

**Environmental Impact Assessment: The Proposed Upgrade and new Construction related to the Development of the Swaziland Rail Link Project, From Davel to Nerston in Mpumalanga.**

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Draft Scoping Report

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# Environmental Impact Assessment: The Proposed Upgrade and new Construction related to the Development of the Swaziland Rail Link Project, From Davel to Nerston in Mpumalanga.

## Draft Scoping Report

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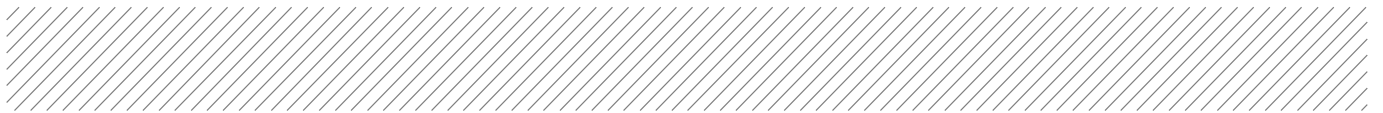
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## **ABBREVIATIONS AND ACRONYMS**

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|              |   |
|--------------|---|
| <b>AEL</b>   | Atmospheric Emission Licence                              |
| <b>AGISA</b> | Accelerated and Shared Growth Initiative for South Africa |
| <b>AQIA</b>  | Air Quality Impact Assessment                             |
| <b>BID</b>   | Background Information Document                           |
| <b>DEA</b>   | Department of Environmental Affairs                       |
| <b>DM</b>    | District Municipality                                     |
| <b>DSR</b>   | Draft Scoping Report                                      |
| <b>DWA</b>   | Department of Water Affairs                               |
| <b>EA</b>    | Environmental Authorisation                               |
| <b>EAP</b>   | Environmental Assessment Practitioner                     |
| <b>ECA</b>   | Environment Conservation Act, 73 of 1989                  |
| <b>ECO</b>   | Environmental Control Officer                             |
| <b>EIA</b>   | Environmental Impact Assessment                           |
| <b>EIR</b>   | Environmental Impact Report                               |
| <b>EIS</b>   | Ecological Importance and Sensitivity                     |
| <b>EMP</b>   | Environmental Management Plan                             |
| <b>ENIA</b>  | Environmental Noise Impact Assessment                     |
| <b>FEL</b>   | Front End Loading   |
| <b>GIS</b>   | Geographic Information System                             |



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|                    |   |
|--------------------|---|
| <b>GNR</b>         | Government Notice   |
| <b>GPS</b>         | Global Positioning System   |
| <b>GVA</b>         | Gross Value Added   |
| <b>HIA</b>         | Heritage Impact Assessment  |
| <b>IDP</b>         | Integrated Development Plan   |
| <b>I&amp;APs</b>   | Interested and Affected Parties   |
| <b>KZN</b>         | KwaZulu-Natal   |
| <b>KZN: DAEARD</b> | KwaZulu-Natal: Department of Agriculture, Environmental Affairs and Rural Development |
| <b>MAP</b>         | Mean Annual Precipitation   |
| <b>LM</b>          | Local Municipality  |
| <b>MAR</b>         | Mean Annual Run-off   |
| <b>MDEDET</b>      | Mpumalanga Department of Economic Development, Environment and Tourism                |
| <b>MEC</b>         | Member of Executive Council   |
| <b>MEGDP</b>       | Mpumalanga Growth and Development Path  |
| <b>MOU</b>         | Memorandum of Understanding   |
| <b>MPGDS</b>       | Mpumalanga Provincial Growth and Development Strategy                                 |
| <b>MRDP</b>        | Mpumalanga Rural Development Programme  |
| <b>Mtpa</b>        | Million tonnes per annum  |
| <b>MTPA</b>        | Mpumalanga Tourism and Parks Agency   |
| <b>NATMAP</b>      | The National Transportation Master Plan 2050  |

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|                |  |
|----------------|--|
| <b>NEMA</b>    | National Environmental Management Act, 107 of 1998       |
| <b>NEM:WA</b>  | National Environmental Management: Waste Act, 59 of 2008 |
| <b>NFEPA</b>   | National Freshwater Ecosystem Priority Atlas             |
| <b>NSD</b>     | Noise Sensitive Development                              |
| <b>NSDP</b>    | National Spatial Development Perspective                 |
| <b>NWA</b>     | National Water Act, 36 of 1998                           |
| <b>PES</b>     | Present Ecological Status                                |
| <b>PLP</b>     | Project Lifecycle Process                                |
| <b>PPP</b>     | Public Participation Process                             |
| <b>PoSfEIA</b> | Plan of Study for Environmental Impact Assessment        |
| <b>SAHRA</b>   | South African Heritage Resource Agency                   |
| <b>SANBI</b>   | South African National Biodiversity Institute            |
| <b>SANRAL</b>  | South African National Roads Agency Limited              |
| <b>SANS</b>    | South African National Standard                          |
| <b>SDF</b>     | Spatial Development Framework                            |
| <b>SEA</b>     | Swaziland Environment Authority                          |
| <b>SG</b>      | Surveyor-General   |
| <b>SOC</b>     | State-Owned Company                                      |
| <b>SR</b>      | Scoping Report   |
| <b>STD</b>     | Sexually Transmitted Disease                             |

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|                 |   |
|-----------------|---|
| <b>Steercom</b> | Steering Committee                      |
| <b>t/axle</b>   | Ton per axle                            |
| <b>VEGRAI</b>   | Riparian Vegetation Response Assessment |

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## GLOSSARY OF TERMS

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|   |   |
|---|---|
| <b>Environment:</b>                           | means the surroundings within which humans exist and that are made up of -<br>(i) the land, water and atmosphere of the earth;<br>(ii) micro-organisms, plant and animal life;<br>(iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and<br>(iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing; |
| <b>Environmental Impact:</b>                  | The direct effect of human activities and natural events on the components of the environment.  |
| <b>Environmental Impact Assessment (EIA):</b> | The process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of a proposed activity on the environment and the surrounding community prior to major decisions being taken and commitments made.  |
| <b>Environmental Management Plan (EMP):</b>   | A document that contains recommendations for the control or management of the potential significant impacts of operations on the environment and recommendations to contain or mitigate actual impacts.   |
| <b>Feasible:</b>                              | Acceptable, capable of being used or implemented successfully, without unacceptably damaging the environment.   |
| <b>Pollution:</b>                             | Any change in the environment which has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.   |
| <b>Public Participation Process:</b>          | A process of involving the public in order to identify needs, address concerns, choose options, inform decision making, plan and monitor in terms of a proposed project, programme or development.  |
| <b>Risk:</b>                                  | The scientific judgement of probability and significance of harm to the environment.  |

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## **DETAILS OF EAP**

### **Dr Pieter Botha**

Project Leader

Dr Pieter Botha holds a DSc from the North West University, Potchefstroom Campus (1981).

Dr Botha joined Aurecon's Environmental Department in May 2010 as a Senior Environmental Practitioner, and has since been involved in various projects. These have included projects such as a Front End Loading (FEL) 1 and 2 studies of the Sishen-Saldanha ore line expansion project, and an Environmental Impact Assessment (EIA) for the Isundu-Mbewu power line project awarded to Aurecon by Eskom and the FEL-1 and 2 studies for the expansion of the Port of Richards Bay.

Following a career of three decades in the public sector, he established his own consultancy with a view to make a contribution in the area of natural resources management, environmental protection and agriculture in respect of policy and legislation formulation and review, as well as the provision of capacity building in the same areas. He has also undertaken and managed a variety of complex land restitution projects for the Commission on Restitution of Land Rights in Mpumalanga and North West Provinces.

Dr Botha has managed various sections and divisions during his tenure in the public sector, and has, in this regard, been responsible for personnel management, financial management and strategic leadership.

Research has formed a vital part of the projects he has been involved in. Dr Botha started his research career as a range management research officer in the Karoo Region and learnt about the dynamics of the arid areas of South Africa and, in particular, the agricultural systems applied in those areas.

He has over three decades of experience in environmental research, policy development and implementation in South Africa, as well as writing various environmental reports. He also has knowledge and experience relating to biodiversity conservation and utilisation in the southern African region. Dr Botha has also been involved in the development and drafting of policy and subsequent legislation in various facets of the environmental field relating to biodiversity conservation, utilisation and rural development.

An important component of his varied expertise is his involvement in the public participation process as a principal element of his diverse projects, engaging with many, different and challenging stakeholders at various different levels of engagement.

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Dr Botha has led or been part of delegations in various international meetings and conferences on behalf of South Africa. This required a comprehensive in-depth knowledge of relevant subjects and policies, as well as good negotiation skills.

Dr Botha is registered as an Environmental Assessment Practitioner with the International Institution for Impact Assessment (South Africa).

A copy of Dr Pieter Botha's CV is attached in **Appendix A (annexure A)**.

