R&H RAIL
ELECTRICAL INFRASTRUCTURE

Electrical

MAJUBA RAIL ELECTRIFICATION PROJECT

HOLISTIC RAIL SOLUTIONS

At R&H we understand that the electrical infrastructure. At R&H, we understand that the electrical infrastructure within the railway environment forms an integral part of the multidisciplinary rail solution.
Our approach is to ensure a cost efficient and appropriate result that meets client and Engineering requirements at all times. We achieve this through combining client's needs, technical standards, engineering technology, logistic constraints and operational performance into a balanced integrated system.

This holistic approach requires our electrical design team to integrate with multidisciplinary teams throughout the project phases, ensuring that the optimum solution benefits the overall project infrastructure requirements and long term operational benefits

ELECTRICAL RAIL INFRASTRUCTURE SERVICES

The scope of our electrical rail infrastructure services extends from concept studies through feasibility phases to implementation design, construction management and project close-out. We offer support services to Project Management, Operational Planning, Technology Development, Maintenance Management and Training including:

- Analysis of existing railway systems (brownfields)
- Analysis of geographic conditions (greenfields)
- Feasibility analysis and costing
- Cost efficient solutions for expected asset life-cycles, purpose and conditions
- Designing infrastructure layouts in collaboration with other services
- Selection of appropriate technology

R&H Rail (Pty) Ltd
Established 1950
www.rhrailway.co.za

Electrical

- Influence on or by Perway, Signalling & Telecommunications and Rail Operations
- Considerations of expandability
- Integration into other systems and assets
- System and project specifications and BoQ's
- Procurement processes and tendering
- Construction management
- Condition audits and reporting
- Maintenance management

OVERHEAD TRACK EQUIPMENT (OHTE)

OHTE systems and project specifications, analyses, auditing and design is undertaken based on the numerous and unique systems found in Africa and those used by Transnet, PRASA and the various independent infrastructure owners (Private Sidings).
Services include:

- 3kV DC electrification systems
- 25kV AC electrification systems
- 50kV AC electrification systems
- Fixed and Spring tensioned OHTE systems
- Auto-tensioned OHTE systems
- Catenary and Trolley Wire design
- Capacity determination of electrification systems
- OHTE component applications and development
- "On the Fly" Voltage Change-over system
- Unique wiring applications
- Specialized structure configurations
- 6,6kV and 11kV Signal Power Supply transmission lines
- Power Supply step down points
- Remotely operated telecontrol systems
- Traction Return systems
- Traction power feeding configurations and arrangements
- OHTE wire profiling under bridges
- OHTE switching philosophies and configurations
- Maintenance condition auditing
- DC earthing and bonding studies

TRACTION AND DISTRIBUTION SUBSTATIONS

Specifications, analyses, auditing, system design, procurement and construction management is undertaken for the traction and distribution power supply environment. These include:

- 3kV DC traction substations and tie-stations
- 25kV AC traction substations and Track Sectioning Stations (TSS)
- 50kV AC Track Feeder stations (TFS)
- 11kV and 6,6kV Distribution substations and switching stations
- Traction substation capacity determination and positioning
- Traction substation system requirements
- Provision of new traction and distribution substations
- Utility (Eskom/Municipality) power supply interactions
- Refurbishments and upgrades of existing infrastructure
- Maintenance condition auditing

POWER AND LIGHTING (P&L)

As an integral part of R&H's holistic approach, LV power supplies and infrastructure such as rail yard lighting installations are incorporated into our service where we ensure the following is undertaken:

- Interpretation of client's and statutory illumination requirements
- Systems applications
- Appropriate lighting technology selection
- Yard area lighting and power reticulation design
- Interior lighting and building power distribution design and refurbishment
- Maintenance condition auditing
- Lighting Kiosks design

RECENT PROJECTS

Recent projects where we have provided the above services either as part of the holistic multidisciplinary design effort or as a stand-alone service include:

- Insese 132/11kV AC New Distribution Substation – Design (2018-2019);
- Refurbishment of PRASA's Durban, Booth and Northdene Traction Substations (2018-ongoing);
- Refurbishment of PRASA's Nyanga, Langa and Paarden Eiland Traction and Distribution Substations in Cape Town (2018-ongoing);
- Umgeni - KwaMashu OHTE Rehabilitation, Durban Metrorail Region (2018-ongoing);
- Majuba Rail Project (3kV DC and 25kV AC OHTE) (2016-2019);
- Majuba Rail Project (3kV, 25kV Traction and 11kV Distribution Substations) (2016-2019);
- PRASA Durban Metro Resignalling Project: OHTE and Mains power supplies (2013 to 2018);
- Transnet Overvaal Tunnel FEL3 & FEL4 Study with Aurecon – OHTE (2016-2017);
- Exxaro – Grootegeluk Rail Area Lighting Design and future 25kV AC OHTE (2016-2019);
- OHTE and Lighting Condition assessments for: Sishen KIO mine, Mamatwan, NPC, Implats, Beeshoek, Eskom Palmford line (ongoing);
- OHTE Maintenance Management – Khumani Iron Ore mine / UMK Manganese Mine (ongoing);
- 3kV DC OHTE sidings at Bronkhorstspruit, Argent and Welgedag (2015-2019);
- Ore Line 82.5Mtpa FEL2 Study in association with Aurecon (2012 to 2013); Transnet Capital Projects
- Tweefontein coal loading siding (2010 to 2015); Glencore (previously Xstrata Coal SA)
- Dorstfontein coal loading siding (2009 to 2012); Total Coal SA
- Durban Metro Rehabilitation of Duffs Rd to Umgeni OHTE system (2010); PRASA

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