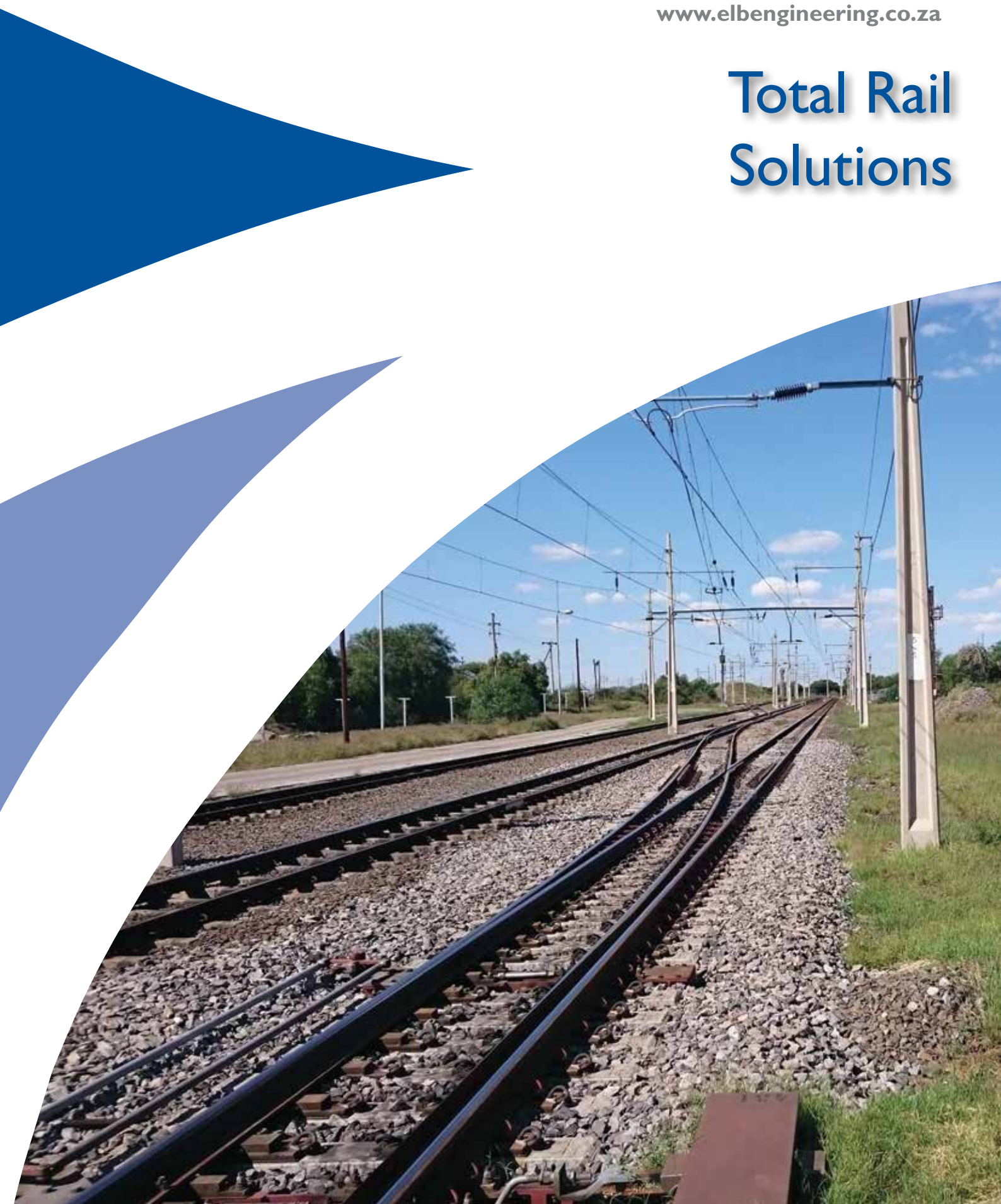




**ELWATINI RAIL SOLUTIONS**

[www.elbengineering.co.za](http://www.elbengineering.co.za)

# Total Rail Solutions





## ABOUT ELB ELWATINI RAIL SOLUTIONS

ELB Elwatini Rail Solutions is a special purpose vehicle formed between ELB Engineering Services (Pty) Ltd and Elwatini Rail Consultants (Pty) Ltd. This venture allows the railway expertise of Elwatini to be offered to the market on a larger scale, based on ELB's proven engineering and project execution ability.

