting, the in situ concrete is usually placed by tremmie methods below the water surface. For the Maydon Wharf project it was required to place the concrete in a de-watered shutter and not by tremmie methods. This presented a number of difficulties especially when considering that the cope beam terminates at -0,5m CD (half a metre below the lowest possible tidal level i.e. permanently underwater).

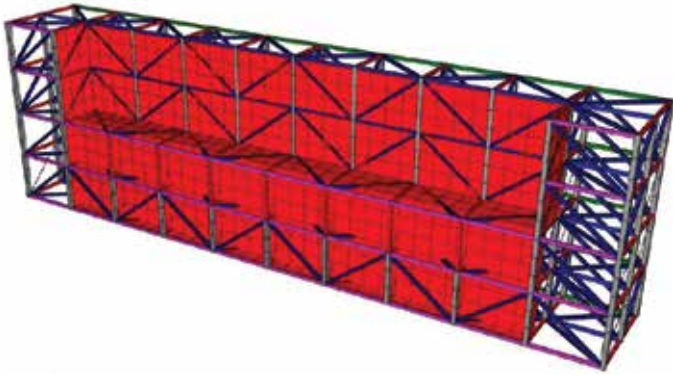
Design

WML Coast consulting engineers were contracted to amend the tender-stage conceptual design and adjust it to meet the project requirements. The design then underwent numerous iterations, the first involved a cofferdam type structure which allowed the team to

construct conventional formwork in the dry. However, this was ruled out due to its size and weight (30 tons for the cofferdam alone). The final design involved a composite between a cofferdam and a conventional shutter. A double skin was used to trap water that seeped in, which was then channelled to a sump for dewatering.



The concept shutter at tender stage was envisaged to traverse on rails and be aligned with push pull props.



A 3D model depicting the cofferdam concept which was ruled out due to size and weight issues.

Dealing with the forces

Complex dynamic loads acting on the shuttering structure needed to be analysed. According to Manfred Kloos, director of WML Coast, “The shutter had to cope with the downwards force of the in situ concrete as well as the upwards force from the surrounding water at high tides, all of which move around an offset pedestal connection mounted to the anchor piles.”

The forces acting on each pedestal amounted to 665kN requiring the web of the anchor pile to be stiffened with gussets to prevent buckling. Horizontal forces which tended to “push” the shutter off the steel piles during casting were mitigated by pre-welding a cleat to the king pile prior to driving. A diver then bolted the shutter to the cleats during the installation process.



For the casting case the force at F1 is downwards and the force F2 is upwards resulting in a tension force at R1 with a magnitude of 655 kN.



The pedestals in position and ready to support the shutter.

Construction

Preparation of the combi wall

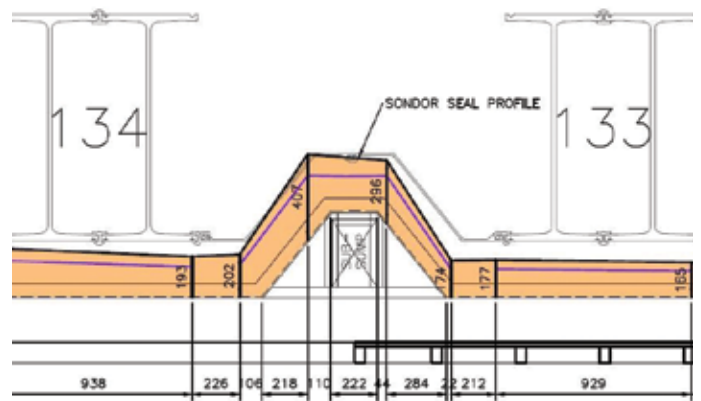
Considerable preparation work was required before the shutter could be hung in position. This involved extensive diving work to remove all marine growth from the steel combination pile wall, thereafter the clutches of the piles were sealed to prevent the ingress of water. A full-time professional surveyor was dedicated to marking out the positions of the pedestals ahead of the welding team, gussets were then welded in position for the pedestals which would support the cope structure. The pedestals needed to be bolted to the anchor piles once shimmed to level by the surveyor.

Preparation of the shutter

The shutter preparation was a mini project in itself which required the use of specialised materials. Conventional shutter release agents were not allowed due to the work taking place in a marine environment. A biodegradable release oil was therefore used.

Dean Bassett, site engineer in charge of the cope casting on Berth 1 and 2, comments that, “A lengthy investigation was required to determine which material was best suited to seal the joints on the shutter”, this turned out to be a foam which was suitable in terms of its durability, compressive characteristics and its memory to retract back to its original position for potential reuse.

The steel combination wall had a positional tolerance of $\pm 100\text{mm}$ which entails a significant degree of variability to the final line of the wall, the shutter needed to be built to compensate for this variability in either direction whilst still maintaining a sound seal. This entailed taking survey points along the outside face of the wall, which were then overlaid onto the as built drawings, allowing the exact foam dimension to be calculated for preparation on site.



A snap shot from a typical foam calculation, the orange highlight indicates the foam seal dimensions, which had to be calculated for every cast.



Rebar and foam seal prepared and ready for installation.



Cast in items added an extra level of complexity.



Fitting the shutter.



Dewatering and final preparations before a cope cast.

The foam seal dimensions had to be calculated for each pour, this was on the basis of a 25 per cent compression, which allowed for an effective seal once the shutter was tensioned by the divers.

In addition to the application of biodegradable shutter oil and foam seals, reinforcement was prefixed into the shutter. This is essential as the space within the shutter was extremely congested and posed a significant health and safety risk should employees be working inside the shutter and its seal ruptures flooding the area. The reinforcing was held in place using ratchet straps to ensure that it did not move while the shuttering structure was lifted into position. To complicate things

further cast in items such as storm water pipes, fender bolts and mooring rings also needed to be squeezed into position and secured prior to placing.

Execution

The shutter was designed to be placed on its side to ensure convenient access for the preparation work. On completion of the preparation work the shutter was lifted using a specially designed lifting beam. This beam was designed to distribute the 20 ton load (including shutter self-weight, rebar and cast in items) along the length of the shutter.

The size of the shutter and the load restrictions on the berth required a high capacity crawler crane to handle the shutter without compromising the integrity of the cope line. Using a large crawler crane for the work is a must, both to ensure the shutter can be lifted and installed where required and, once stripped, placed it in a convenient position to be prepared for the next pour. "We had to scale out on a general arrangement where the shutter would be placed for each pour to ensure the other teams were not blocked by the 14x6,5 metre footprint" explains Dean Bassett. Eventually due to the congestion on site a barge was moored adjacent to the works as a floating preparation yard for the shutters.



Stripping a cope shutter.

To fit the shutter, the 'teeth' of the shutter were lined up with the corresponding corrugations in the combi-pile wall. The structure was then pulled towards the land until the foam seals made contact with the piles. Whilst suspended, the shutter was secured, at each bay, to the pedestals using vertical tie rods, whaler beams and horizontal tie rods. A dive team was mobilised to secure the bottom tie rods to the cleats attached to the king piles. The shutter was then pulled further towards the land side until the foam seal had compressed sufficiently and the face of the shutter was in the correct alignment. The top and bottom of the shutter was adjusted using the tie rods to ensure the accurate alignment and verticality of the shutter/concrete face.

Once the shutter was in the correct alignment and sufficiently sealed, the remaining steel reinforcing around the king and sheet piles was fixed in situ. The inside of the shutter was then dewatered and any contamination was washed out with potable water. Ross Albertyn comments that "Work had to be meticulously planned in order to ensure that the rising tides did not prevent the progression of the work". Every aspect of the shutter installation, final preparation and casting was linked to the ebb and flow of the tides, which was especially troublesome when the spring tides submerged the work area reducing production every two weeks.

Concrete was cast using a boom pump and would only commence at low tide with sufficient concrete mixer trucks standing by on site. "A minimum of six trucks were required to be on site before we could begin as the concrete head had to be above that of the rising tide, otherwise the water would leak in through the clutches and seals due to the pressure differences and contaminate the pour," comments

Ross Albertyn cope engineer for Berths 13 and 14. It was essentially a race against the tide, each pour with a back up concrete pump, dewatering plant and diving resources kept on standby to mitigate the risk of breakdown during the concrete pour.

The shutter was stripped down once the concrete had achieved a minimum of 35MPa as the concrete element formed a cantilever and needed to be able to support its own weight.

Once the concrete was cast and the shutter stripped a second, above tidal level cast was undertaken to bring the quay up to its final level. The layer works and surfacing are being placed and compacted in line with the handover date. All that will remain is the topside concrete cope beam with very few clues as to the difficulties overcome in getting there.

Conclusion

Casting concrete in-situ in the marine environment has always posed numerous challenges in construction. The Stefanutti Stocks Axsys JV was able to successfully construct a submerged cope beam at the Maydon Wharf Reconstruction Project. An important innovation used on the project was a specialised double skin shuttering system which was able to seal against the combination pile wall to allow concrete to be cast in the dry despite being below the water level. In addition to this specialised shuttering system a number of other challenges were overcome such as tidal influences, lack of space, plant break downs and lifting.



A completed cast with the shutter removed.

Congratulations to the team on a technically challenging sequence of work!



The prestigious annual SAICE-SAFCEC Awards gala event for the Most Outstanding Civil Engineering Achievements for 2015/2016 was held at Emperors Palace in Johannesburg on 13 October 2016.

The reconstruction and deepening of Maydon Wharf Berths 1–4, 13 & 14, being undertaken by Stefanutti Stocks in joint venture with its strategic enterprise development partner, Axsys Projects, was placed first in the Railway and Harbour Projects category.

The Senqu River bridge (pictured above), constructed by Stefanutti Stocks Lesotho was awarded a commendation in the International Projects of Excellence where South African Engineers are involved. The 140-metre long Senqu River Bridge and associated approach roads create a vital link to business and trading opportunities for the residents of Phamong in southern Lesotho. The R150-million project involved SMEC, Elite Consulting and Stefanutti Stocks Lesotho, and will have a positive impact on the area's economy.

N4 Bridge

rehabilitation project for first-time client

Source: Glen Deyzel, Stefanutti Stocks Civils contracts manager

Stefanutti Stocks Civils is currently rehabilitating eight bridges and seven culverts along the N4 between Pretoria and Nelspruit. The contract, being undertaken for first-time client Trans African Concession (Pty) Ltd, commenced on 25 July 2016, and will run for a duration of eight months as Stefanutti Stocks progresses down the 400-kilometre stretch of highway.

The rehabilitation of the concrete structure includes:

- Spalling and crack repair to bridge sub and superstructures.
- Spalling and crack repair to culvert headwalls, wing-walls and soffits.
- Application of decorative and concrete protection coatings.
- Deck impact-damage repair to various bridges as well as installation of impact plates.
- Construction of new culvert pedestal and number plates.
- Clear vegetation from culvert barrels.
- Casting of new invert slabs to various culverts.
- Improve riding quality on various bridge approaches.
- Demolish and reconstruct F-shaped parapets on various bridges.
- Jacking of an eight-span bridge over the Crocodile River close to Nelspruit, in order to replace the old bearings with eighty elastomeric bearings

The replacement of the thoma and armoured nosing joints on the bridges is being undertaken by a subcontractor. The contract also includes traffic management for all bridges, which will see traffic notified via signage of the construction work ahead, slowed down / diverted, or staged via stop and go traffic management.

"The jacking of the bridge over the Crocodile River is an interesting element of the project," says Glen Deyzel, Stefanutti Stocks Civils contracts manager. Stefanutti Stocks's in-house Technical Department together with the site team designed the bridge-jacking method statement, and the Civils division will undertake this specialist service which is usually outsourced to a specialist contractor.

Stefanutti Stocks's site manager Odilon Kongolo researched various aspects of bridge jacking and applied his engineering know-how and construction experience to come up with good proposals

on jacking methodology. Stefanutti Stocks Civils Technical Department was on board from day one, and Werner Pretorius and his team assisted with all technical proposals in terms of temporary works.