## **Mrs Candice Dürr**

Assist in conducting and managing the Environmental Assessment Process. Compilation and submission of the Final EIA and EMP to the relevant authority. Liaise with authorities, stakeholders and specialists. Compilation of the water use licenses for the entire alignment.

BSc Environmental and Biological Sciences, North West University, Potchefstroom Campus (2008). Mrs Dürr is currently a final year Honours student in BSc Environmental Management at the University of Pretoria.

Mrs Dürr's main focus is on environmental management of related issues within a wide range of infrastructure development which includes environmental impact assessments and environmental management plans for listed activities under the various agencies' environmental legislation. To date Mrs Dürr has gained experience on various projects located in South Africa. Mrs Dürr is a qualified Environmental specialist and obtained her Bachelor of Science from the North West University.

A copy of Mrs Candice Dürr's CV is attached in **Appendix A (annexure B)**.

## **Mrs Claudia Neethling**

Assists in conducting and managing the Public Participation (PP) Process as specified in Chapter 6 of the EIA Regulations, 2010. Compilation of all documentation associated with the PP Process. Compilation of stakeholder database and Issues and Response Reports to be included in the Final Scoping Report and the Draft and Final EIA Reports. Responsibilities include liaison with Authorities and affected stakeholders.

Mrs Neethling is registered as an Environmental Assessment Practitioner with the International Association for Impact Assessment (South Africa). She holds a certificate in Environmental Management from the University of Pretoria (2007) and is in the process of acquiring a Bachelor's degree in Language and Literature from the University of South Africa (UNISA).

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She has been active in the environmental industry for close to a decade. Her experience has equipped her with concrete knowledge of environmental procedures and legislation, enabling her to provide accurate advice on environmental queries and guidance on required processes and management of environmental impact assessment (EIA) processes. She has a thorough understanding of the role legislation and authorities, other stakeholders and interest groups have to fulfil in evaluating environmental impacts.

Furthermore Mrs Neethling has been responsible for managing and executing all aspects related to Environmental Management in terms of the National Environmental Management Act, 1998 (107 of 1998) [NEMA] and the Environmental Conservation Act, 1989 (73 of 1989) [ECA]. Her key experience includes environmental impact assessments; basic assessments; environmental management programmes; public participation; due diligence investigations; environmental auditing; authority liaison and conducting visual impact assessments.

A copy of Mrs Caudia Neethling's CV is attached in **Appendix A (annexure C)**.

# 1 INTRODUCTION

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## 1.1 Project Background

Transnet SOC Limited (hereafter referred to as Transnet) is a government (state) owned company (SOC) and is the custodian of South Africa's railway, ports and pipelines, thereby responsible for delivering reliable freight transport and handling services that satisfy customer demand.

As such, Transnet in collaboration with Swaziland Railway identified the construction and upgrade of the railway line between Davel in Mpumalanga and Richards Bay in KwaZulu-Natal, connecting via the Swaziland rail network, as a strategic project. The aim of the project is to unlock the potential of a multinational strategic rail corridor and divert general freight traffic off the dedicated heavy haul Richards Bay coal line.

In terms of the National Environmental Management Act, 107 of 1998 the proposed development triggers activities which may significantly impact on the environment. As a result Transnet requires Environmental Authorisation from the competent authority, the Department of Environmental Affairs (DEA) in collaboration with the Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET) to commence with the development.

The project activities will consist of various works, including the upgrading of existing railway sections (including re-building certain sections), construction of an entirely new rail link from Lothair in South Africa to Sidvokodvo in Swaziland and construction of new rail yards. These proposed works trigger a number of listed activities as specified in the National Environmental Management Act (NEMA), 107 of 1998, the National Water Act (NWA), 36 of 1998 and the National Environmental Management: Waste Act (NEM:WA), 59 of 2008.

Due to the magnitude of the proposed project, which stretches over a distance of approximately 370 km (see figure 1), it was decided that three applications will be compiled as follows:

1. Davel yard and connections, DEA ref no 14/12/16/3/3/2/551;
2. Mpumalanga rail line from Davel to Nerston, DEA ref no 14/12/16/3/3/2/553;
3. Kwa-Zulu Natal railway line from Golela to Nsezi, DEA ref no 14/12/16/3/3/2/552.

Each of the three sections will go through the EIA process separately, although concurrently in order to simplify the public participation process and to reduce any potential confusion. **This report specifically pertains to application 2 as mentioned above, i.e. from Davel to Nerston (ref no: 14/12/16/3/3/2/553).**

Aurecon South Africa (Pty) Ltd was appointed by Transnet to provide environmental services for the Environmental Impact Assessment (EIA) of the proposed Swaziland Rail Link from Davel in Mpumalanga, through Swaziland to Nsezi in Richards Bay (Figure 1).



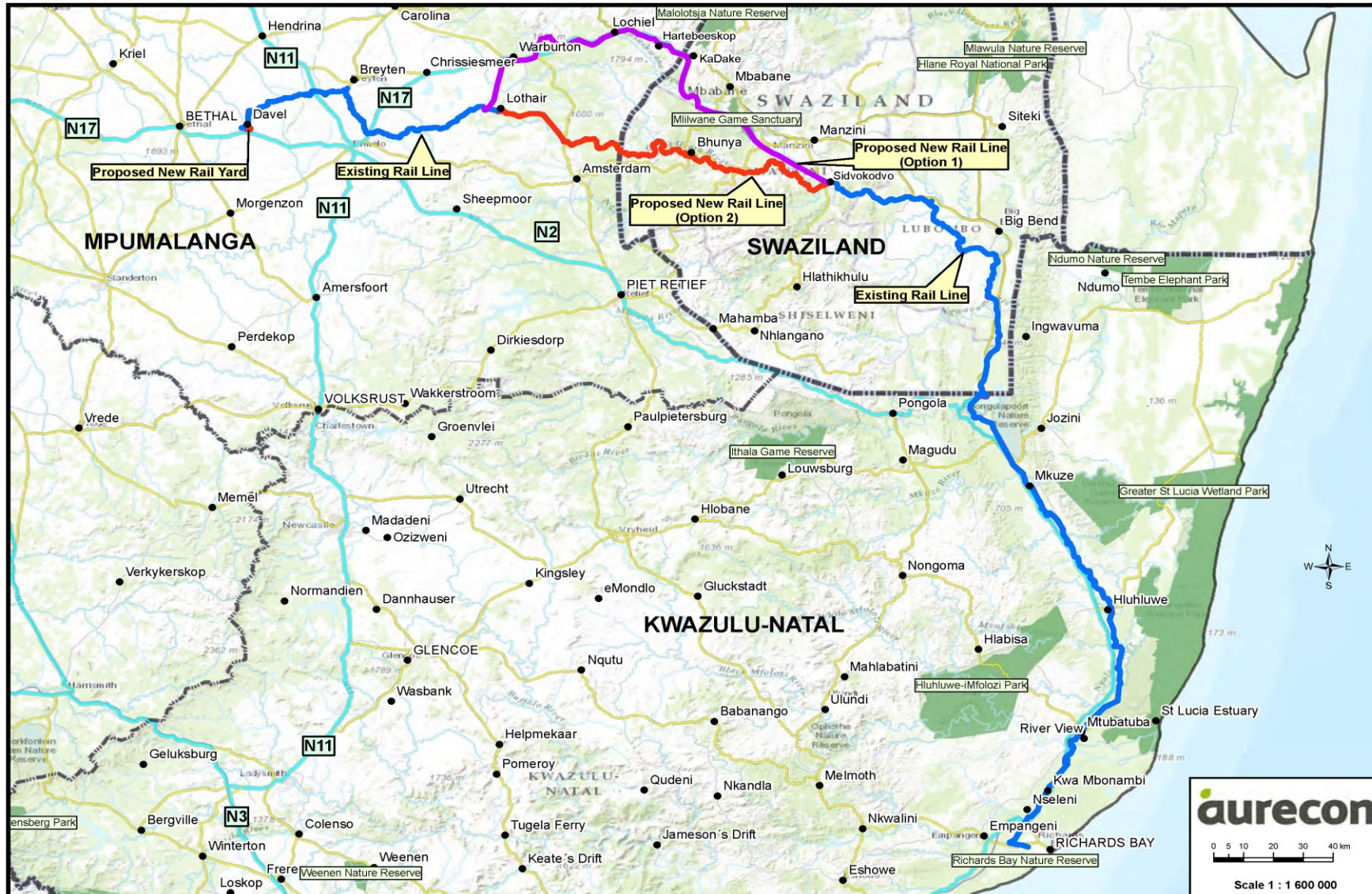


Figure 1: General layout of the entire Swaziland Railway Link from Davel to Nsezi, The red and purple lines indicated the new link alternatives from Lothair to Sidvokodvo. The blue line represents the upgrade and construction sections of the existing railway line.

## 1.2 Need for the Project

Transnet commissioned a concept level study in 2011 to investigate the provision of a new rail link between Lothair (Mpumalanga, South Africa) and a suitable tie-in location along the existing Swaziland railway network. The concept unlocks the potential for a multinational strategic rail corridor, while at the same time relieving pressure from the heavy haul Richards Bay Coal Line and the general freight Eastern Mainline to Maputo.