Our comprehensive service offering includes railway feasibility studies, railway planning, railway engineering design, civil design, construction supervision and management, traction power and OHTE design, project management, railway signalling and telecommunications.

From concept development and project implementation to operation and maintenance, ELB Elwatini Rail Solutions offers quality engineering services that benefit Stay in Business and Greenfields operations. Using ELB's internationally accredited quality assurance system, coupled with efficient project management protocols, we ensure that the client receives a consistently high quality and cost effective product.

We tailor our services to the needs of our growing client base, and focus on maintaining and building long term relationships with our clients.

ELB Elwatini Rail Solutions is a level 2 contributor according to Broad Based Black Economic Empowerment.

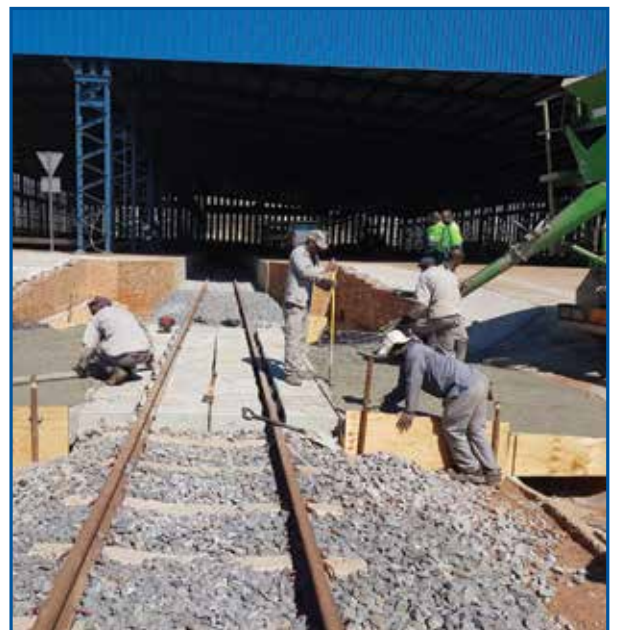
## OUR SERVICES

### CONSULTING SERVICES

ELB Elwatini Rail Solutions has specialist professionally registered staff with experience in civil engineering, electrical engineering, mechanical and rolling stock engineering, signaling and communication engineering, project management and construction management.

Our skills cover freight and passenger railway planning, civil infrastructure and permanent way, overhead traction equipment, power supply and lighting, signalling and telecommunication, mechanical and rolling stock requirements analysis, maintenance management, operations and rail safety services and derailment/train incident investigations.

Our key people have experience as constructors, operators and maintainers of rail systems and infrastructure, therefore our design expertise is backed by practical, hands-on knowledge.





This practical knowledge enables us to add value during all project delivery stages, operations and maintenance by looking at the client's needs and engineering solution holistically.

We see every project as a relationship and we take the time to understand the client and stakeholder requirements, existing infrastructure, operations and resources, so as to provide cost effective and profitable solutions that will differentiate our clients from their competitors.

With detailed planning and implementation strategies we minimize implementation time and therefore impact on daily production and operations.



## **MAINTENANCE PLANNING AND MANAGEMENT**

ELB Elwatini Rail Solutions provides a service in multidisciplinary railway infrastructure planning, maintenance management and execution of maintenance work. We develop and implement maintenance strategies based on the client and stakeholder requirements to ensure that the railway infrastructure meets the current and future business needs. We assist our clients to comply with the country's railway safety laws and the operator's requirements. We partner with experienced contractors in all rail disciplines to execute maintenance work.



## **EPC**

ELB Elwatini Rail Solutions is part of the ELB group which has construction capabilities. We also partner with experienced contractors who specialize in different disciplines of railway infrastructure. This allows us to take responsibility for all project activities covering design, procurement, construction, commissioning and handover to the client or end-user.

## **SURVEYING**

- Railway design surveys
- Railway and civil infrastructure setting out
- Railway as-built surveys.





# RAILWAY PROJECTS – VALUE CHAIN



We structure our projects and processes to meet the client's business needs whether at Stay in Business stage or at Greenfields stage.