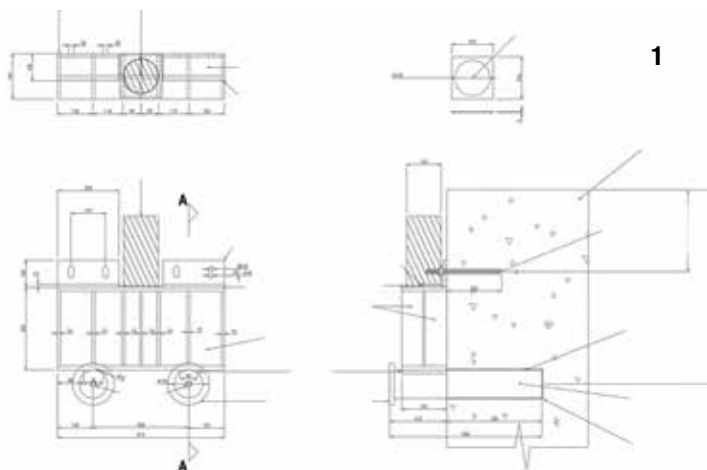
In mid-October the access platforms were being installed around the piers. "We will commence the installation of the jacking brackets towards the end of October and jacking can start shortly thereafter," says Deyzel. "Only one span at a time can be jacked. We then replace the bridge bearings and move onto the next span."

As the eight bridges and culverts stretch over 400-kilometres of the N4, logistics are complex and needed to be managed carefully. "We have staged our approach, and while we were completing the bridges between Middelburg and Pretoria we based ourselves in Witbank," explains Deyzel. "Thereafter we moved to Nelspruit to complete the bridges and culverts on that stretch of the N4." To date the three bridges and three culverts on the Pretoria side have been completed, and site establishment and construction at the Nelspruit bridges and culverts has commenced.

"This is an incredibly exciting project, in which we have been able to apply our technical expertise to finding innovative solutions," says Deyzel. "There is nothing more satisfying for an engineer than to come up with a workable solution, and this project has certainly created the opportunity for individuals within our organisation to innovate."

Captions:

1. Temporary works design for jacking brackets in order to replace bridge bearings.
2. Access platform brackets in place on Bridge B3065 (B1538) at kilometre 75.5 on the N4 Section 7 that runs over the Crocodile River. Brackets were installed in the inaccessible areas by means of rope access and in the areas accessible from the bottom by either scissor lifts and/or ladders.
3. Temporary works design for access platforms around piers in order to install jacking brackets & perform bridge jacking.



SANRAL awards construction of river arch bridge to Stefanutti Stocks

Source Herman Coetzee, Stefanutti Stocks Coastal project manager

SANRAL awarded the contract for the improvement of the Olifants River crossing and associated works to Stefanutti Stocks Coastal, who commenced construction on the 30-month contract on 28 January 2016.

The existing bridge over the Olifants River on the N7 between Trawal and Van Rhynsdorp in the Western Cape, will be supplemented with a second structure, built downstream and to the west of the current arch bridge. Traffic will be accommodated across the two structures, each carrying one-directional traffic to form a dual carriageway.

The Olifants River Bridge

To accommodate the widening of the N7 on both sides of the existing bridge and to ensure efficient flow of traffic on this route, a new arch bridge is being constructed to accommodate the northbound traffic. The widening of the southbound bridge also forms part of the contract.

The new arch bridge being constructed by Stefanutti Stocks will be approximately 12-metre wide and 190-metres long. It will consist of two 3,7-metre lanes, with one-metre wide shoulders on either side. A 1,5-metre wide walkway will be constructed on the western side of the bridge, and a 1,2-metre wide side walk will be constructed on the western side.

The structure's foundations are being placed upon bedrock on 5-metre by 12-metre spread footings. North and south abutments and central pier groups will support the concrete arch bridge that is being cast in-situ. Its arch span comprises of six spans over approximately 95-metres.

Ancillary Structures

This SANRAL contract includes the upgrading of structures along the route to ensure that they comply with hydraulic, structural and geometric requirements. These structures include the widening and extension of two agricultural underpasses, culverts and the syphon canal.

The syphon canal required delicate piling to accommodate the upgrade so as to maintain the structural integrity of the canal (which carries water to all the surrounding farms).

Methodology

"What is unusual about our approach in constructing this reinforced concrete arch bridge over the Olifants River is the lack of any temporary support to buttress the arch from the river bed," explains Stefanutti Stocks project manager Herman Coetzee. All construction is taking



place from a temporary steel arch, manufactured and installed by a local Vredenal-based company, as well as fixed support provided from two temporary bases at the spring pier foundation.

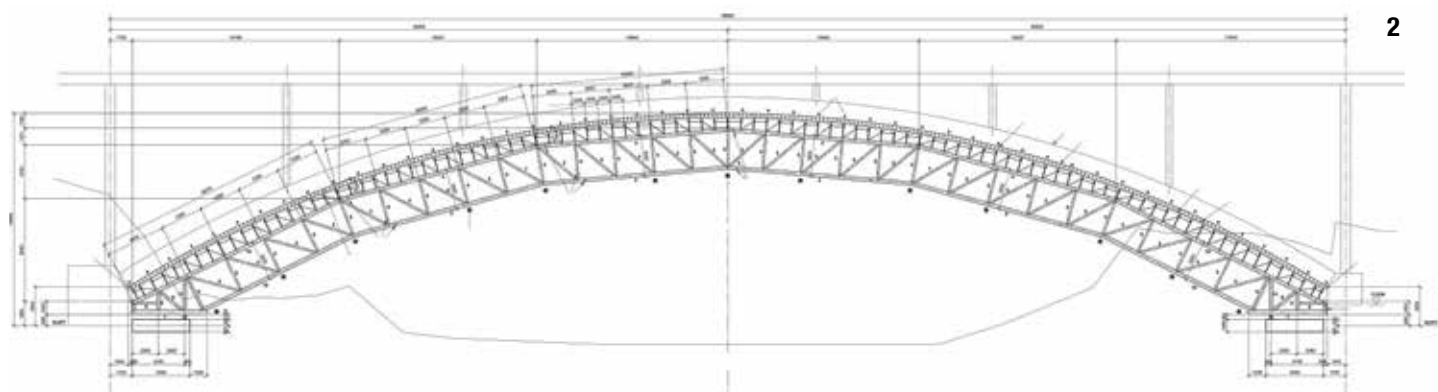
Stefanutti Stocks will be constructing two reinforcing concrete arch beams, each with a span of 95-metres, over the river. A single steel temporary arch structure will be used to construct the one beam. After curing, this steel beam will be jacked to the next arch position, while the second beam is constructed.

"We put a lot of time into identifying the most economical and time-efficient methodology for the arch construction," says Coetzee. "Considering the limited working space between the existing N7 bridge and the syphon canal, we decided that pre-constructing a steel arch, that is loaded and transported to site in six sections would shorten the erection duration." The steel arch will then be lifted using three mobile cranes that have been established on a temporary crane platform inside the river. As this requires low water levels of the river this aspect of the construction can only take place during the summer when no rain falls.

"The project team, including our site personnel, consulting engineers and suppliers is motivated and committed to ensuring that we deliver a completed high-quality concrete structure we can all be proud of," says Coetzee.

Captions:

1. Pier 10 and Pier 11 of the new bridge being constructed - the columns are between 12- and 14-metres high, and are poured in a single lift.
2. The Temporary Steel Arch Design showing the two jacking points at the spring arch foundation.



Structures

- heavy industrial structures
- power projects
- mining infrastructure
- bridges
- water & waste-water treatment
- concrete rehabilitation

Marine

- jetties
- quay walls
- breakwaters
- scour protection and dredging
- caissons and pre-cast structures
- slipways and boat ramps
- marine furniture
- design and construction
- revetments and shore protection

Geotechnical

- geotechnical investigation & reports
- installation of different types of piles
- lateral support
- rock anchoring & shot-creting
- consolidation & other grouting
- diaphragm walls

Roads & Earthworks

- bulk earthworks
- road construction & rehabilitation
- crushing & screening
- asphalt manufacture & paving
- fibre-optic infrastructure
- dam construction
- mine infrastructure & development
- agricultural development

Pipelines

- large/small diameter welded steel pipe
- HDPE pipelines
- ductile pipelines
- oil & gas pipelines
- pump, mechanical & electrical installations
- in-situ concrete lining of pipelines



disciplinary construction group

Mining Services

- contract mining
- open pit mine design, planning & optimisation
- fleet simulation & selection
- contract mining
- crushing and screening
- rehabilitation and closure
- materials handling
- energy coal processing
- discard and fine coal disposal & recovery
- coal management
- tailings management
- design solutions and construction management
- waste facility operations & management
- hydraulic mining and dredging
- rehabilitation & closure

Building Construction

- commercial buildings
- high-rise buildings
- industrial & service buildings
- hotels
- shopping centres
- social infrastructure
- mass housing
- township and residential developments

Mechanical & Electrical

- structural steel erection
- mechanical equipment installation
- pipe spool fabrication
- installation of process piping systems
- plant shut down & maintenance
- water treatment plants
- switchgear & motor control centre installation
- control system installation
- electrical field device installation
- field instrumentation installation
- commissioning assistance

United Arab Emirates

- general construction
- electromechanical
- interior fit-outs & refurbishment

Structural & concrete repairs

Airport aprons & taxiways

Airports

Road construction

Landfill sites

Shopping complex

Open cast mining

Tailings dams

Industrial parks

Discard heaps

Structural, mechanical, piping, electrical & instrumentation

Decline shafts

Overburden stripping

Surface & underground conveyor construction & refurbishment

Surface & underground lighting

Material handling infrastructure

Effluent & water treatment plants

Surface & underground piping

River protection

Office parks

Concrete & earth canals

Educational institutions

Railways & stations

Docks

Breakwaters

Slipways

Jetties

Marine piling

Control buoy gravity bases

Caissons

Large industrial factories

Transport nodes

Container terminals

Mechanical & electrical & instrumentation

Storage facilities

Plate work

Precast concrete for marine structures

Structural repair & rehabilitation

Tank building

Quay walls



Bridging your expectations

Stefanutti Stocks Civils joint venture to design, build and commission water treatment plant

Source: Alice Lennox, Stefanutti Stocks Civils project manager



A civil joint venture between Stefanutti Stocks Civils, its strategic enterprise development partner Axsys Projects and Mdzili's Trading Enterprise (or the SAM Joint Venture), was awarded the first phase of the design, building and commissioning of Rand Water's new 600-Ml/day System 5 Water Treatment Plant.

The water treatment plant in Vereeniging is one of Rand Water's flagship projects and after the completion of Phase one, will see a 12,5 per cent increase in the current Rand Water water-supply network. This will ultimately result in potable water being supplied to an additional 1,5 million people, as well as to associated industrial and business activities.

The joint venture employed Worley Parsons (now IX Engineers) as a subcontractor to complete the designs for the project. The contractual programme began at the beginning of August 2015, and the 24-month contract period will see the completion of the flocculation, sedimentation and carbonation plants, as well as the sludge pump station for

Zuikerbosch Pump Station's new water treatment and pumping system (System 5 – Phase 1).

Flocculation Plant

To ensure the water tightness of the three flocculation tanks the outer walls and one internal wall will be constructed in situ, the remainder of the internal walls will be precast panels. These panels are manufactured off site and installation commenced during October 2016. This is the first time that this precast methodology has been implemented on a Rand Water project.

Carbonation Plant

As the carbonation area only consists of straight walls, a timber walling system with steel support frames was chosen as formwork. The use of timber walling systems achieves an exceptionally high quality concrete finish, as well as facilitating a higher production output.



The carbonation plant walls are four-metres high and the longest single section of wall poured was 75-metres long.

The project team constructed this structure in four months and in October the final preparation work was in process for handover to the mechanical and electrical partner.

Sedimentation Tank

The sedimentation tank stretches over 30 000m² and due to the soil conditions at the Three Rivers site an engineered platform had to be constructed to accommodate it. Lime was used to stabilise the material, and the engineered platform was constructed creating a 1000mm-thick soil mattress.

The 30 000m² area must be covered with a 100mm-thick layer of no-fines concrete that will act as a drainage system. The concrete structure will be built on top of this, and will consist of floor panels and 160 walls that will divide the sedimentation tank into four bays.

A total of 60 floor panels, measuring 25m by 25m each will be constructed. The 160 walls, each 25 metres long, will then be constructed on the floor panels. Due to the height and number of these walls a light weight timber walling system will be used.

Sludge Pump Station

The sludge pump station is constructed six-metres below the natural ground level and will have heavy reinforced walls. The building that will supply power to, and that will house the instrumentation for the pump station, will be constructed on top of the pump station, within a steel structure that will create the roof of the pump station and building. Currently, to avoid any delays on this structure, the priority on the site is to complete the six-metre-deep excavation as well as the civil work before the rainy season.