Regional support for this project was confirmed by the signing of the Inter-Governmental Memorandum of Understanding (MOU) between the South African and Swaziland governments on 2 August 2012. The signing of the Inter Rail MOU by Transnet and Swaziland Railway on 23 November 2012 cemented the relationship at business and technical levels.

A Memorandum of Understanding (MOU) at inter-Governmental level between South Africa (represented by the Department of Public Enterprises) and the Kingdom of Swaziland (represented by the Department of Transport):

- The MOU addresses the governance of a number of matters of commercial interest to both parties, including the Swaziland Rail Link project.
- Multinational governance is vested in an Executive Steering Committee (Steercom).
- A Memorandum of Understanding at inter-Railway level between South Africa (Transnet) and the Kingdom of Swaziland (Swaziland Railway).
- The MOU cements the areas addressed in terms of the project structure, governance and accountability at Management (policy, control and governance) levels as well as the functional and discipline-specific fields described in terms of Project work streams.
- Inter-railway governance is vested in an inter-railway Steercom.

Inter-Governmental and inter-Railway has been practiced in the development stage through:

- Inter-government meeting and cooperation, culminating in the formal signing of the MOU on August 2012.
- Media presentations in South Africa and Swaziland.
- Inter-railway Steercom and joint Project Steercom meetings on a regular basis.
- Inter-railway workshops and work stream technical collaboration meeting in South Africa as well as Swaziland.

The creation of a strategic link between South Africa and the export ports of Richards Bay, and Maputo through Swaziland has been found to be technically feasible, with certain risks attached.

The additional demand on parts of the network brought about by increases in traffic volume from sources other than Mpumalanga and central Gauteng make upgrades of the network a critical planning driver. Network upgrades required to achieve the full capacity potential of the project are critical, extensive and expensive. Refined estimates for all network upgrades indicate a cost of approximately ZAR 12 230 million.

The project holds significant advantages in relieving the general freight bound pressure on the Richards Bay coal line. It provides a strategic link to congested South African export ports, as well as encouraging economic and rail transport growth in Swaziland, thus in turn reducing the need for road transport and minimising damage to roads from heavy vehicles.

### 1.3 Proposed alignment alternatives for the Swaziland Railway Link Project

Initial concept-level routes identified for a possible South Africa-Swaziland link as per the Transnet Group Planning's Swaziland Rail Link FEL-2 Study are provided in Figure 2. Due to the fact that the project will aim to stay within the boundaries of the existing Transnet servitude from Davel to Lothair and from Golela to Nsezi, the alternative routes being considered during the EIA are only for the envisaged **new rail link** from Lothair with the existing Swaziland railway network as seen in Figure 2. Therefore, the alternative routes under consideration at concept level were the following four possible connections to the Swaziland Railway network:

- New route option 1: Lothair to Ka Dake with the possibility of resuscitating the Ka Dake to Matsapha line and upgrading of the section from Matsapha to Phuzumoya Junction
- New route option 2: New line from Lothair to Matsapha and upgrading of the Matsapha to Phuzumoya Junction
- New route option 3: New line direct from Lothair to Phuzumoya Junction
- New route option 4: New line direct from Lothair to Mpaka
- Mpaka to Maputo was also considered, however Transnet decided that this option would be revisited at a later stage and is thus not part of this project.



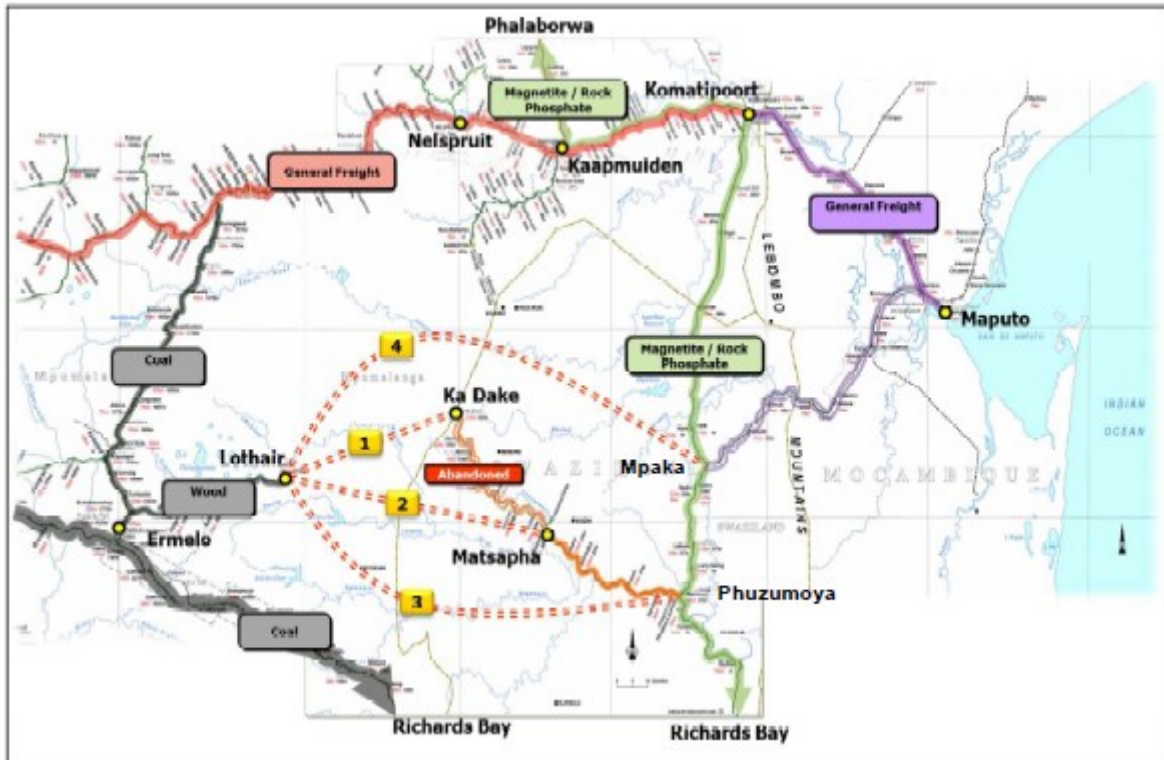


Figure 2: Initial alternative routes identified for the Swaziland Railway Link alignment

The alternatives for the **upgrading of existing lines** were not considered due to the fact that such upgrades are existing infrastructure and will be kept inside the Transnet rail reserves. However, as a result of the increase in the axle tonnages to a 26 ton axle (i.e. a stronger railway line to accommodate a heavier 200 wagon train) which prevent the railway line from making steep turns, certain servitude boundaries (especially around bends) will be exceeded at times. Note that while the entire route alternative is explained, **this report only pertains to the section from Davel to the Swaziland Border in Mpumalanga**. Davel to Lothair will consist of various upgrade construction activities, whilst Lothair to the Swaziland Border is envisaged as a new railway line to be constructed (i.e. not in an existing servitude).

Therefore, the four “new route options” as set out above were considered as the alternatives for the entire Swaziland Railway Link project.

### 1.3.1 Concept level assessments

To ascertain whether the above mentioned four new route alternatives would be feasible, the following approach and methodology was adopted:

#### Approach

The study comprised a high-level investigation of available literature and data (including mapping) for the four routes in order to identify environmental fatal flaws, considerations and possible constraints.

### Methodology

The four new route options for the possible connection of the Swaziland Railway network were overlaid on available Geographic Information Systems (GIS) maps of South Africa and Swaziland including protected areas, perennial rivers and inland water bodies, plantations, towns and urban and rural settlements. This information was supplemented by satellite imagery. Additional information on proposed protected areas and vegetation types was also utilised.

Apart from noting areas of concern as per the overlaid maps, available literature was researched with respect to environmental sensitivities identified within the study area.

Where possible, the alignment was compared with any georeferenced information available in the literature.

### Conclusion

Utilising available information such as possible freight demand projections, land use, geological topographical and existing infrastructure maps, geotechnical investigations, land surveys, early pre-feasibility assessments conducted by Transnet and the appointed engineering consultancy firms deemed new route options 3 and 4 technically and financially unfeasible. As such, these two options were disregarded for further assessment and will not be looked at during the EIA process.

On the basis of the above findings being included and approved in the feasibility level report, only the two potential new route options 1 and 2 as mentioned below were taken forward for further study, namely:

- New route option 1: A new line from Lothair to Ka Dake with the possibility of resuscitating the Ka Dake to Matsapha section and the upgrade of the existing Matsapha to Phuzumoya line; or,
- New route option 2: A new line from Lothair to Sidvokodvo (and the upgrade of the existing section to Phuzumoya Junction).

To ensure all options were taken into account, variables on both of these two new route options were considered as well.

### 1.3.2 Alternative option for new route 1

#### Route option 1A – Restore the *status quo*

A variant on route option 1, namely to merely reinstate the Ka Dake to Matsapha section to its former alignment geometry and not carry out any upgrading between Matsapha and Sidvokodvo could be considered.