## The general value chain we follow is as follows:

- 1) Concept stage
- 2) Prefeasibility study
- 3) Feasibility study
- 4) Execution.

### CONCEPT STAGE

At this stage the following activities are undertaken:

- Identifying business needs
- Develop options and do preliminary layouts
- Analyse flaws that could hinder the success of the project
- Rank options and select preferred options
- Perform a conceptual design
- Generate a preliminary cost estimate
- Produce a report for the client to determine if they will / should proceed with the project.

### PREFEASIBILITY STUDY

At this stage the following activities are undertaken:

- Confirm outputs from concept study
- Desktop study EIA





### **PREFEASIBILITY STUDY (continued)**

- Execute preliminary design of selected options
- Update cost estimate
- Develop preliminary procurement strategy
- Economic evaluation of options
- Select best option
- Produce preliminary schedule
- Produce a report for the client to determine if they will / should proceed with the project.

### **FEASIBILITY STUDY**

At this stage the following activities are undertaken:

- Start environmental and social impact assessment
- Perform basic engineering and train planning
- Pre order critical long lead items
- Undertake execution planning
- Prepare capital estimate
- Develop level 3 schedule
- Generate feasibility report.

### **EXECUTION**

At this stage the following activities are undertaken:

- Generate specifications
- Detailed design
- Procurement
- Construction and construction supervision
- Testing and commissioning
- Close out report.





## TYPICAL RAIL PROJECTS

### MINING ENVIRONMENT

- Bulk material loading rail balloons and sidings
- Loading yards - front end loading
- Drainage and pollution dams
- Haul roads and railway line service roads
- Stockyard / overhead crane rails.

### FREIGHT AND PASSENGER RAIL

#### Infrastructure projects

- Railway civil and permanent way engineering design
- Railway route network planning
- Railway geometric design
- Railway track drainage and erosion protection
- Railway yards and train facilities
- Railway yards pollution control dams
- Bridges, culverts and all track structures
- Track permanent way
- Overhead traction equipment
- Signaling and telecommunication
- Passenger stations.

#### Railway Engineering Planning

- Passenger demand modeling
- Freight demand modeling
- Capacity analysis for the rail system
- Rail infrastructure and rolling stock requirements
- Feasibility and economic studies
- Operation analysis, simulation and analysis.





## ELB MARKET SECTORS

ELB Engineering Services offers a comprehensive service covering materials handling, industrial projects, engineered technologies, construction, electrical control and instrumentation, conveyor maintenance and logistics, intelligent solutions and rail solutions.

Total engineered solutions are based on in-house innovation and expertise, supply of equipment and technology from our world class partners, and integration of the services and products from the ELB Group of companies.



## ZERO HARM

The ELB Health, Safety & the Environment (HSE) policy guides all of ELB Elwatini Rail Solutions activities and operations to minimise risk to employee health and safety as it continuously strives for zero harm. Business processes are certified in compliance with OHSAS 18001. As part of its commitment to a harm-free environment, ELB projects are conducted in a sustainable manner to ensure minimal impact on the environment.



## QUALITY

ELB is committed to meeting and exceeding best practices and standards within the industry. The company is certified for compliance with international quality management standards (ISO 9001) and proactively manages quality control throughout all its own and its sub-contractors' operations using a formal quality assurance procedure.



## PROJECT MANAGEMENT

Leading-edge project-management systems ensure a high level of control over all stages of a project, with cost and time overruns minimised by timeous management techniques. Productive utilisation of project resources is achieved by integrating the entire project process using best-of-breed software for design, engineering, 3D modelling, cost management, planning, materials control and document tracking and control.



## RISK MANAGEMENT

ELB's de-risking capability coordinates the company's collective technical, project execution, construction, financial and relationship building skills, using:

- Structured risk and project management tools that take into account that each project is unique in size, shape, complexity and execution.
- Qualitative and quantitative de-risking methods, supplemented by a broad risk management plan, to continuously evaluate projects in terms of risk from business development to completion and hand-over.

## CONTRACT MANAGEMENT (FLEXIBILITY) AND PROJECT FINANCING

ELB offers flexible contracting options tailored to the requirements of small to mega-sized projects, covering technical audits, studies, EPCM services, turnkey solutions, and life extension and after-sales services.

A project financing facility operates in conjunction with a leading financial institution.



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