Once completed the flocculation, sedimentation and carbonation plants will respectively mix raw water with chemicals to achieve coagulation (and pipe protection). This will enable floc formation, settling and sludge removal and finally the water will be dosed with carbon dioxide for pH correction.

“Water supply is an essential service that underpins the growth and development of communities within our country,” says Alice Lennox,

project manager for Stefanutti Stocks Civils. “Our team is putting in immense effort and are determined to complete the project within budget and on time, in fact the current completion date is estimated to be well in advance of the projected and contractual completion.”

Captions:

1. The start of the precast panel installation at the Zuikerbosch Flocculation Plant.
2. The SAM Joint Venture construction team on the foundations of the Flocculation Plant in June 2016.
3. The casting of the no-fines and blinding layers at the Sedimentation Plant.
4. Reinforcement for the Structural Floor Panels at the Sedimentation Plant being fixed.



Multiple construction services offered to **Water, Sanitation & Pipeline sector**

Stefanutti Stocks's experience within the Water, Sanitation and Pipelines sector spans the spectrum of national, regional, municipal and township infrastructure and includes institutional waste-water treatment facilities, water purification works, water storage reservoirs and stormwater systems. Its divisions are currently working on a wide array of water infrastructure contracts across South Africa.

The group's construction services offering for effluent and water treatment facilities includes:

- Water treatment plants;
- Sewerage treatment plants;
- Overland and in-plant pipelines;
- Reservoirs;

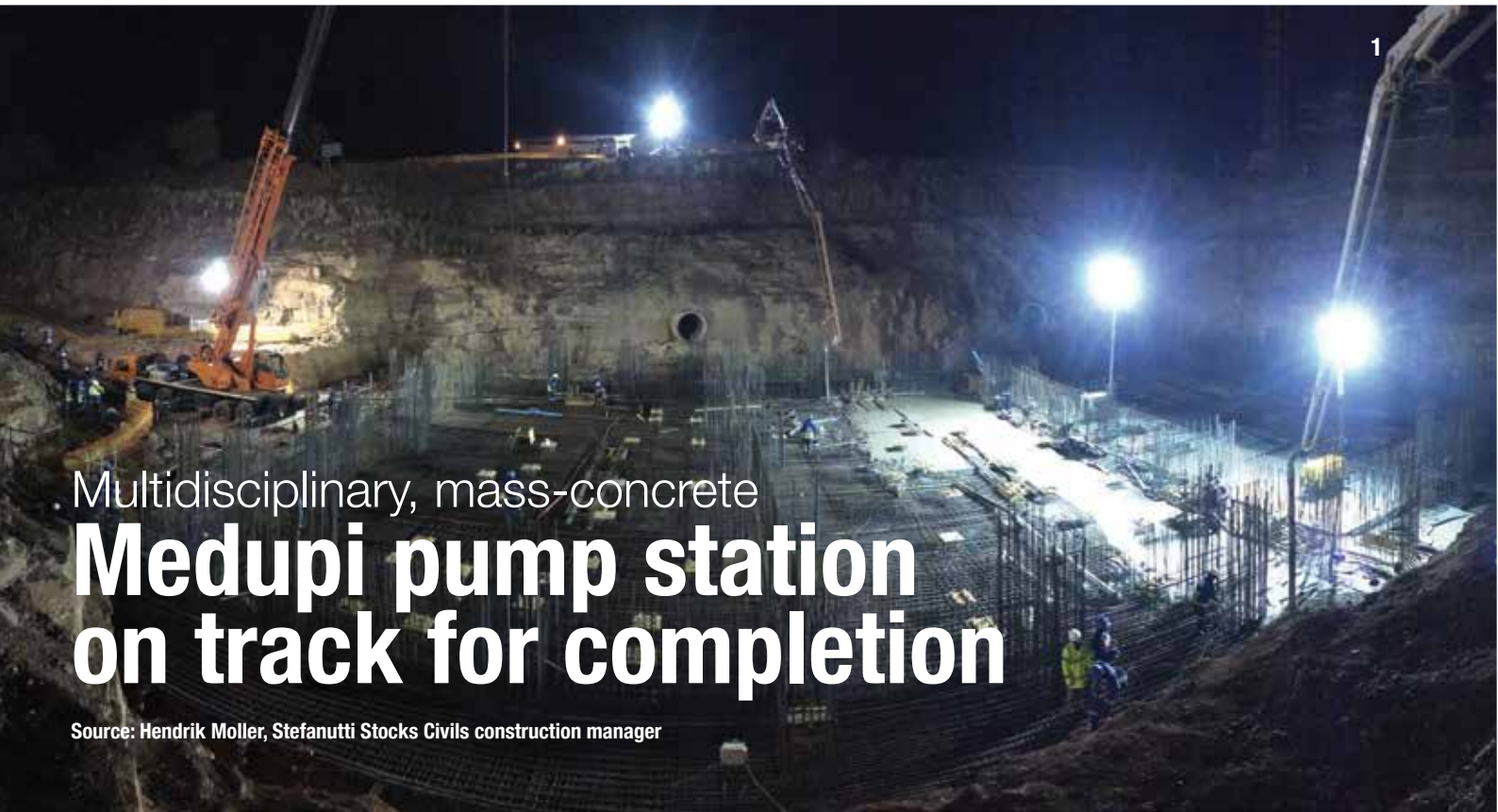
- Mechanical, electrical and instrumentation;
- Environmental rehabilitation (institutional waste water treatment facilities, water purification works, water storage reservoirs and stormwater);
- Specialist clarifier solutions for the mining industry; and
- Structural rehabilitation and concrete repair.

Its construction services offering for dam and irrigation schemes includes:

- Specialist geotechnical solutions including curtain and annulus grouting;
- Earthworks;
- Construction of rockfill, claycore and concrete dams;
- Refurbishment of dams;
- Irrigation canals and pipelines; and
- Construction of weirs and abstraction structures.

Stefanutti Stocks's Pipelines division is a premier pipeline specialist contractor within South Africa undertaking gas, water and sewerage pipeline construction in various materials (steel, concrete, fibre cement, plastics and composite materials). Its fabrication facility in Johannesburg offers clients a broad range of pipe fitting design, fabrication and coating services.

The group's diverse capabilities enable it to offer a one-stop solution to clients in the sector from design, build through to commissioning. Its construction-specific services include excavation, civil works (in situ or pre-cast), pipe laying, cement mortar lining and welds, refurbishment, pump stations and reservoir construction, as well as mechanical & electrical installations.



Multidisciplinary, mass-concrete

Medupi pump station on track for completion

Source: Hendrik Moller, Stefanutti Stocks Civils construction manager

A joint venture between Stefanutti Stocks Civils and its strategic enterprise development partner Mathomomayo Holdings Limited was awarded the construction of a raw water pump station and substation for the Medupi Power Station in October 2015. The pump station will supply all raw water to the six turbines at the power station, and is situated adjacent to the two recovery dams. The project's scope includes earthworks, massive civil construction, building and finishing, mechanical and structural steel erection, electrical and instrumentation, HVAC and gantry crane design, supply and installation.

Construction on this multidisciplinary contract started on site in Lephalale on the 20 January 2016 with site establishment and the dewatering of the current excavation at the pump station site. This was followed by blasting, bulk rock excavations, dental cleaning and mapping.

The pump station's concrete elements are considered as 'massive concrete' and therefore require the implementation of special measures to ensure quality and compliance with Eskom specifications and requirements. The excessive heat in Lephalale is also a key consideration, as the high temperatures (sometimes reaching up to 44°C) experienced in the region influence the design, mixing, placing and curing methods of concrete.

The pump station's 1.7-metre deep, 51.3m x 33.1m raft foundation was the first 'massive' concrete element of the project. First a total of 785m³ of mass concrete blinding was placed to the underside of the foundation. The installation of 516 ton of reinforcing took place over a period of 44 days, with an average of 11,6 ton installed each day. The first 34-hour-long concrete pour, of 1 215m³, took place on the 20 and 21 July 2016. The second concrete pour, of 1 869m³ took place on the 26 and 27 July 2016, and took a total of 44 hours. "We had day and night shifts while the pours were underway, and to ensure controlled and adequate flow of concrete to our two mobile pumps, we stationed quality officers and point men at various intersections en route to the site," says Stefanutti Stocks Civils construction manager, Hendrik Moller. "Both mass pours ran smoothly and were completed without any incident or injury on site, as well as achieving the strictly controlled quality procedures on site."

	Concrete Pour 1	Concrete Pour 2	Total
Date / Times	20/07/2016 10:30 - 21/07/2026 20:30	26/07/3026 06:30 - 27/07/2016 02:30	
Duration	34 hours	44 hours	78
Concrete	1 215m ³	1 869m ³	3 084m ³
Trucks poured (rejected)	178 (2)	276 (3)	454 (5)
Slump tests	183	279	464
Sets of cubes	102	114	216
Mobile concrete pumps	2	2	4
Ready mix concrete trucks	9	11	20

A further unusual aspect of the pump station is the reinforcing design for the columns and walls, as Bar-Tech couplers are detailed for the column extensions. This reduces the amount of splicing between reinforcement, and creates more cover to ensure concrete cohesion around the reinforcing bars within the columns and walls. The Bar-Tech couplers also allow for ease of construction as construction joints are created on various sections of the walls and columns, without the requirement for starter bars.

At the beginning of October the first lift of the walls and columns section was progressing well, with only four external walls still to be constructed for the underside of 'Ring Beam 1'. The mass concrete

backfilling commenced in the middle of September 2016 with 1 100m³ of the 9 000m³ required placed. “We are aiming to have the centre walls with beams, all external ring beams and some of the 2nd lift wall and column sections completed by the December builders’ break,” says Moller. The goal is to complete all civil construction elements by mid-May 2017, to ensure that the follow-on disciplines (structural steel, isolation and sheeting, building and electrical works) have enough time to be completed before the end date.

“The various construction disciplines and sub-contractors working alongside one another, make this a very busy site,” says Moller. “We are progressing well, and across the board all have the same objective of the competent and high quality execution of the project, whilst maintaining a LTIFR of zero.”

The project is due for completion in November 2017.

Captions:

1. The nightshift on the second concrete pour for the 1.7m-deep, 51.3m x 33.1m Pump Station Raft Foundation.
2. Dental cleaning and mass concrete operations underneath the Pump Station Raft Foundation.
3. A view of the Pump Station column & wall construction to 908.600 level.
4. A view of the Pump Station and Sub-Station construction.