The consequences of such an option would be that the section would only carry 40 wagon trains or 40 % of the potential traffic load. This in turn affects the viability of Route Option 1, since this ruling train length and load applies to the whole corridor envisaged under Route Option 1. This constraint when viewed from a system perspective is deemed to constitute a project variance of such significance as to constitute a fatal flaw in the option.

### 1.3.3 Alternative option for new route 2

#### Route option 2A – New route with spur line from Sidvokodvo to Ka Dake

Coupled to route option 2 (new link between Lothair and Sidvokodvo), the possibility exists to reinstate and upgrade the Ka Dake to Matsapha and Matsapha to Sidvokodvo sections respectively. This would serve as a self-contained spur line, if and when commercial imperatives render this necessary. This implies restoring the *status quo* and reverting to a shuttle service method of train operation and traffic planning practised previously when the Ngwenya mine was in operation.

The work comprises reinstatement and upgrading work according to the existing alignment with no external deviation or easing of curves and grades, in this sensitive environment. By implication:

- The line operates as a spur (40 / 50 wagon trains) at 20 t / axle;
- The lower capacity of the spur does not affect the capacity of the export corridors planned from Lothair to Richards Bay or Maputo, since mainline standard traffic does not travel across it;
- Sidvokodvo functions as a consolidation yard for Ka Dake traffic, roughly as in the past;
- From Sidvokodvo, Ka Dake traffic could be consolidated into longer freight haul (maximum 100 wagon consists) consigned to Maputo or Richards Bay. This economy of scale, albeit at a lighter axle load, was not available previously on the existing, non – upgraded Sidvokodvo to Phuzumoya section linking to the Swaziland Rail north – south line; and
- Work associated with Route Option 2 in no way sterilises the potential implementation of Option 2A. Network planning in and around Sidvokodvo can be readily adapted to cater for this eventuality.
- Option 2A can be implemented if and when the commercial demand warrants the investment. However, the current development does not include the further implementation of this option.

## 1.4 Project Location

The project runs along the existing Transnet railway line from the Davel yard to Lothair and from there along a new corridor to the Swaziland border as in the options detailed above. The alignment is proposed within the jurisdictional boundaries of the Msukuligwa and Mkhondo municipalities.

## 2 BASELINE ENVIRONMENTAL DESCRIPTION

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### 2.1 Physical environment

#### 2.1.1 Climate

Mucina and Rutherford (2006) describe the climate in the four regional vegetation types present along the rail line route (Figure 3), as follows:

- Soweto Highveld Grassland (GM 8): Summer rainfall area with a mean annual rainfall (MAR) of 662 mm and cool-temperate climate with high extremes between maximum summer and minimum winter temperatures, with frequent occurrence of frost (mean number of frost days 41) and large thermal diurnal differences especially in autumn and spring.
- Eastern Temperate Freshwater Wetland (Azona – Azf 3): Exclusively summer-rainfall region with a mean annual precipitation (MAP) range of 421 – 915 mm. Cool-temperate pattern with mean annual temperature (MAT) ranging between 12.6 °C and 16.7 °C. Due to high elevation, frost is a frequent phenomenon.
- Eastern Highveld Grassland (Gm 12): Strong seasonal summer rainfall, with very dry winters. The MAP is 650 – 900mm and the overall average 726 mm and spread relatively uniformly across the region. The incidence of frost is between 13 and 42 days per annum.
- KaNgwane Montane Grassland (Gm 16): Early summer rainfall with a MAP of 910 mm. The frequency of frost varies between 3 and 20 days per annum. The area has a cool-temperate pattern with a MAT ranging between 12.6 °C and 16.7 °C. Due to the high elevation frost is a common occurrence.

#### 2.1.2 Topography

The terrestrial topography can be described as slightly irregular undulating plains and hills.

#### 2.1.3 Noise and vibration

Enviro-Acoustic Research was appointed by Aurecon to conduct the noise and vibration assessment for the entire proposed Swaziland Railway link alignment. The specialist input report compiled for this scoping report can be found in Annexure H of Appendix B. In summary, the report concludes the following:

The preliminary noise assessment indicated that the proposed project could have a significant



impact on the noise climate of the surrounding area as there are noise-sensitive developments within the area of influence of the railway line. The main factor that will determine the potential noise impact is the distance that the noise-generating activities would be from a noise sensitive development (NSD), the type of activities taking place, the speed of the locomotives, the existing ambient soundscape at receptors dwellings, as well as the likely noise abatement measures to be implemented.

It is therefore recommended that the potential noise impact associated with the proposed Davel to Nerston railway line be investigated in more detail in the Environmental Impact Assessment phase.

## 2.2 Biophysical environment

The present day land use around the route is characterised by rural urban development, rural informal development, subsistence agriculture (cattle), large scale commercial crop production, commercial forestry and areas containing waterbodies such as rivers, wetlands and endorheic pans (depressions) (Figure 3).

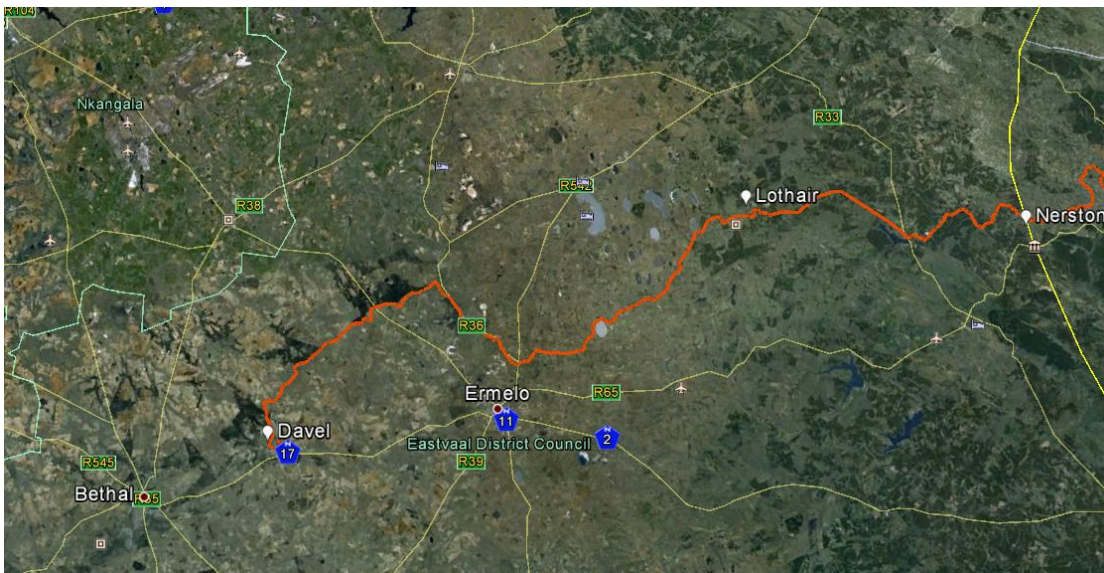


Figure 3: The Davel to Nerston line (orange).

The study area is dominated by a mixture of urban and rural housing, forestry and agriculture, with the associated infrastructure such as roads, dams and the present rail network.

### 2.2.1 Aquatic environment

Scherman Colloty & Associates was appointed by Aurecon to conduct the ecological assessment for the entire proposed Swaziland Rail link alignment. The specialist input report compiled for this scoping report can be found in Annexure B of Appendix B. In summary, this scoping report concludes the following:

The Davel to Nerston line for the most part falls along the Upper Vaal and Olifants rivers catchment divide and both of these catchments contain numerous small streams / rivers and the



endorheic pans (Figure 4). All of these systems have been classified as part of the National Freshwater Ecosystem Priority Atlas (NFEPA) project (Nel *et al.*, 2012).

The majority of the wetlands within the study area have been shown to be natural, and form part of the important Highveld Grassland Wetland Cluster. However some of these would be considered modified and thus have a conservation rating score of Z1 or Z2, i.e. low conservation importance. The remaining natural wetland areas associated with the local streams and pans were mostly rated as A/B or C, i.e. Pristine to moderately modified or largely modified respectively (Nel *et al.*, 2012).