Stefanutti Stocks upgrades Wellington Waste-Water Treatment Works

1

Source: Bertus Jacobs, Stefanutti Stocks Coastal project manager



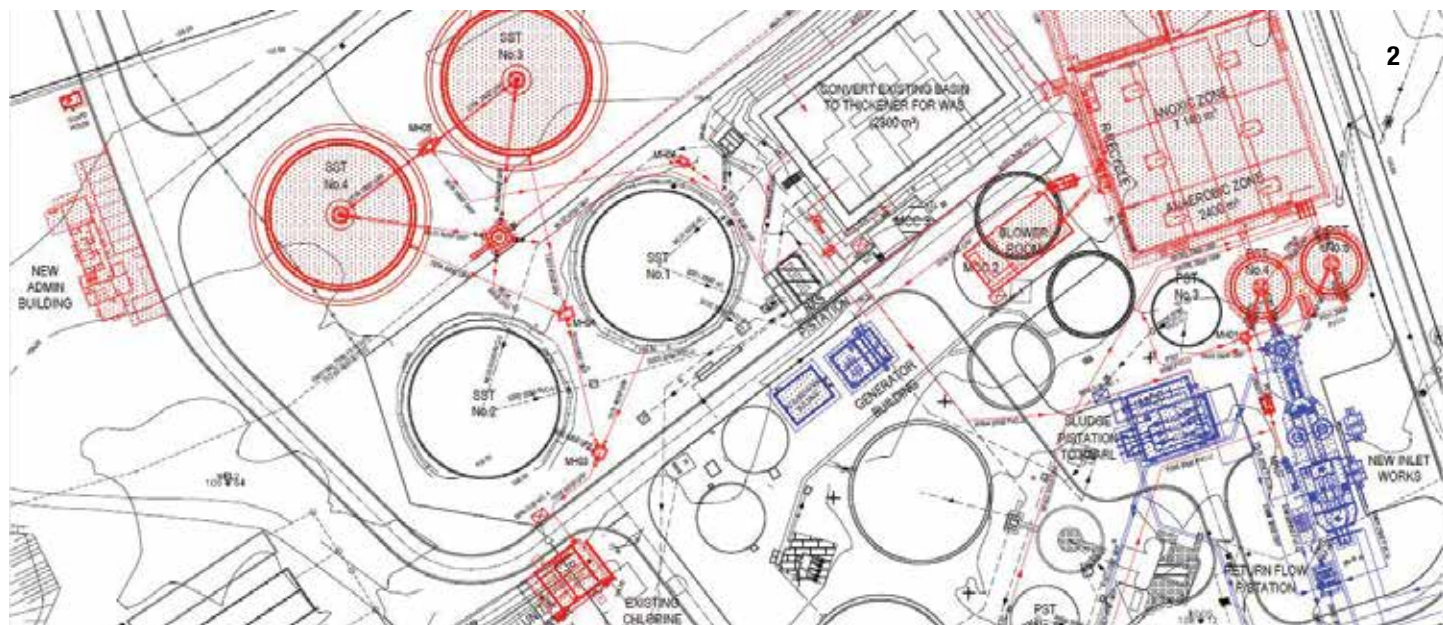
The six M³/day hydraulic capacity of the Wellington waste-water treatment works (WWTW) is insufficient to cope with the rapid growth that the Western Cape towns of Wellington and Paarl have been experiencing over recent years. In order to support continued urban development in the area, the Drakenstein Municipality is upgrading this WWTW to operate at an ultimate capacity of 16 M³/day (average dry weather flow). The upgraded WWTW will be a full biological nutrient removal facility, allowing for the removal of nitrogen and phosphate.

Stefanutti Stocks has recently completed the greenfield construction of 55-M³/day Lower Thukela WWTW, and is currently constructing the 20-M³/day Mangaung WWTW close to Bloemfontein. "Our vast experience in the construction of waste-water treatment works in recent years has laid a fantastic foundation for us to deliver a high-quality project to our client," says Bertus Jacobs, Stefanutti Stocks Coastal project manager.

The scope of the civil work that is being undertaken by Stefanutti Stocks for the upgrade and extension of the Wellington WWTW is broad, and includes:

- Site clearance, bulk earthworks and landscaping, internal access roads, stormwater and fencing.
- Refurbishment of two 12m-diameter primary settling tanks.

- Construction of:
 - new inlet works two 12m-diameter primary settling tanks,
 - two 20m-diameter secondary settling tanks (SSTs),
 - biological reactor, aerobic digester and anoxic thickener,
 - UV closed vessel disinfection and wash-water pump station,
 - sludge recycle and waste pump stations,
 - main sludge pump station and sludge rising mains to Paarl,
 - irrigation pipeline to golf course,
 - gravity sewer to Pentz Street pump station,
 - emergency overflow pond, flow division and collection chambers, and interconnecting pipework,
 - ancillary structures including various small concrete structures including flow division and collection chambers.
- Construction of buildings including:
 - a two-storey administration building which will house offices on the ground floor, control room and mini lab on the first floor,
 - blower room which will house Motor Control Centre number 2 (MCC2),
 - guard house,



2

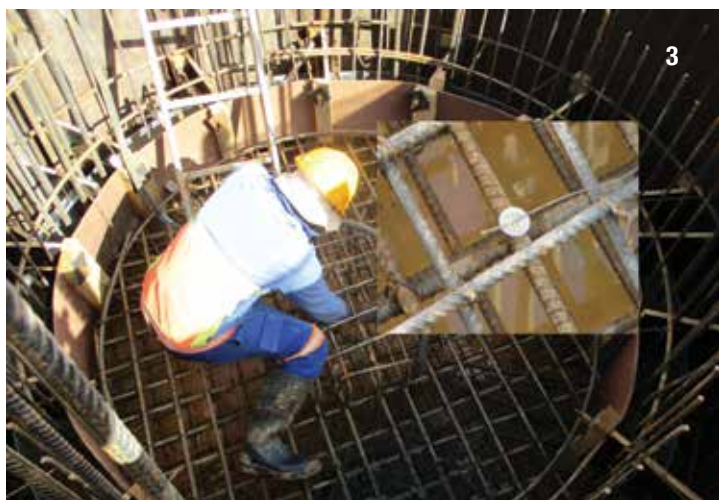
- small power, electronics and HVAC for all new buildings,
- emergency generator building,
- MV building.
- Low diversion and demolition works: decommissioning and demolishing of older process units.
- Modification of existing structures including raising the internal launder walls of the existing SSTs.
- Empty, clean and modify the existing biological reactor to be used as a sludge holding tank/thickener.
- Refurbishment of the effluent outfall channel to the Berg River.
- The installation of various interconnecting pipelines between process units.

In order to cater for construction restrictions associated with upgrading and extending an existing WWTW a strict construction

programme is being followed to achieve the tight sectional completion dates. The interfaces between the mechanical work being carried out by other contractors and Stefanutti Stocks's scope of supply must also be managed closely. "We have developed our construction sequence around vital handover dates, while simultaneously focusing our project team's construction experience and capabilities on the most challenging structures first," says Jacobs. "We are committed to exceeding our clients expectations in our delivery of the Wellington WWTW project."

Captions:

1. Wellington at dawn.
2. The site layout of the Wellington waste-water treatment works (WWTW) contract, that Stefanutti Stocks is upgrading.
3. The first concrete pour at the Primary Settling Tanks.
4. The first concrete pour at the Biological Reactor.



uThongathi emergency pipeline augments water resources

Source: Leigh Dressing, Stefanutti Stocks Coastal project manager

While the KwaZulu-Natal province was in the grips of a severe drought, Stefanutti Stocks Coastal completed the fast-track construction of a 7.1-kilometre pipeline and pump stations for Umgeni Water within an extremely challenging 63-day construction programme. The temporary pipeline was laid in order to transfer between eight to 12-million litres of raw water from the uThongathi River to augment Hazlemere Dam's dwindling water resources.

The fast-track emergency project included the excavation and installation of the 7.1-kilometre HDPE pipeline, two pump stations and generator units (rated with a top head mass greater than 140m), as well as the construction of 17 valve chambers.

In spite of a very short and intense production schedule, Stefanutti Stocks utilised local suppliers, and sourced all general workers from the local community.

"After completing the construction of the pipeline we employed six community members to operate the pipeline from May 2015 through to September 2016," says project manager Leigh Dressing. "During this time approximately eight-million litres of water was transferred daily from the uThongathi River to the Hazlemere Dam, for seven days a week, 24 hours a day."

The Hazlemere Dam is currently at 62 per cent capacity, and the project was a definite success for all parties involved.

Caption:

The 7.1km HDPE pipeline runs through the rural and hilly KwaZulu-Natal landscape and was operated by six community members between May 2015 to September 2016.



Water retaining structures

constructed within a water-scarce environment

Source: Craig McAllister, Stefanutti Stocks Coastal site agent

In late 2015 a joint venture between Stefanutti Stocks and its enterprise development partner ORO Projects was awarded the construction of the Usuthu Water Purification Plant for the Zululand District Municipality in Nongoma. The contract, which will run over approximately two years, (January 2016 to February 2018) comprises of the civil engineering construction of a new 16Ml/day capacity water treatment works.

The scope of work includes the civil construction of concrete water retaining structures, concrete block retaining walls, interconnecting pipework, building works and general site works. All of the aforementioned elements of the purification plant will include the supply and installation of mechanical and electrical equipment.

"Constructing any concrete structure, regardless of environment, requires water as one of its key ingredients," says Craig McAllister, Stefanutti Stocks Coastal site agent. "The severe drought we are currently experiencing has the potential to hamper our progress. To mitigate this risk we have installed a borehole that has a capacity of 30 000-litres per day."

Stefanutti Stocks Coastal has established a contract participation goal (CPG) plan to train the local community to gain skills in various trades. "This initiative is specific to the development of the local Usuthu/ Nongoma community," says McAllister. "Our objectives include creating a skills base that can assist in sustaining the community in the future, after we are no longer active in the area." Stefanutti Stocks employs a community liaison officer on site who liaises on community and industrial relations matters. "Once we have completed the project and move out of the area, we will also be handing over the accommodation structures that we have built to house our site teams to the local community."

Since commencement the project has recorded a lost time injury free rate of zero.

Captions:

1. An overview of the Usuthu Water Purification Plant site.
2. The chlorination channels under construction.
3. A site layout drawing showing the concrete structures and man holes (light grey) and the roads and stormwater (brown).



Pipelines division offers world-class structural and pipe-fitting fabrication

Source: Julian Dovey, Stefanutti Stocks Pipelines general manager

Stefanutti Stocks Pipelines specialises in bulk earthworks and the installation of steel or ductile iron pipelines for clients in the Water, Sanitation & Pipelines, and the Industrial, Oil & Gas sectors. These capabilities are supported by the division's in-house fabrication facility in Chloorkop, Gauteng, where structural and pipe fitting design and fabrication takes place under the watchful eye of the division's quality inspectors.

The fabrication facility's services include:

- Design of pipe fitting reinforcement;
- Manufacture of structural steelwork (including pipe trolley, ladders, frames and walk in platforms);
- Manufacture of standard pipe fittings (including air valves, scour valves and bends);
- Manufacture of pipe fitting "specials" (such as chambers, tees and crotch plates);
- Non-destructive testing on welded joints;
- Hydrostatic pressure testing; and
- Application of lining and corrosion protection coating to the manufactured pipe fittings.

"We are proud of our ability to provide high quality pipe fitting reinforcement design work," says Julian Dovey, general manager of Stefanutti Stocks Pipelines. "Our design work is consistently completed to the high standards required within our industry, and our capability and commitment to quality is reinforced by the consistent certification of our designs by the Professionally Registered Engineers appointed by our clients."

Stefanutti Stocks Pipelines employees attend specialised training to ensure they are able to achieve excellence in the delivery of their individual tasks and required out-puts. The division's coded welders are well-versed with the latest techniques, specifications and innovations within the industry.

"We strive to provide high levels of innovation across all aspects of our projects and contracts," says Dovey. "In the unlikely event that we do not have the in-house capabilities to meet a specific brief, we will either train our people to fill the gap, or partner with third parties to ensure that we can seamlessly respond and deliver on all of our customers' requirements."

Stefanutti Stocks's technicians conduct non-destructive testing on welded joints prior to the application of corrosion protection, and the findings are recorded and kept on file. Hydrostatic Pressure Testing is also conducted on the designed pipe fittings, to ensure that the design can safely accommodate the required surcharge pressures.

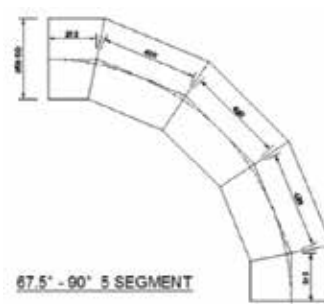
The fabrication of pipes and pipe fittings rely on high levels of quality requirements being met on site, as well as during the manufacturing process. A contract quality plan, that considers site-specific conditions, is developed, reviewed and once approved by clients, entrenched across the site, to ensure compliance is achieved.

Stefanutti Stocks Pipelines is constantly trying to improve its service to clients, and sends out customer satisfaction questionnaires twice a year in order to get feedback on its level of service, operational teams and management; its safety, health, environment and quality performance, management and technical support. Senior management reviews these questionnaires and responds to any anomalies.

"By offering our clients excellence in execution, we endeavour to build long-term relationships, rather than just having once-off encounters," says Dovey. "Our in-house design and fabrication capabilities are a value-adding service, that has been well received by our clients. Further, the additional control the division has over the quality of the structural and pipe fittings, enhance our overall service delivery."

Captions:

1. A pipe-fitting design.
2. Raw pipe being inspected to ensure that it meets all the required specifications.
3. Fabricated items secured and stored prior to being transported to site.
4. Fabricated pipe specials on their way to the Kwahloko SSA 1 Phase 1D contract.