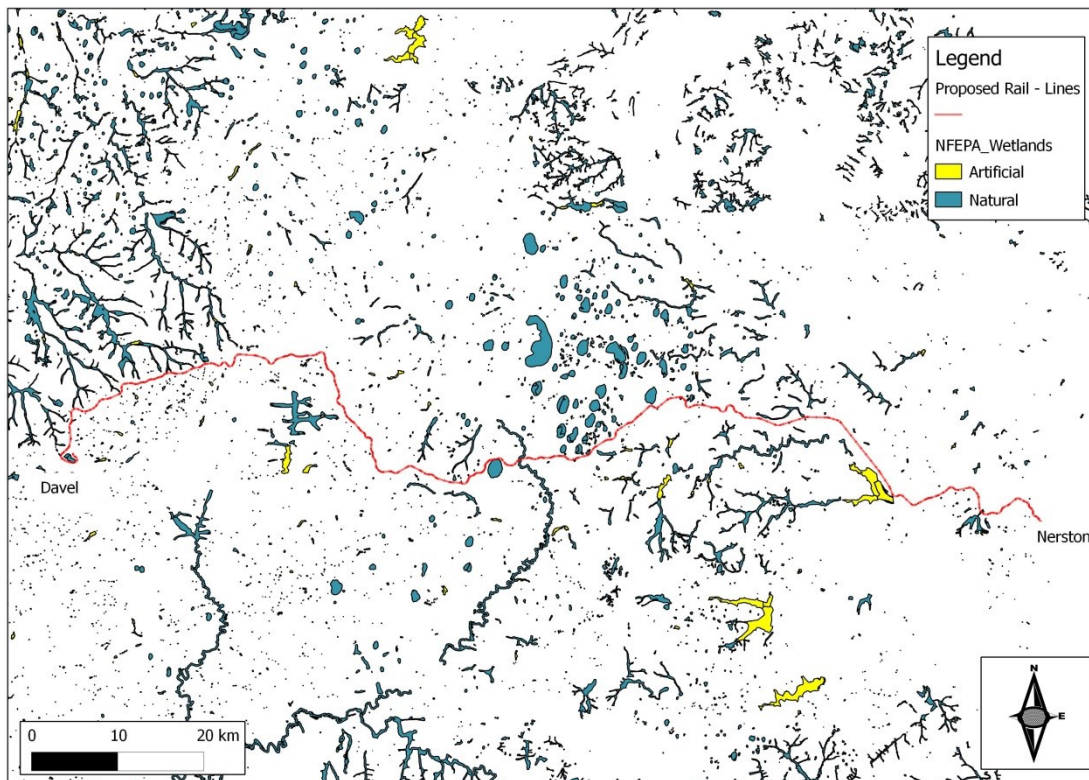


Figure 4: A map illustrating the major rivers and wetlands areas within the study region.

Aurecon also appointed Limosella Consulting to conduct the wetland / riparian assessments for the entire proposed Swaziland Railway link alignment. The specialist input report compiled for the scoping report can be found in Annexure A of Appendix B. In summary, the report concludes the following:

Eighty one (81) non-perennial and seven (7) perennial watercourses cross the existing, as well as the proposed 35m wide railway corridors. These watercourses form the basis for identifying potential wetland and riparian areas to be investigated during field surveys. These alignments, including the footprints of access roads, crew camps, borrow pits, refuelling yards, maintenance and/or passing loops will be extensively surveyed to identify all wetlands and riparian areas within 500m of the proposed activity footprints. Relevant functional and integrity assessments will be conducted based on the findings of the site survey. The findings of these assessments will be included in the EIA report.

## 2.2.2 Fauna

In a desktop assessment of various taxonomic databases approximately 70 known fish and invertebrate species are expected to occur within the region, while mammals and herpetofauna (snakes and frogs) possibly contribute another 10 – 20 species. The expected bird species within the study area is expected to be around 50 – 190 species depending on the type of available habitat within the study area.

During the EIA site visit attention will be paid to presence/absence of several butterfly, mammal and bird species that may be associated with the surrounding habitats, which may have conservation concern. Although the likelihood of these species occurring is low due to the presence of the railway and associated infrastructure, the following species, amongst others will be searched for:

Table 1: Red data species which might be present on site.

| Species   | Red Data Status | Preferred Habitat   |
|---|-----------------|---|
| <b>BIRDS</b>  |                 |   |
| <b><i>Anthropoides paradiseus</i></b><br>(Blue Crane)           | Vulnerable      | Prefers open pristine grasslands, as well as wetland habitats.  |
| <b><i>Circus macrourus</i></b><br>(Pallid Harrier)              | Near-threatened | Considered a vagrant to South Africa.   |
| <b><i>Circus ranivorus</i></b><br>(African Marsh Harrier)       | Vulnerable      | Restricted to permanent wetlands with extensive reedbeds.   |
| <b><i>Circus maurus</i></b><br>(Black Harrier)                  | Near-threatened | Generally confined to the clay grassland of the southern part of Mpumalanga                           |
| <b><i>Eupodotis senegalensis</i></b><br>(White-bellied Korhaan) | Vulnerable      | Prefers transitional habitat between grassland and savanna.   |
| <b><i>Eupodotis caerulescens</i></b><br>(Blue Korhaan)          | Near-threatened | Prefers extensive open short grassland and cultivated land.   |
| <b><i>Falco naumanni</i></b><br>(Lesser Kestrel)                | Vulnerable      | The open grassland patches provide foraging habitat.  |
| <b><i>Geronticus calvus</i></b><br>(Southern Bald Ibis)         | Vulnerable      | A species restricted to montane grassland (especially when burned) and breed/nest on steep cliffs.    |
| <b><i>Glareola nordmanni</i></b><br>(Black-winged Pratincole)   | Near-threatened | A species of extensive open grassland, usually near wetlands. Often forages over agricultural fields. |
| <b><i>Mycteria ibis</i></b><br>(Yellow-billed Stork)            | Near-threatened | Prefers shoreline habitat bordering large impoundments and extensive wetland systems.                 |
| <b><i>Phoenicopterus minor</i></b><br>(Lesser Flamingo)         | Near-threatened | Restricted to large alkaline pans and other inland water bodies.                                      |
| <b><i>Phoenicopterus ruber</i></b><br>(Greater Flamingo)        | Near-threatened | Restricted to large saline pans and other inland water bodies.  |
| <b><i>Sagittarius serpentarius</i></b><br>(Secretary bird)      | Near-threatened | Prefers open grassland or lightly wooded habitat.   |

|  |            |   |
|--|------------|---|
| <b><i>Tyto capensis</i></b><br><b>(African Grass Owl)</b>          | Vulnerable | Prefers rank moist grassland that borders drainage lines or wetlands. |
| <b>Invertebrates</b>   |            |   |
| <b><i>Metisella meninx</i></b><br><b>(Marsh Slyph) - butterfly</b> | Vulnerable | Wetland grasslands containing <i>Leersia hexandra</i>                 |
| <b>Herpetofauna</b>  |            |   |
| <b><i>Acontias g. gracilicauda</i></b>                             | Rare       | Burrows underground   |

### 2.2.3 Flora

According to the Mucina and Rutherford (2006) Vegmap, four regional vegetation types are present along the rail line route (Figure 5). These include:

- Soweto Highveld Grassland (Gm 8)
- Eastern Temperate Freshwater Wetland (Azona – Azf 3)
- Eastern Highveld Grassland (Gm 12)
- KaNgwane Montane Grassland (Gm 16)

The National Environmental Management: Biodiversity Act, 10 of 2004, lists 225 threatened ecosystems based on vegetation type (Vegmap). All four vegetation types present along the rail alignment are listed by this Act as Vulnerable. Therefore as a minimum, the Act stipulates that a Basic Assessment must be conducted when an activity is proposed within these ecosystems.

Present maps only indicate the original extent of these ecosystems, therefore the assessment of these ecosystems, their current extent and status will form a major focus of the EIA field visit, especially since the majority of the study region has been transformed to some degree. Therefore it is imperative that any remaining functional habitats are properly identified, in order to minimise any further impact to these areas.

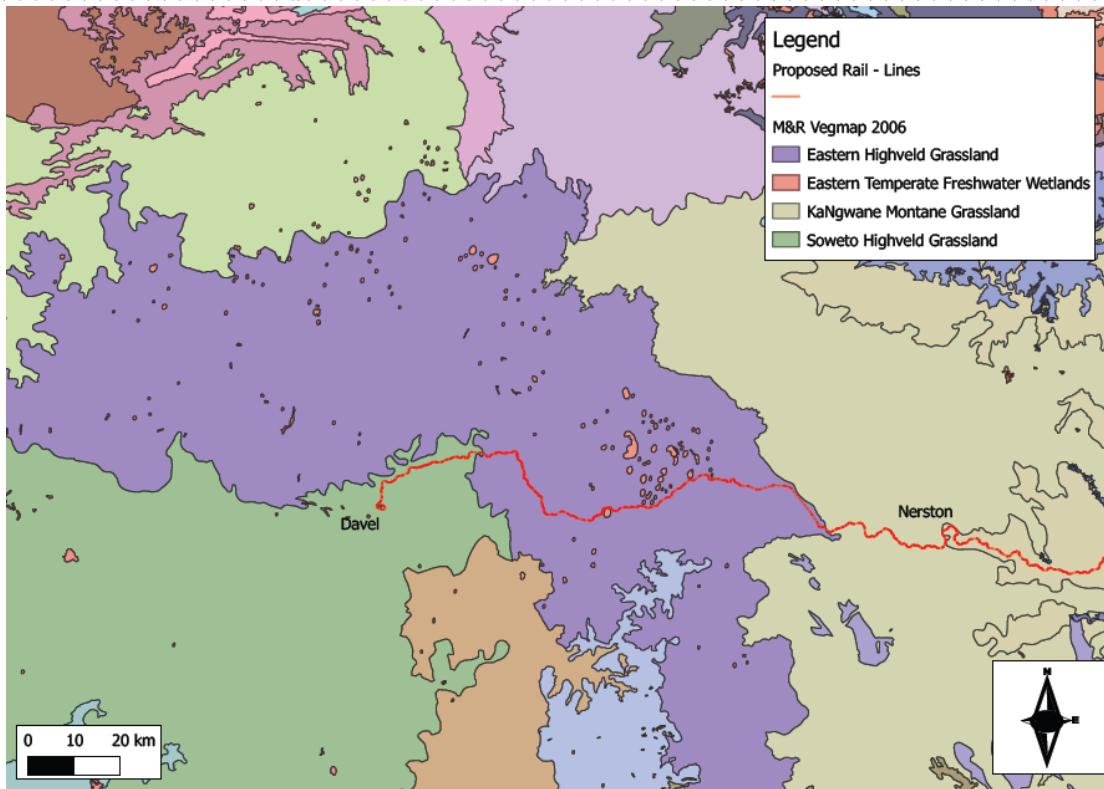


Figure 5: The Davel to Nerston line in relation to the regional vegetation types as defined by Mucina & Rutherford (2006).

## 2.3 Social environment

### 2.3.1 Policy stand and implications

a. High level effect of strategic policy interventions

The Gert Sibande District Municipality is currently embarking the following model for development and investment in terms of its policy directives. The table below provides a high-level district wide summary of the intended impact of the strategic policy interventions set out in the Municipal SDF and IDP.

Table 2: Policy Implications

| Policy Drive   | Areas  | Implication   |
|--|--|---|
| <b>Bulk Infrastructure development in service priority areas</b> | These are predominantly areas in the district without formal services. They are township areas and informal settlement area. | Improvement in service infrastructure allows for a delivery agent to deliver services in a more sustainable way. This is set to improve overall service delivery within the area. |
| <b>Core area mixed use development</b>                           | These are relatively denser areas with diverse land uses.  | Mixed use developments increase building densities in areas providing for an economical way of delivering   |

| Policy Drive  | Areas  | Implication  |
|---|--|--|
|   |  | services. They reduce the cost of travel time as everything is concentrated. People have more income to drive other sectors.   |
| <b>Housing development of different typologies</b>                        | These are typically in areas where there are opportunities for infill developments. These are generally inner city and low density residential areas in close proximity to prosperous economic areas | Housing typologies provide for a diverse range of housing stock options to select from. With inclusion of subsidized social housing, the low income citizens can also increase their asset base.   |
| <b>Maintenance priority where services already exist</b>                  | Former white and/or Indian residential areas where services are already in place.  | Serviced stands are subject to rates and taxes which is a crucial source of a local authorities' revenue base. This essentially gives them money to spend in other areas improving the overall area.   |
| <b>Conservation</b>   | Areas of cultural and natural significance which are sparsely located in the Gert Sibande District.  | Conservation safeguards encroachment of physical development into significant natural areas which protects the natural environment. It also preserves the likes of aquaculture which is crucial to the livelihood of the local inhabitants. Ecotourism is also |
| <b>Corridor Development</b>   | Strategic corridor development which are narrowly focused on lines that serve link nodal points.   | Improved accessibility to major destination points, which facilitates better regional trade impacting socio-economic development.  |
| <b>Nodal Development</b>  | Strategic nodal developments which encompass a wide variety of economic and social activities within a concentrated radius.  | These are crucial areas of economic and social activity which subsequently employ a large number of the local inhabitants.   |
| <b>Economic Clusters (Agricultural, forestry and industrial clusters)</b> | It is done in areas which have a specialization in a specific cluster of the economy.  | So as to promote the economic value derived from each.   |
| <b>Mining Development</b>   | These are generally open cast areas with coal deposits.  | A focused policy intervention on mining will drive the mining sector which is one of the major sectors in the Gert Sibande District  |



| Policy Drive | Areas | Implication   |
|--------------|-------|---------------|
|              |       | Municipality. |

A range of national, provincial and local development policies and plans exist to guide and direct development in South Africa. The Gert Sibande DM SDF and IDP highlight several policies, guidelines and strategies which are of particular importance in the development of the DM.

The following sections will briefly describe the extent to which the proposed rail development will contribute to these development initiatives:

The National Spatial Development Perspective (NSDP)

The NDSP defines a number of guidelines of infrastructure investment in South Africa, and argues that in order to achieve the socio-economic objectives:

- Areas displaying significant economic development potential should be the focus of more extensive infrastructure spending.
- Development opportunities should be channelled into activity corridors and nodes that are adjacent to, or link the main growth centres (Gert Sibande District Municipality, 2009).

The main areas surrounding the proposed rail line displays both high levels of economic potential as well as relatively high levels of poverty. According to the development guidelines these areas should be the focus of more extensive infrastructure spending, justifying the development of the Swazi-rail link.

The Accelerated and Shared Growth Initiative for South Africa (ASGISA)

ASGISA has identified a series of decisive national interventions to ensure that South Africa achieves the set growth rate (6%) needed to meet its social objectives (Gert Sibande District Municipality , 2009).

The Swazi-Rail link can be regarded as a nationally significant infrastructure project, situated partly in Mpumalanga, and therefore impacts four of the six categories namely infrastructure programmes, sector investment (or industrial) strategies, second economy interventions, and macro-economic issues.

Other province related goals associated with AGISA that the Swazi-rail link contributes to include:

- Improving the availability and reliability of infrastructural services.
- Maximum exploitation of agricultural potential and opportunities.

Mpumalanga Rural Development Programme (MRDP)

The main objective of the Programme is to contribute towards an “**improvement of the social and economic situation of the rural poor.**” In the programme great emphasis is placed on promoting mining, agriculture and tourism development (Gert Sibande District Municipality, 2009). It is believed that the development of the Swazi Rail link will stimulate the agriculture and mining sector further, due to the increased access to distribution channels that will be provided by the rail line.

### The National Transportation Master Plan 2050 (NATMAP)

The main purpose of the National Transportation Master Plan 2005-2050 is to motivate a prioritised programme of interventions to upgrade the transport system in South Africa. Its goal is develop a dynamic, long-term, and sustainable land use / multi-modal transportation systems framework for the development of networks, infrastructure facilities, interchange and termini facilities and service delivery strategies for South Africa. NATMAP greatly promotes:

- Greater emphasis on developing rail as a transportation medium, rather than road-based modes in South Africa.
- Greater integration between land use development and transportation planning should be achieved via ensuring that land development is concentrated in and around transport corridors, and that corridors are orientated towards providing sustainable rail transport rather than road-based transport modes (Gert Sibande District Municipality, 2009).

It is evident that the Swazi Rail link directly contributes to the achievement of both these aims.

### Mpumalanga Growth and Development Path (MEGDP)

The primary objective of the Mpumalanga Economic Growth and Development Path (MEGDP) is to foster economic growth that creates jobs, and reduce poverty and inequality in the Province. The main focus areas are agriculture and forestry, mining and energy, manufacturing and beneficiation, and tourism and cultural industries. All of these industries rely on infrastructure development for their own growth and development, and therefore can infrastructure development such as the Swazi Rail link contribute significantly to unlock opportunities for economic growth and development, especially in the mining, energy, agriculture and forestry industry, as well as job creation (Gert Sibande District Municipality, 2012).

Mpumalanga is also strategically located for regional and international trade, investment and tourism opportunities. Infrastructure between Gert Sibande and Swaziland is however imperative to facilitate trade and other economic opportunities. The Swazi rail link will therefore directly contribute to the economic development of the Gert Sibande DM by providing a direct link between the DM and Swaziland.

### Mpumalanga Provincial Growth and Development Strategy (MPGDS)

It is believed that the proposed rail link will directly address two of the six priority areas of the Mpumalanga Provincial Growth and Development Strategy that will be addressed through the development of the Swazi Rail link is:

- **Economic development** - through investment, job creation and business development; and
- **Infrastructure Development** - Future settlement and economic development opportunities should be channelled into nodes and corridors (Gert Sibande District Municipality, 2009).

In addition to this it will also contribute to the broadening of the economic base by strengthening

Transnet Swaziland Railway Link – Davel to Nerston  
the north-south linkages of the province.

### Gert Sibande Growth and Development Strategy

The intention of this strategy is to help guide the development of the District by consolidating and exploiting its natural resources and development opportunities, and to assist all role players in helping to growth the District's economy (Gert Sibande District Municipality, 2009).

The strategic focus areas that the proposed link development will directly affect are:

- **Spatial Development Initiatives** – The proposed rail link promote the growth of the economic development nodes of the province, which will benefit the down-stream supply of products in the mining, agriculture and petrochemical nodes. The priority states that “focus will be placed on exploring possible partnerships and infrastructure investments needed to act as catalyst for industrial growth and development”. The proposed rail link is a direct solution to this statement.
- **Local Economic Development and Growth** – It is anticipated that the proposed rail link will contribute to local economic development and growth.