1



2



3



4

Stefanutti Stocks Geotechnical undertakes piling contract for Tshwane Regional Mall (TRM)

Source: Teboho Motaung, Stefanutti Stocks Geotechnical project manager



The 60 000m² Tshwane Regional Mall (TRM) currently being developed in Mamelodi, will include transport facilities to cater for approximately 1 400 taxis and 600 vendors, in addition to the 20 000 daily bus and train commuters. The construction stage of the TRM is expected to employ approximately 3 000 workers at its peak, and once complete, the mall hopes to alleviate unemployment in the area by providing job opportunities in the retail sector.

The piling contract to the TRM, also known as the Denneboom Station Public Transport Interchange (DSPTI) project was awarded to Stefanutti Stocks Geotechnical on a design and construct basis early August 2016. The project is being undertaken for the Public Investment Corporation and Isibonelo Property Services, and is centrally located at the crossing of the major Maphala and Tsamaya access roads, across from the railway line that connects the Pretoria CBD with Silverton, Eersterust and Mamelodi.

Project planning

Stefanutti Stocks Geotechnical has programmed the project to be in line with the critical part of the main building contractors programme in order to give the building contractor early access to meet the client's milestones, and deliver the project within the tight construction schedule. By optimising the number of piling rigs on the project during different stages of the programme, ultimate optimum outputs are being achieved.

Scope of work

The scope of work at the TRM project entails the installation of a total of 1 030 auger piles. These are cast in situ and have diameters between 450mm to 1200mm, and loads ranging between 400kN to 8000kN. These piles are designed to carry their loads in a combination friction and end bearing. The bases of the larger diameter piles,

between 750mm to 1200mm are to be cleaned by hand to ensure hundred per cent load bearing capacity.

Meeting set productions

"The project positive at this point is that we are bettering the tendered production," says Teboho Motaung, Stefanutti Stocks Geotechnical project manager. "We are currently well ahead of the main contractor's construction schedule and our expected output." Stefanutti Stocks Geotechnical are closely monitoring outputs and access sequence to the various platforms and our good working relationship and close co-ordination with the main building contractor play a huge role in this regard," says Motaung.

Safety, Health, Environment & Quality (SHEQ)

"SHEQ compliance is always a key priority on all of our projects," continues Motaung. "This same culture is practised at the TRM project where on-going improvements and best practices are being embraced by all levels of site employees."

The piling contract is due for completion by year-end, and with the current rate of production hand over should take place well within programme.

Caption:

Stefanutti Stocks Geotechnical's two Casagrande B200's and a Casagrande B125 being utilised for piling operations at the Tshwane Regional Mall.

Piling and Lateral Support provided to the University of Pretoria's Javett Art Centre

Source: Thys Maree, Stefanutti Stocks Geotechnical site agent

Stefanutti Stocks Geotechnical was given the opportunity to design and construct the piling and lateral support for the basement of the University of Pretoria's new art centre. This project is located on the University's South Campus and includes the construction of a new pedestrian bridge spanning Lynwood Road, and connecting the South Campus to the Main Campus. The project also presented the geotechnical division with the opportunity to showcase its diversity and capability in providing specialist geotechnical solutions.

As the installation of anchors and soil nails under Lynwood Road or neighbouring properties was not allowed, this resulted in the lateral support being constructed using perimeter piles as the primary support, with secondary support provided by mesh-reinforced gunite between the arches. In the temporary state the perimeter piles act as a cantilever pile, and once the structure for the art centre has been constructed, it will prop against the piles in the permanent condition. Soil nails and temporary anchors were also used to prop the piles on the excavation faces not facing Lynwood Road. The project also required structural piles that will tie in with the structure of the pedestrian bridge.

Limited geotechnical information was available at the outset, and it was believed that the site consisted mostly of a one to two-metre-deep layer of hard fercrete, followed by weathered shales, and then hard unweathered shales. However, a fault line, running through the site, was discovered during the drilling of the perimeter piles. After additional test holes were drilled it was concluded that there is an intrusion of diabase in the shales.

Boulders in the severely, weathered diabase could not be drilled using the conventional auger method, which resulted in a redesign of the piling to the affected area. The soil conditions were overcome through the introduction of an additional piling rig, with a 550mm down-the-hole (DTH) hammer conversion, that can easily penetrate hard rock and boulders. "These unforeseen conditions also meant that the project required additional structural piles," says Thys Maree, Stefanutti Stocks Geotechnical site agent. "The positive and hands-on approach of the team working on the project meant that all challenges were easily overcome and the project was completed successfully and on time."

Project details:

- 16 auger-drilled bridge piles (900mm to 1050mm diameter), installed 11-metres deep with a one-metre socket drilled into hard rock.
- 163 auger drilled soldier piles (600mm diameter), averaging 8.67-metres deep, with a 0.5m socket drilled into hard rock.
- 41 DTH piles (550mm diameter), drilled six-metres deep into hard rock and boulders.
- A total of 569m³ concrete cast into the piles.
- The supply, installation of 31 temporary double strand 300kN anchors, with an averaged free length of 7-metre.
- The supply, installation of 14 TB 500 bars 9-metre long.
- Construction of a 946m² 100mm-thick 25MPa gunite wall, with reference 395 mesh fabric reinforcement.

Captions:

1. Trimming and preparing for gunite on the final level of the western boundary wall.
2. Setting up plant and equipment for DTH drilling into the problem soils.
3. Drilling of 550mm-diameter DTH piles into the diabase boulders.



Sasol South Africa

awards three-year maintenance contract

Source: August Lipke, Stefanutti Stocks Electrical & Instrumentation operations director

Stefanutti Stocks Electrical and Instrumentation secured a three-year Electrical Medium Voltage and Instrumentation Maintenance contract for Sasolburg, Sasol Chemical Industries Plant and Sasol Midlands and Outside Utilities plant areas. The contract for Sasol South Africa (Pty) Ltd commenced on 1 October 2016.

"The division secured this contract based on its track record of outstanding performance delivery, its focus on customer relations, its highly competent resources, compliance with Sasol specifications and its B-BBEE compliance," says August Lipke, Stefanutti Stocks Electrical & Instrumentation's operations director. "Furthermore our competitive pricing in both project and maintenance contract environment contributed to the award."

A unique aspect of this particular contract is that Stefanutti Stocks is required to have teams on standby for the Electrical Medium Voltage Maintenance contract.

Unlike the E&I maintenance contract in Secunda, managed by the Sasol Electrical Hub, the E&I maintenance in Sasolburg is managed by each plant directly. As no lay-down area for the primary plant areas is allocated, the division will operate from its new premises in the nearby Naledi Industrial Park. "Our Sasolburg team did well in preparing not only our new premises, but also a comprehensive safety file, training the relevant resources, and meeting the client's area representatives," says Lipke. "We are all committed to delivering service excellence to our client, and living up to the core values of the Stefanutti Stocks group."

Caption:

Stefanutti Stocks's core Electrical & Instrumentation Sasol team.



KLB Electrical to maintain Sasol Secunda's electrical infrastructure

Source: Matt Mpakati, KLB Electrical Projects general manager

KLB Electrical Projects, a subsidiary of Stefanutti Stocks, has been retained by Sasol Secunda for the electrical maintenance work on its buildings and facilities, including two Sasol mines.

The work scope is a combination of planned and emergency work, awarded on a "Job Card" basis, where each request is on a separate works order ranging from R25 to R150 000 in value as per the periodic service agreement.

These typically involve:

- replacement of luminaires (vandal resistant lighting);

- repairs and replacement, where necessary, of power outlets, luminaires, fans, air-conditioning units, ceiling and extractor fans;
- repairs and refurbishment of distribution boards
- maintenance of area lighting; and
- infrastructure installation on lay-down areas used for shutdowns.

"Our dynamic and versatile maintenance team makes this work successful for KLB as they hop from one job order to the next, including a few emergency after hours call outs ensuring that the facilities enjoy a dependable and safe electrical infrastructure at all times," says KLB Electrical Projects general manager Matt Mpakati.

Caption:

The KLB Electrical team that is maintaining Sasol Secunda's electrical infrastructure.



Cooling tower rehabilitated and repaired for Sasol Synfuels

Source: Corrie van Blerk, Stefanutti Stocks Civils contracts manager

Stefanutti Stocks Civils offers specialist expertise in concrete repair and has a long track record of successfully completing rehabilitation projects across South Africa as well as in other southern African countries.

At the end of October the division was nearing completion of its third project for Sasol Synfuels in Secunda, which entails the rehabilitation of the inside of one of the 165-metre high cooling towers at Sasol's Secunda plant.

The scope of work includes creating access to the 165-metre high tower, for which an Alimak hoist was used. "We have used the modular Alimak hoist system to access heights for a number of our rehabilitation projects, and it has proven to be very well-suited for this kind of project," says Corrie van Blerk, Stefanutti Stocks Civils contracts manager. "We then use rope access technicians to access some of the work areas that are otherwise inaccessible."

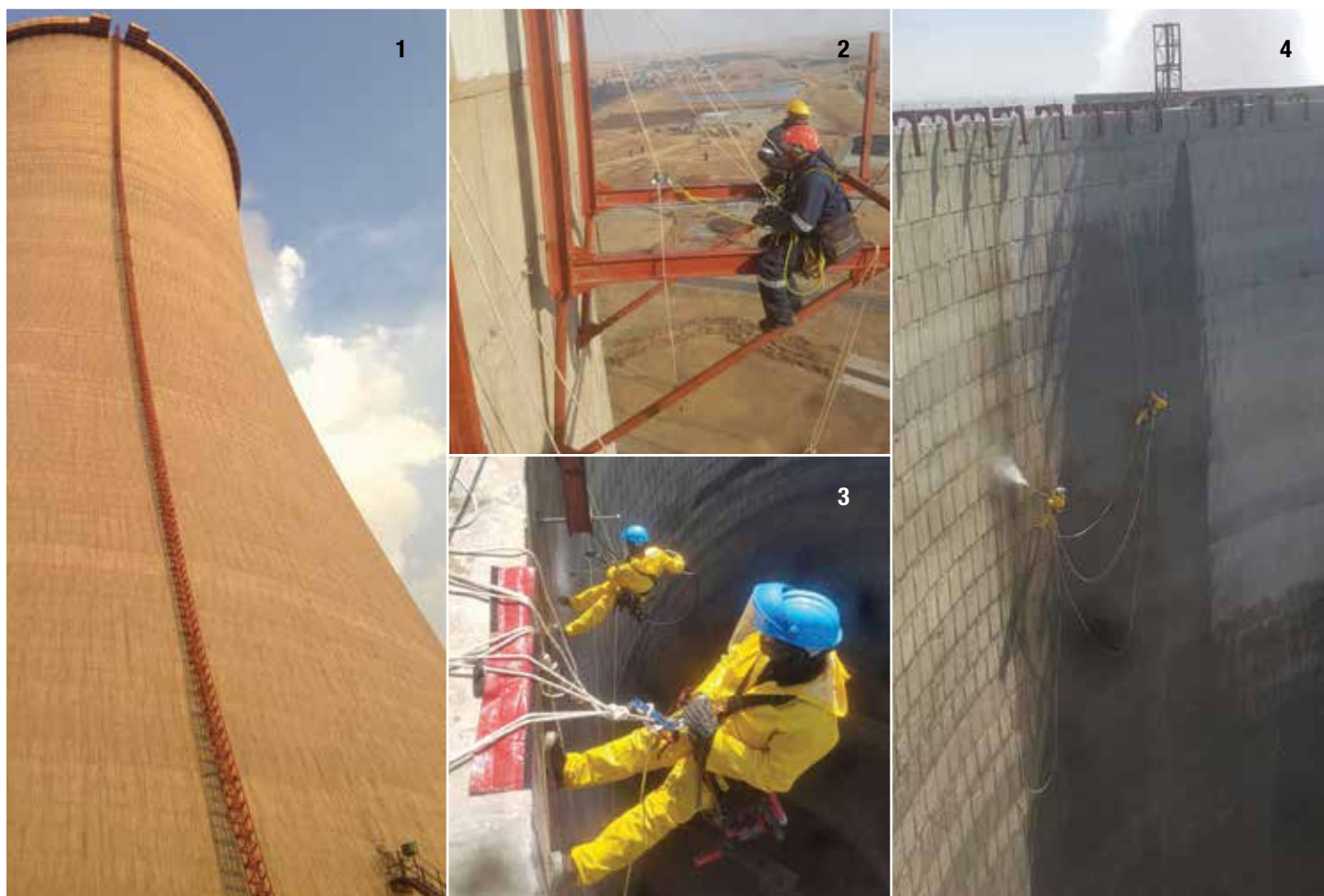
Once access up the side of the tower was created, a temporary works platform was installed around its top rim. Temporary suspended platforms were installed to the cooling tower's interior, and repair work could commence.

Concrete repair work has been undertaken to the internals and the top rim, with all internal repairs and coating being completed within the fourteen day shut down period of the plant. The top twenty metres of the internal surface was prepared and coated with an epoxy cement, and the top ring beam treated with a polyurethane coating system.

These types of contracts required skilled teams, who put in a lot of intense hours within a short space of time, as 12-hour shifts are required to ensure completion within the window of the shutdown. "The work is also heavily influenced by inclement weather due to the extreme heights and exposure at the top of tower," says van Blerk. "As we near completion of this project our teams have once again proven their capabilities, and we are looking forward to the next rehabilitation projects which we will be undertaking for our clients Sasol Technology, Sasol Synfuels and Eskom."

Captions:

1. A view of the completed Alimak hoist and top platform.
2. Rope access technicians installing the top platform.
3. Looking over the edge of the cooling tower, where rope access technicians are getting into position to start work, weighed down by all the required safety gear.
4. Rope access technicians prepare concrete substrate using 350BAR HP techniques.



Stefanutti Stocks Building
Western Cape's Climor
distribution warehouse

placed 1st in regional and 3rd in national Master Builders Safety Awards 2016

in the greater than R500-million category

Secunda's Electrical and Instrumentation

Maintenance team in
the limelight again

In October the E&I maintenance team at Secunda celebrated achieving the milestone of 1 506 000 man-hours worked without a recordable case.

"Further, the team has completed a successful shutdown in September 2016, and has received high praise from our client for their professionalism, excellence, timeous delivery of services, smooth documentation processing, and meeting all target dates set," says Stefanutti Stocks Electrical & Instrumentation operations director August Lipke (more on p34).

Stefanutti Stocks Building KZN shines at Master Builders Association awards ceremony

Commercial/Industrial Alterations, Additions & Renovations (Above R 20-million): 1st Place - Stefanutti Stocks/Ladysmith Construction JV - Excellence in Construction Award: Project Sunrise Phase 1 & 2.

Retail Buildings (Under R 50-million): 1st Place - Stefanutti Stocks Buildings KZN - Excellence in Construction Award: Bluff Shopping Centre.

Industrial/Civil (Above R 50-million): 1st Place - Stefanutti Stocks Building KZN - Excellence in Construction Award: Mr Price Warehouse.

Stefanutti Stocks Botswana's teams at **Kasane Airport** achieve **1-million LTI-free hours**

"The achievement of this major milestone is a result of incredible team work; a committed, patient and focused safety team; as well as 100 per cent buy into our safety culture by each person working on site," says Hugh Atkinson, Stefanutti Stocks Botswana contracts manager. The core site safety team is pictured below.



A trip down memory lane

- the move into Mozambique

Stefanutti Stocks, then still Stefanutti & Bressan, first registered in Mozambique in 1995. Today it is known as SS Construções Moçambique and has grown into one of the most prominent companies in the country, with a reputation for setting the benchmark for quality and service delivery within the local construction industry.

The company originally began as a civil construction contractor undertaking projects such as the repair and rehabilitation of cylindrical storage silos and the MIPS container terminal, the construction of the Maputo fishing port, a sugar terminal for the Sugar Association, the expansion of the Xinavane sugar mill for Tongaat-Hullets, the Maragra sugar mill for Ilovo as well as the sugar silo at the Maputo port for STAM.

About ten years ago it began to introduce its multidisciplinary capabilities to the market, in particular undertaking traditional building projects that saw it constructing many of the high-profile, landmark buildings that grace the Maputo skyline.

In 2015 the company celebrated its 20th anniversary - which, in addition to marking twenty years (some of them characterised by survival in what was at times a tough operating environment) in the business, also stood testimony to the resilience and commitment to excellence that has become a trademark of the Stefanutti Stocks brand.

The extract below was taken from *Conversations with and about Gino Stefanutti - Chapter Six: Taking on Africa*.

We started up in Mozambique in 1994, just after the end of the civil war. The country was still littered with land mines, there were piles of uncollected garbage and filth, commodities were non-existent and everything had to be imported across the bureaucratic Mozambican border post where bribes were the order of the day. We sent in a pioneering team headed by Martin du Rand, who had just joined us and who had brought a lucrative repair contract for the Matola grain silos with him.

In 1995 S&B Mozambique was officially launched after we had obtained the required company Alvara, which is a licence required to undertake construction activities there. We were employed as subcontractors to a German company by the name of Wiemer & Trachte to undertake the structural repairs to the newly built silos. The initial contract was for \$1,5 million, and the final completed contract value in 1996 amounted to \$4,5 million.

For the first decade there wasn't really much to show for our efforts as the Mozambican economy was in the doldrums and we spent most of this time in survival mode. I firmly believed that there would be light at the end of the tunnel and that the fortunes of Mozambique would eventually turn. I was vindicated in this belief and our patience paid off as today we are not only one of the most prominent local companies there but also the most successful and longest established Mozambican company to have been spawned from a South African parent company.



THE MOVE INTO MOZAMBIQUE

In 1993 the second foray into Southern Africa occurred when Stefanutti & Bressan undertook major repairs to a group of cylindrical silos in Maputo, Mozambique. The project was in excess of US\$1 million and upon completion a Mozambique office was established.

The civil war was officially over. However, the country was still littered with landmines, materials were a commodity and resources scarce with the majority of the locals never having been exposed to any construction work due to the long civil war. The pioneering team included Martin du Rand (who had just joined Stefanutti), Louis Pienze (the only Portuguese speaker in the group), Anthony Piley and a core team of six skilled staff members.

Once on site 80 local people were employed and, against difficult odds, the team managed to find a place to stay; train the local workforce; find suitable scaffolding in the old Maputo building yards; get all the relevant material to site; and complete the project to the German client's satisfaction.

The Mozambique office went on to work on many projects, including the SP fuel depot, MIPS container terminal, Chocentane, Maputo fishing port, 'Sisal' (a joint venture), a sugar terminal for the Sugar Association, the Japanese Embassy, EU offices, the EU Embassy, the rehabilitation of Xinavane and the Polaris Casino.



SP jetty



Rehabilitation of the MIPS terminal



First project in Mozambique - major repairs to a group of cylindrical silos in Maputo

A SOLID FOUNDATION | MOZAMBIQUE'S BRESSAN | 31

WORKING IN MOZAMBIQUE, AFTER THE CIVIL WAR. (Source: Philo des Santos)

1. PURCHASING CEMENT

As soon as cement arrived at the Maputo train station most would spend. We would immediately send all available vehicles to the station where we would proceed to buy as much cement as we could load onto the vehicles. Cement was only sold for cash and auction style.

2. CRIME

Serious crime was unheard of in the early days but petty crime was rife. In order to stop our vehicles being stopped while we went to meetings, we had to employ drivers to sit inside the vehicles for the duration of our absence. However, if our drivers or lights did go missing, we were always able to buy them back in the informal market at 'Chopeneque'.

3. LANDMINES & HAND GRENADES

An arms cache

We had quite an interesting incident while we were demolishing an old building on the outskirts of Maputo where we uncovered quite a large arms cache, which consisted of a couple of large bags of hand grenades. We immediately informed the local police station who, much to our surprise, did not even bother to come to the site and verify our find. Two days later a man arrived, loaded two bags into his vehicle and left. About a week later a different man arrived and left with the balance of the grenades. We never did find out who these people were or what actually happened to the hand grenades.

Building our office

While we were building the boundary wall for our office in Maputo we uncovered a land mine. Again, the local police were informed. They came out to the site, looked at the landmine and instructed us all to move back while they proceeded to detonate it. After informing us that it was safe to get back to work, they climbed back into their vehicle and drove off, leaving most of us with our muscles hanging outside open.

Too close to home

Before commencing work on the EM (the main east north) our client informed us that the area had been demined. Just to be sure we brought in an independent company to search the area who uncovered a further 56 mines in an area of approximately 100m²!

These images were taken from the Stefanutti Stocks coffee table book, *A Solid Foundation*, which be viewed on the company website www.stefanuttistocks.com



Caption:

Sunny Singh, pictured in the Stefanutti Stocks KZN workshop, with Stefanutti Stocks Coastal managing director Matthew Horwill.

Parting shots

Sunny Singh

Sunny, how long have you been in the industry?

I joined I. Bressan Construction in April 1975, so that makes it 41 years! I was one of the first employees to join Gino and Mr Bressan at the demure 12m², R31.05/month rental office in Protea House, West Street, Durban. A lot has happened since then!

What is your most vivid work-related memory?

I had just got married when Cyclone Demoina ripped through the province and caused extensive flooding and damage to the coastal infrastructure. Gino and I visited the affected areas using the company plane, and my wife was not happy about me flying in this small aircraft. She did not speak to me for a couple of days - I had picture but no sound!

What do you miss, if anything, about your early career?

I miss the days when we were a private company. In those days, we knew most of the site personnel.

What is the wisest thing anyone has ever said to you?

My late brother-in-law shared this quotation, by Marlon Wayans, with me: 'Success is not a destination, but the road that you're on. Being successful means that you're working hard and walking your walk every day. You can only live your dream by working hard towards it. That's living your dream.'

What do you see as Stefanutti Stocks's key strengths?

We have the personnel that will continue to take this company to another level and make it one of the top civil engineering company's in the Southern Hemisphere.

What advice would you give anyone starting to work at Stefanutti Stocks?

This is a fantastic company to work for, with a lot of great benefits and a great bunch of people.

What will you miss about going to work?

I have always been very passionate about my job and I have given it my all. It's time to leave now though, and not delay my retirement until after 65. It's important to make space for the "young ones". It will be a sad and emotional day when I leave this big family behind mid-December. At the same time, it's exciting to take on the new challenges that will come my way.

What are your plans for retirement?

For sure, I will be going to the gym Monday to Friday! I definitely can't sit at home all day, I will go mad. It is going to be quite strange not getting up at 5.00am weekdays to come to the office, as it's been part of my life for over four decades! I plan to relax and unwind for a while, then look for other work to keep my mind occupied. I'll probably also do some travelling, and would love to go to India and the neighbouring countries and take in the multiple cultures and visit the temples and other places of worship.

In 1975 when our incumbent clerk Nine Govender was poached by Pipecon it left us with the predicament that we would soon have no one to man our office. As fate would have it, during a visit to Etecrete Precast I asked their receptionist if he knew of a clerk that was looking for a clerical job.

He immediately spun round and pointed to someone half hiding behind his desk. That man was Sunny Singh! He returned my long look with a nervous grin. My gut said he was too young and inexperienced, but time was running out, so I took a leap of faith and agreed to interview this person. The interview and salary negotiations were brief - no pension or provident fund, no medical aid, no car allowance, Just a plain salary, which he was grateful to receive and ultimately I was grateful to have him.

His job description: Take care of the office at 414 Protea House. Since 1975 Sunny has unselfishly given his entire working life to the company. He is honest to a fault, has never shied away from the task at hand - no matter what time of the day or night. Without fail he was the first to open the office at 6.30am or earlier. Above all, he is a man that placed the interests of the company above all else, including himself. Even though the company has over time taken on an entirely new form, his loyalty and enthusiasm never waned.

Glyn Williams, an ex financial director, once said: "After Sunny was born they broke the mould." I fully endorse this sentiment - there are not too many Sunny's to be found!

Gino Stefanutti

Financial controller crowned World Champ

Source: Alri Willemse, Stefanutti Stocks Coastal divisional HR manager

After outperforming contestants in the South African (SA) Masters Line Dance Competition earlier this year, Stefanutti Stocks Coastal's financial controller, Taren Gaia, flew to England with 20 other South African dancers to represent her country at the World Dance Masters event from 12 to 14 August 2016.

The SA Masters Line Dance Competition was held in Cape Town and was the largest line dance competition held in South Africa to date. Gaia's results in this competition included first places for Intermediate Open Solo, and for the Beginner Non-Country category, as well as second places for Intermediate Country Choreography and Advanced Country Choreography.

She went to England well-prepared, and came home having danced her way into the World Championship spot for the Intermediate Category. Congratulations Taren!