• **Agriculture, Forestry, Manufacturing and Mining** – The strategy states that the District will facilitate and actively promote investment opportunities in downstream opportunities of its raw materials within agriculture, forestry, manufacturing / petrochemicals, and mining sectors. The development of the rail link is directly related to this strategy.

### Gert Sibande IDP Priority Issues

The development guidelines from the Gert Sibande IDP that is directly related to the Swazi rail link development are:

- To provide infrastructure that will create an environment that is conducive to economic growth and development.
- To ensure comprehensive transport planning in support of economic growth and development.

### Conclusion

From the above section it can be deduced that the development of the Swazi Rail link will primarily contribute to achieving the economic goals of the province, and more specifically the Gert Sibande district, that is believed to be achieved through infrastructure development. However, this is believed to provide new employment opportunities that will have secondary social benefits such as poverty alleviation and community upliftment.

#### b. District Municipality Development Initiatives

From the SDF and IDP several major development initiatives were also identified that may directly affect the current socio-economic profile of the population and be directly affected by the proposed rail link.



## Mining

The Gert Sibande DM SDF highlights two mining projects that are being planned for the District, namely:

- The 4,000-hectare Sterkfontein project has the potential to be developed as an underground mine. Evaluation of drilling results conducted in August 2008 indicates that Sterkfontein has a total in-situ mineable coal resource of 34.8 Mt., yielding 50% export and 33% domestic steam coal. Three resource areas have been identified, namely North 1, North 2, and South. It is envisioned that the north areas combined, and the south area would respectively support shaft complexes.
- Amalahle Exploration (Pty) Limited, a 74%-held subsidiary of Keaton Energy, was granted four separate exploration rights by the Department of Minerals and Energy (DME). The exploration rights cover six discrete properties totaling approximately 1,600 hectares in the Ermelo coal field (Gert Sibande District Municipality, 2009).

New mining developments will have a direct impact on the socio-economic profile of the district population, since it can be expected to generate a large amount of employment opportunities. It will most likely also affect the settlement patterns resulting in new developments in the vicinity of the mine.

The proposed rail link will provide a direct benefit to the mines due to the lower cost associated with the bulk transport of freight via rail as compared to road transport. This will subsequently also have secondary positive effects on the economy due to less road traffic.

## Infrastructure

The construction of a new rail line has also recently commenced and will connect Ermelo to the Majuba power station near Amersfoort via rail. The primary purpose of this rail line is to divert road traffic to rail. The SDF further states that the use of rail to transport coal has increased in the last number of years as mines have been constructing their own sidings to link into the Richards Bay coal line. The more extensive use of rail transport can potentially play a vital role to increase the sustainability of the road system in the municipality. In this regard ESKOM identified the construction of a new heavy haul rail line from Ermelo to Majuba as a solution for long term coal supply to the Majuba Power Station. The present road-trucking of coal to Majuba is damaging the road infrastructure and is presenting a safety risk to public and other road users. Once the new railway line is commissioned, it will replace the road-trucking of coal to Majuba. The project will be funded and be operated by ESKOM. The new rail corridor will relieve the pressure on the busiest road corridor in the Gert Sibande District between Ermelo and Volksrust. It is believed that similar benefits can be expected with the introduction of the Swazi rail link (Msukaligwa Local Municipality, 2010), (Gert Sibande District Municipality, 2012).

The SDF also states that some of the power plants in the province that is currently non-operational can be expected to be reopened to address the energy crisis in South Africa. This is expected to affect the settlement patterns as well as increase employment in the province (Gert Sibande District Municipality, 2009).

GSDM is in the process of conducting an investigation into the feasibility of developing a

Regional Airport. This will assist to establish whether such an undertaking will promote the district economy in which case a bankable business plan will be developed leading to the establishment of such a facility within GSDM (Gert Sibande District Municipality, 2012).

In addition to the Swazi Rail link, there is also mention of investigating the possibility for expansion of the rail link from Lothair to link up with the Swaziland rail network to provide access to Maputo,

Other infrastructure projects listed in the Gert Sibande IDP include the upgrading of the Swaziland border post.

### Agriculture

A bio-fuels plant is listed as a priority economic infrastructure project for the Gert Sibande DM according to the IDP. Other smaller scale developments include a pulp and paper production plant, and a craft hub (Gert Sibande District Municipality, 2012).

### Industrial

According to the IDP it has become imperative for the GSDM to start re-focussing itself into growing its industrial base, and the focus will therefore be on petrochemicals, mining, and forestry. The Swazi rail link will directly contribute to achieving this by providing a direct corridor to the Richards Bay port, opening the market to the Gert Sibande DM.

There is also a possibility for the development of a bio-diesel plant in the district that will greatly contribute to poverty alleviation and job creation (Gert Sibande District Municipality, 2012).

#### c. Local Municipality Development Initiatives

On a local scale, the line will traverse through Msukaligwa Local Municipality, starting in Davel.

The primary economic opportunities that is identified on the LM level as highlighted in the Msukaligwa SDF is transportation and logistics, as well as coal mining, as discussed below:

**Transport and Logistics** - Two major transportation corridors currently traverse the study area, as well as several other national and provincial roads. Transport and logistics already play an important role in the local economy, proven by the large number of transport and related business in the area. The expected future growth in the South African economy and the consequent increased freight movement between Gauteng and the Southern African eastern seaboard will provide further impetus to the local transport and logistics sector (Msukaligwa Local Municipality, 2010). The introduction of the Swazi rail link to the Msukaligwa LM is therefore expected to further increase the significance transportation plays in the economy of the LM.

**Coal Mining** - According to the Msukaligwa SDF (2010), plans are in the pipeline for a number of new coal mines in the vicinity of Ermelo and these will have a significant positive impact on

the local economy, not only directly through the creation of more jobs, but also indirectly through the stimulation of other economic sectors such as transport, construction, etc. The rail line will further be able to facilitate the transportation of the coal to Richards Bay.

However, inadequate infrastructure currently poses a major threat to sustainable economic growth in Msukaligwa, as well as the distance from the main markets in Gauteng and Natal. The Swazi Rail link will however be able to address both these threats directly. The introduction of additional railways will be able to divert current long haul freight traffic from the road to rail, reducing the negative impact this traffic currently have on the road condition.

The Msukaligwa SDF further classifies Davel/Kwadela as a tertiary node, and states that there are very few local economic activities and the settlement is unsustainable. Local unemployment is very high and it is assumed that the majority of residents who are formally employed commute to the surrounding areas and towns of Ermelo and Bethal. The promotion of local economic development and the creation of more job opportunities for the local residents are regarded as the top development priority (Msukaligwa Local Municipality, 2010). However, Davel is strategically located to be considered a potential node in the development corridor between the N17 and the Johannesburg/Richard Bay coal line.

It is anticipated that development brought on by the expansion of the Davel shunting yard will address the employment issues by providing more employment opportunities, and exploit Davel's potential as a node along the Richard Bay corridor.

## 2.3.2 Social Impact Assessment

### Albert Luthuli Municipality

Albert Luthuli Local Municipality is located in the Gert Sibande District Municipality with an area of 5,559 km<sup>2</sup>. Carolina is the Seat of the municipality. The Municipal area of jurisdiction stretches roughly from Syde to Ekulindeni (Crysbestos) along the Swaziland and South African border in the east, towards Hendrina to the west and then roughly from Nooitgedaght and Vygeboom Dams in the north to Warburton in the south.

The area is transversed by three prominent east west and north-south provincial routes, namely the R38, R36 and R33. All three provincial routes play a tremendous role in serving as transport and economic linkages linking all areas not only within the Albert Luthuli Municipal area but also with other important areas in the Nkangala, Ehlanzeni and Gert Sibande regions.

Table 3 below provides a summary of the population characteristics in the municipality.

Table 3: Albert Luthuli Local Municipality

| Population Characteristics                   |                                       |
|--|---------------------------------------|
| Male   | 87 188                                |
| Female                                       | 98 822                                |
| Total  | 186 010                               |
| Households                                   | 47 705                                |
| Average Household Size                       | 3.80                                  |
| Female Headed Households                     | 49.30%                                |
| Formal Dwellings                             | 76.50%                                |
| <b>Population Age Distribution (%)</b>       | <b>Percentage of Total Population</b> |
| 0-15   | 36.50%                                |
| 15-64  | 58.20%                                |
| 65+  | 5.30%                                 |
| <b>Population density (p/km<sup>2</sup>)</b> | 3,39 p/km <sup>2</sup>                |
| <b>Population growth (%)</b>                 | -0.09% p.a.                           |
| <b>Unemployment rate</b>                     | 35.40%                                |
| <b>Youth unemployment rate</b>               | 45.10%                                |
| <b>Household services</b>                    | <b>Percentage</b>                     |
| Flush toilet connected to sewerage           | 18.90%                                |
| Weekly Refuse Removal                        | 19.30%                                |
| Piped Water Inside Dwelling                  | 22.60%                                |
| Electricity For Lighting                     | 87.50%                                |

Source: Census 2011 Municipal Fact Sheet, published by Statistics South Africa

#### Msukaligwa Local Municipality

Msukaligwa Local Municipality is situated in the Gert Sibande District Municipality with Ermelo as the Seat of the municipality. The municipality has an area of 6,016 km<sup>2</sup>.