Stefanutti Stocks Coastal employee races outside of office corridors

Source: Alri Willemse, Stefanutti Stocks Coastal divisional HR manager

In 2016 Bruce Ivins, Stefanutti Stocks Coastal estimator, completed his fifth consecutive Comrades Marathon. "I used the Maritzburg City Marathon, which was one of my training marathons, as a qualifier for the Comrades Marathon and I ran this marathon under my target time, completing it in 3h:37m:48s."

In his build up to this year's race Ivins ran over 1 400 kilometres between 1 January and race day on the 29 May. "The day went well and I was feeling strong. Around the halfway mark some of the runners in our sub 9 hour "bus" started to experience some cramps and this slowed us down a little. After going through Hillcrest, we made the call not to wait around for those starting to hurt. I pressed on with my run making

up some time only to lose some ground again before Mayville. I had to dig deep and found another gear after the climb onto the N3. I pushed on to run my final six kilometres in under 32 minutes, to finish this year's Comrades Marathon in a time of 8h:58m:06s." This was Ivins's second Bill Rowan medal (awarded to finishers between 07h:30m and 8h:59m:59s) and will take pride of place with his other three bronze medals.



Stefanutti Stocks payroll department pay their 2016 Tekkie Tax

Source: Rohanna Cockerel, Stefanutti Stocks Corporate Services senior HR officer

The official 2016 Tekkie Tax campaign day on Friday 27 May 2016 saw hundreds of thousands of people participate by wearing a sticker and a pair of funky shoelaces in their tekkies. Stefanutti Stocks Corporate Services' Payroll Department decided to mark the day with a donation of food and clothes to the Germiston Child Welfare.



Material Handling's star athlete, Simon Ngwenya completes his 16th Comrades

Source: Vale Lombard, Stefanutti Stocks Material Handling - Forzando Caol Mine site manager

Simon Ngwenya is a safety representative, employed by Stefanutti Stocks Materials Handling at the ECC Forzando North Mine in Mpumalanga. He started running marathons in 1998, and has to date competed in about 500 minor marathons, completed the Two Oceans six times and run the arduous Comrades Marathon a grand total of sixteen times.

Ngwenya's Comrades track record has seen him receive seven Bill Rowan medals, eight bronze and one Vic Clapham medal. Ngwenya had the following to say about the Comrades:

"My 2016 journey started long before the Comrades Marathon, with my training preparation on the road including a lot of ups and downs, tears and laughter. Yes, even though it's hard, you always get that funny moment along the way which makes it worthwhile.

"On the morning of 29 May 2016, I woke up early to take a bus from the hotel to the start line. We started the 90km run from Pietermaritzburg to Durban at 05h30 and after 3 hours 40 minutes I was at the half way point. Another painstaking five hours later

and I made it to the finish line, in an official finishing time of 8 hours, 40 minutes and 38 seconds.

"I so appreciate the sponsorship I have received from Stefanutti Stocks Material Handling in particular the support from our management. I hope we can do it all over again next year, and am looking forward to representing Stefanutti Stocks Material Handling at the 2017 Comrades."



Material Handling conquers the Greatest Train Race once again

Source: Riaan Pretorius, Stefanutti Stocks Material Handling safety officer

On 20 August 2016 the Greatest Train Race celebrated its thirtieth year of teams and individuals racing a train from the eMalahleni Train Station to the Middelburg Municipality.

The Stefanutti Stocks Mining Services's Material Handling crew braved the early start and were once again out in their numbers. Participants included Rudi Botha, Simon Mandiwana, Ancke Slabber, Ruan Jacobs, Willem Lombard, Etienne Morgan, Raymond Welding and Barbara van Niekerk.

"Every one completed the race, holding the division high, and doing us proud!" says the division's safety officer Riaan Pretorius, who also participated.

Caption:

The Tailings 'train-racers' sporting their race numbers after finishing the event. From left to right (standing) are Riaan Pretorius, Comfort Gumede, Wimpie Lombard, Rudi Botha, Ancke Slabber (with Gerrit Schutze peering over her shoulder), Barbara van Niekerk and Etienne Morgan. Simon Mandiwana (in yellow) and Albert Maleka are 'resting' at the front.





Quad bikers raise awareness and funds for QASA

Source: Eric Blom, Stefanutti Stocks Roads, Pipelines & Mining Services plant director

The Stefanutti Stocks Roads, Pipelines & Mining Services business unit once again entered a team to ride Quads-4-Quads - a four-day event that starts at Carnival City in Johannesburg and ends in Ballito, in KwaZulu-Natal.

In addition to the purpose of raising funds for QASA (QuadPara Association of South Africa), it also offers outdoor enthusiasts the opportunity to enjoy four days of dirt riding through three provinces including the rolling hills of KwaZulu-Natal, thick Indigenous forests, rocky mountain passes, dams, rivers and beautiful farmlands.

Eric Blom, Stefanutti Stocks Roads, Pipelines & Mining Services plant director and team leader has completed his eighth event this year, and is determined to participate in the next two years' events, in order to finish ten in a row. "This year the lack of rain took its toll on the course, with 50 per cent of the rivers being dry, and some so polluted we could not cross them," says Blom. The team still completed the event within the four-day period, with the only hitch experienced on Blom's Honda 700 TRX's clutch. Fortunately a spare bike ensured the team could continue through to the end.

"A big thank you to all the sponsors who helped us get there for this worthwhile cause," says Blom. "We'll do it again next year, for sure!"

Stefanutti Stocks ladies (and gent) strut their stuff for a purpose

Source: Silvana Egger-Carraggi, Roads, Pipelines & Mining Services executive PA

A group of ladies from the Roads, Pipelines & Mining Services (RPM) business unit participated in the Avon iThemba Walkathon on Sunday 23 October. The event is aimed at raising awareness of and for Breast Cancer, and consisted of a five- or a 7,9-kilometre walk at Marks Park, Emmarentia in Johannesburg.

The Stefanutti Stocks Strutters team joined almost 30 000 other walkers, and included veteran as well as a number of novice walkers, as well as team mascot Johan Blignaut from the RPM training centre. Many of the ladies were inspired to participate by personal stories that had touched their lives. "One of our colleague's daughter has breast cancer so we walked for her, and all the other ladies we have sadly lost to the disease," says Silvana Egger-Carraggi. "The positive atmosphere we experienced on Sunday as we joined cancer survivors, more than made up for the aching muscles we came to work with on Monday!"



Corporate Games

Whip Western Cape Building team into shape for the summer

Source: Brandon Goldsworthy, Stefanutti Stocks Building Western Cape commercial director

Stefanutti Stocks Building Western Cape (WC) was well represented at Cape Town's annual Corporate Games this year. The active division entered the games for the first time this year, with teams participating in the mountain biking and trail running events held at the Bloemendal Wine estate in Durbanville.

The event courses for running and cycling overlapped, and sometimes saw cyclists and runners racing each other up the same steep hill. The mountain bike event consisted of two races, over 20 and 30 kilometres distances. Those cyclists who thought they were in for an easy ride, were soon disappointed when they were faced with some steep climbs and technical sections. The sight of an ambulance

and medics parked alongside one of the more technical sections, did nothing to alleviate the race nerves!

The trial run was held over two distances of five and ten kilometres, and presented a tough challenge over the same steep hills and loose gravel roads.

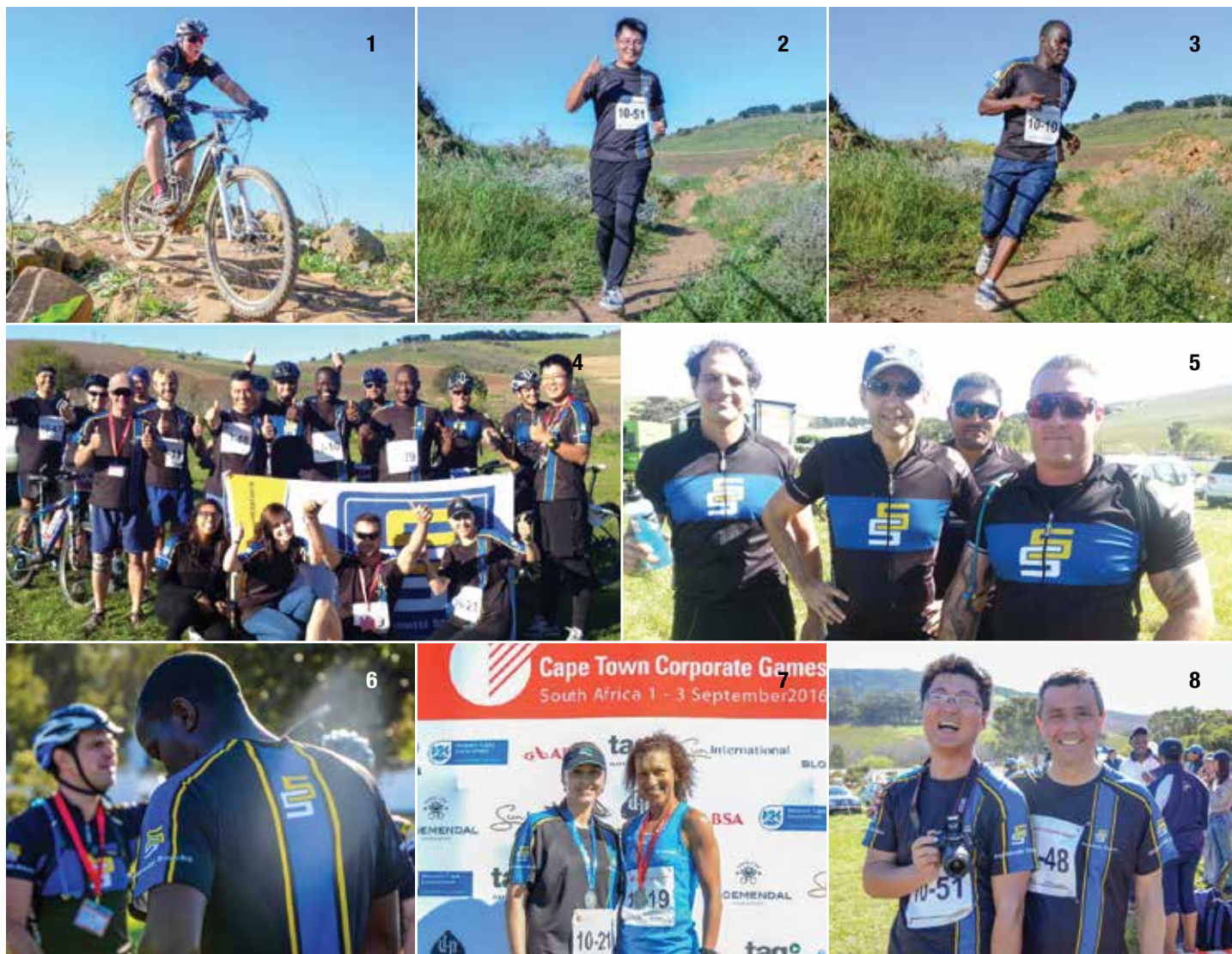
"All in all it was a great event and we achieved some good results, the highlight of which was our resident Ironman, Gabriel Kriel, winning the 10km run by over 10 minutes!" says Brandon Goldsworthy, Stefanutti Stocks Building WC's commercial director. While the athletes were sweating it out on the tracks their loyal supporters were sweating over the braai preparing delicious, much-required, post-race boerewors rolls, that were highly appreciated and did not take long to disappear!

The runners didn't rest on their laurels long, and four energetic colleagues participated in the 21km Gun Run on 16 October. Vuyo Xintolo completed the half marathon in under two hours with a time of 1:55. The other three included Mauro Donato in 2:06, Chao Song in 2:13 and Jacqueline Pryra, representing the ladies in a respectable 2:19 time.

With summer here, and the weather improving on a daily basis, the WC team is planning to take advantage of their great condition and tackle as many of the upcoming "Mother City" events as possible.

Captions:

1. Karl Dahms navigates through the rock garden.
2. Chao Song takes the time for a thumbs up.
3. Lufuno Ndou takes the single track in his stride.
4. The Stefanutti Stocks team and their supporters.
5. Mountain bikers ready for action.
6. Lufuno Ndou reflects on what is ahead.
7. Jacqueline Pryra manages a podium finish.
8. Chao Song and Mauro Donato happy to have finished the 10-kilometre race.



Kenilworth Centre team wins annual soccer tournament

Source: Brandon Goldsworthy, Stefanutti Stocks Western Cape commercial director

Stefanutti Stocks Building Western Cape's annual soccer tournament took place in August 2016, and once again it was a day to be remembered. The division's employees have a reputation for being very active, and the soccer tournament has become one of the most anticipated sporting events of the year.

The well-organised event has grown bigger and better year-on-year, and this year, in addition to the on-field action, a group of well-

trained braaiers catered for the over 100 participants and supporters. Music blared from the speakers and the vibe created by the in-house DJ was as good as any at a professional tournament.

"To say the event is fiercely contested is an understatement," says Brandon Goldsworthy, Stefanutti Stocks Building Western Cape's commercial director. "Teams are made up from our various sites and some of them spend months training and developing strategies that Jose Mourinho would be impressed with!" After a round robin between the seven teams, it came down to a final between the KC (Kenilworth Centre) and Pick 'n Pay/SPAR sites. A tired but happy KC team emerged victors and walked away with their gold medals as well as some other nice prizes sponsored by the division's subcontractors including beanies, scarves, caps, water bottles and sports drinks.

Captions:

1. A table with the sought-after floating trophy and first and second place medals.
2. Some football action!
3. The winning Kenilworth Centre team.



Four Mikes boast an abundance of building experience

Source: Mauro Donato, Stefanutti Stocks Building Western Cape general manager

The name Mike seems to be a popular one in the building industry, in particular down in the Western Cape. "We have four Mikes here who share a wealth of experience between them," says Stefanutti Stocks Building Western Cape's general manager Mauro Donato. "Each of our Mikes has between 35 and 57 years of experience. When we tallied up the numbers, we discovered that our Mikes are collectively worth 171 years of construction experience!"

Caption:

The four Mikes, from left to right: senior contracts manager Mike Purchase who boasts 35 years in the industry; Mike October, maintenance foreman with over 57 years of experience; Mike Thomas, site agent with over 44 years of experience; and senior contracts manager Mike Bradshaw, who has been in the business for over 35 years.



Roads, Pipelines & Mining Services Business Unit

Managing director: Russell Crawford
Tel: +27 11 552 4200

Divisions:

Stefanutti Stocks Roads & Earthworks

Tel: +27 11 552 4200
E-mail: earthworks@stefstocks.com
South Africa - managing director: Russell Crawford
Capabilities:

- Bulk Earthworks.
- Road construction and rehabilitation.
- Crushing and screening.
- Asphalt manufacture and paving.
- Fibre-optic infrastructure.
- Dam construction.
- Mine infrastructure and development.
- Township infrastructure.
- Asphalt paving manufacture.
- Chip and spray seals of bituminous products.
- Slurry seals.
- Demolition.
- Directional drilling.
- Landfill construction and blasting.

Stefanutti Stocks Pipelines

Tel: +27 11 552 4200
E-mail: pipelines@stefstocks.com
General manager: Julian Dovey
Capabilities:

- Large/small diameter welded steel pipe.
- HDPE pipelines.
- Ductile pipelines.
- Oil & gas pipelines.
- Pump, mechanical & electrical installations.
- In situ concrete lining of pipelines.

Stefanutti Stocks Mining Services

Tel: +27 11 552 4200
E-mail: miningservices@stefstocks.com
Managing director: Ian Ferguson
Contract Mining - contracts director: Freddie Strydom
Tailings Management - contracts director: Marco Pasquali
Materials Handling - contracts director: Marco Pasquali
Technical Services - contracts director: Lourens de Koning
Capabilities:

- Design and construction.
- Operations & management of tailing facilities.
- Hydraulic mining.
- Open pit contract mining.
- Mine development and planning service.
- Materials handling.
- Crushing and screening.

General Contractors:

Stefanutti Stocks BOTSWANA

Tel: +267 397 4773
General manager: Shaun Cross

Stefanutti Stocks SWAZILAND

Tel: +268 518 5006
Managing director: Shaun White

Stefanutti Stocks ZAMBIA

Tel: +260 211 285623/4
Managing director: Derek du Plessis

Stefanutti Stocks WEST AFRICA

Tel: +27 83 444 5075
Managing director: Michael Welsch
General contracting capabilities:

- Civil works including water treatment works, reservoirs, bridges, among others.
- Airports.
- Commercial, light industrial (eg factory shells) and heavy industrial (eg. sugar mill infrastructure) buildings.
- Agricultural land development.
- Bulk earthworks.
- Road construction & rehabilitation.
- Dam construction.

Structures Business Unit

Managing director: Werner Jerling
Tel: +27 11 571 4300
Email: structures@stefstocks.com
Capabilities:

- Design and construct solutions.
- Collaborative execution models, i.e. early contractor involvement.
- Co-ordination of multi-disciplinary tenders and projects.
- Tendering and execution of major projects.
- Heavy industrial plants, i.e. mining infrastructure, process plants, factories
- Marine construction.
- Geotechnical investigation and construction.
- Dams.
- Effluent and water treatment plants.
- Structural rehabilitation, concrete repairs and waterproofing.

Divisions:

Civils

Managing director: Mark Stannard
Tel: 27 11 571 4300

Coastal

Managing director: Matthew Horwill
Tel: +27 31 700 1416
Cape Town offices:
Tel: +27 21 386 2610

Geotechnical

Managing director: Shaun Butler
Tel: +27 11 571 4300

Mechanical & Electrical Business Unit

Managing director: Vince Olley
Tel: +27 11 820 4600

Divisions:

Mechanical & Piping - Mining Infrastructure:

Managing director: Marius Botes
Tel: +27 11 820 4600
Capabilities:

- Supply, fabrication and erection of steelwork, plate work, tanks and conveyors (on-surface & underground).
- Supply, installation and corrosion protection of piping including overland lines, pump stations, plant piping and high & low pressure lines (on-surface & underground).
- Installation of mechanical equipment including pumps, thickeners, flotation cells and stacker reclaimers.
- Supply and installation of patented high rate clarifier and sand filters.

Electrical & Instrumentation:

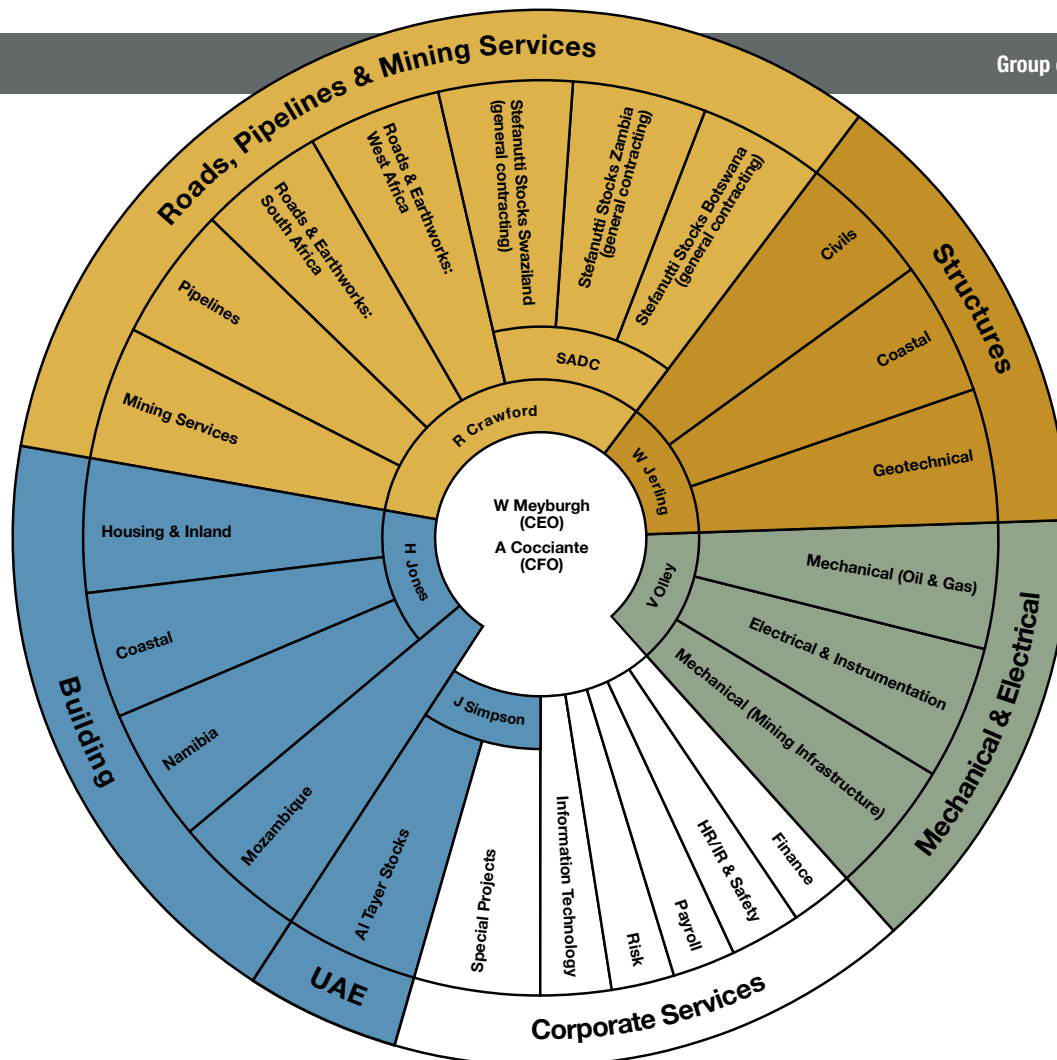
Managing director: Leon Kapp
Tel: +27 11 820 4600
Capabilities:

- Electrical supply, installation and commissioning.
- Instrumentation supply, installation and commissioning.
- Maintenance.
- Sub-stations and switchyards.

Mechanical & Piping - Oil & Gas:

Managing director: Jose Faria
Tel: +27 11 820 4600
Capabilities:

- Structural steel erection.
- Mechanical equipment installation.
- Pipe-spool fabrication.
- Installation of process piping systems.
- Shut down & maintenance.
- Painting, insulation and scaffolding.



Building Business Unit

Managing director: Howard Jones

Tel: +27 11 244 0300

E-mail: building@stefstocks.com

Capabilities:

- Commercial buildings.
- High-rise buildings.
- Industrial & service buildings.
- Property development facilitation.
- Hotels.
- Healthcare facilities.
- Shopping centres.
- Township and residential developments.
- Mass housing, low-cost/affordable housing.
- Community Residential Units (CRU) and co-operatives.
- Social infrastructure.
- Specialist fit-out.

Divisions:

Building Africa (SADC)

Mozambique - managing director: Lucas Labuschagne

Tel: +258 21 471 604/5/6

Namibia - general manager: Stefan Bothma

Tel: +264 64 405 041

Building Coastal (Western Cape, Eastern Cape, KZN)

Managing director: Howard Schwegmann

Tel: +27 31 700 1416

Western Cape - general manager: Mauro Donato

Tel: +27 21 386 6336

Building Inland (Gauteng)

Managing director: Dietmar Scriba

Tel: +27 11 244 0300

Housing

Managing director: Bheki Vilakazi

Tel: 27 11 820 4600

United Arab Emirates

UAE executive: James Simpson

Tel: +971 50 902 2958

Divisions:

Al Tayer Stocks

CEO: Jorge Areosa

Tel: +971 4 503 4888

Al Tayer Stocks is an interior-contracting and niche building firm that provides turnkey contracting solutions in the UAE and Qatar. It undertakes contracts for a wide variety of blue chip clients for the retail, residential, office accommodation and hotel and leisure industries.

Rabban Stefanutti Stocks

Tel: +9714 4444-4045

Rabban Stefanutti Stocks Qatar is a partnership between multidisciplinary construction group Stefanutti Stocks and the diverse Rabban Group and undertakes building construction within Qatar.



if **you** can dream it, we can **construct it**



Multidisciplinary construction group **Stefanutti Stocks** undertakes projects across South Africa, sub-Saharan Africa and the United Arab Emirates. We are committed to achieving nothing less than our mission of **Excellence in Execution** across all of our projects.

We undertake contracts for the following sectors: Building; Bulk Earthworks & Geotechnical; Energy Generation; Industrial Plants, Oil & Gas; Mining & Mining Infrastructure; Transport Infrastructure; and Water, Sanitation & Pipelines.



Tel: +27 11 571 4300 | www.stefanuttistocks.com

Bridging your expectations