Table 4 below provides the demographic characteristics of the population in the municipality.

Table 4: Msukaligwa Local Municipality

| <b>Population Characteristics</b>            |                        |
|--|------------------------|
| Male   | 74 113                 |
| Female                                       | 75 264                 |
| Total  | 149 377                |
| Households                                   | 40 932                 |
| Average Household Size                       | 3,5                    |
| Female Headed Households                     | 37,8%                  |
| Formal Dwellings                             | 30 827                 |
| <b>Population Age Distribution (%)</b>       | <b>Total number</b>    |
| 0-15   | 40.46%                 |
| 15-64  | 55.45%                 |
| 65+  | 4.06%                  |
| <b>Population density (p/km<sup>2</sup>)</b> | 24.8 p/km <sup>2</sup> |
| <b>Population growth (%)</b>                 | 1.80% p.a.             |
| <b>Unemployment rate</b>                     | 36.20%                 |
| <b>Youth unemployment rate</b>               | 34.50%                 |
| <b>Household services</b>                    | <b>Percentage</b>      |
| Flush toilet connected to sewerage           | 73.64%                 |
| Weekly Refuse Removal                        | 66.93%                 |
| Piped Water Inside Dwelling                  | 78.17%                 |
| Electricity For Lighting                     | 74.66%                 |

Source: Census 2011 Municipal Fact Sheet, published by Statistics South Africa

#### Mkhondo Local Municipality

Mkhondo Local Municipality is situated in Gert Sibande District Municipality with Piet Retief as the Seat of the municipality and has an area of 4,882 km<sup>2</sup>. Table 5 below provides the demographic characteristics of the population in the municipality.

Table 5: Mkhondo Local Municipality

| <b>Population Characteristics</b> |
|-----------------------------------|
|-----------------------------------|

|  |                                       |
|--|---------------------------------------|
| Male   | 82 263                                |
| Female                                       | 89 719                                |
| Total  | 171 984                               |
| Households                                   | 37 433                                |
| Average Household Size                       | 4.5                                   |
| Female Headed Households                     | 45.30%                                |
| Formal Dwellings                             | 24399                                 |
| <b>Population Age Distribution (%)</b>       | <b>Percentage of Total Population</b> |
| 0-15   | 12.67%                                |
| 15-64  | 22.65%                                |
| 65+  | 4%                                    |
| <b>Population density (p/km<sup>2</sup>)</b> | 3,39 p/km <sup>2</sup>                |
| <b>Population growth (%)</b>                 | -5% p.a                               |
| <b>Unemployment rate</b>                     | 43%                                   |
| <b>Youth unemployment rate</b>               | 44.60%                                |
| <b>Household services</b>                    | <b>Percentage</b>                     |
| Flush toilet connected to sewerage           | 43%                                   |
| Weekly Refuse Removal                        | 42%                                   |
| Piped Water Inside Dwelling                  | 67%                                   |
| Electricity For Lighting                     | 69%                                   |

Source: Census 2011 Municipal Fact Sheet, published by Statistics South Africa

### 2.3.3 Socio-economic environment

#### Labour and economic analysis

In the analysis of the labour and employment situation in municipal areas, it is necessary to focus attention on the size and spatial distribution of the labour force. Secondly, the characteristics of the labour market should be analysed. To this end, it is necessary to examine the supply of labour, which is derived from figures on the economically active population in a municipal area. The demand for labour, on the other hand, is an indication of employment opportunities, which are determined by the economic structure of an area along with the level and growth in economic activities. Unemployment, and in a sense transfrontier commuting, provides an indication of the difference between supply and demand and implies that equilibrium in the labour market necessitates both expansion of economic activity and the curtailment of population growth.

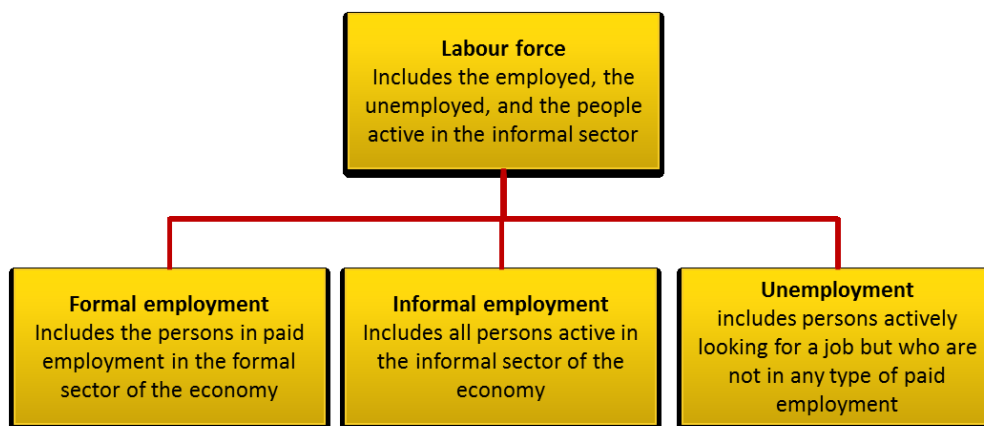


Figure 6: Composition of the labour force

A third issue that should be addressed is involvement in the peripheral sector, as not all potential workers are active in the labour market. Finally, the quality of the labour force needs to be analysed as it provides information on the employability of the workers.

The term labour force refers to those people who are available for employment in a certain area. Figure 6 illustrates the different components of the labour force and the relationship between them.

*Formally employed* refers to people who are selling their labour or who are self-employed in the formal sector of the economy, for pay or profit. *Informally employed* includes all people who are active, for pay or profit, in the informal or unregistered sector of the economy. *Unemployed* are persons actively looking for a job, but who are not in any type of paid employment.

#### Description of the labour force

Table 6 describes the labour force of the three LMs that will be directly affected by the proposed rail line. According to the 2011 data acquired from the Quantec database, the three municipalities have 135 895, 91 854, and 79 314 economically active persons in the Albert Luthuli, Msukaligwa, and Mkhondo Local Municipalities respectively. From the data it can be seen that the majority of the population in the first two municipalities are employed, with the majority of the employment in the formal sector. In the Mkhondo Local Municipality the unemployment rate is however almost 50%. In all three the municipalities the formal employment rate is higher than the informal employment rate. The unemployment rate of the



three municipalities varies between 20% and 48% and the labour force participation rate between 45% and 57%.

The size of the informal sector, which includes subsistence agriculture that is highly applicable in the concerned municipal areas, is difficult to establish with a reasonable degree of accuracy and can easily be under-estimated. One reason for this is that people involved in informal activity often classify themselves as unemployed.

Table 6: Mpumalanga LM labour force (2011)

|  | Albert<br>Luthuli<br>Local<br>Municipality | Msukaligwa<br>Local<br>Municipality | Mkhondo<br>Local<br>Municipality |
|--|--|-------------------------------------|----------------------------------|
| Description                                | Number                                     | Number                              | Number                           |
| <b>Population</b>                          | 196,412                                    | 126,687                             | 110,575                          |
| <b>Economically active</b>                 | 135,895                                    | 91,854                              | 79,314                           |
| <b>Formal and informal (Total)</b>         | 30,650                                     | 36,971                              | 17,857                           |
| <b>Formal</b>                              | 22,642                                     | 26,104                              | 13,385                           |
| <b>Formal - Highly skilled</b>             | 4,423                                      | 4,402                               | 1,556                            |
| <b>Formal - Skilled</b>                    | 9,841                                      | 10,739                              | 4,509                            |
| <b>Formal - Semi- and unskilled</b>        | 8,378                                      | 10,963                              | 7,320                            |
| <b>Informal</b>                            | 8,008                                      | 10,867                              | 4,471                            |
| <b>Unemployed</b>                          | 19,797                                     | 9,707                               | 16,202                           |
| <b>Unemployment rate (%)</b>               | 39.24                                      | 20.80                               | 47.57                            |
| <b>Labour force participation rate (%)</b> | 45.46                                      | 57.27                               | 52.14                            |

Obtaining the participation rates, involves calculating the labour force or the economically active population relative to the potential labour force, (i.e. the population in the age group 15 to 64 years). These rates reflect the percentages of the said population that are actually economically active.

#### Employment productivity

Employment is always a priority for the Council and it is obvious that development and growth strategies will have to support job creation.

The table below shows the employment per sector for each of the affected local municipalities. The structure of employment and the extent of the link between employment and the level of economic activity are important.

Table 7: Employment per sector (Mpumalanga LM).

|                   |                    | Agriculture<br>[SIC: 1] | Mining<br>[SIC: 2] | Manufacturing<br>[SIC: 3] | Utilities<br>[SIC: 4] | Construction<br>[SIC: 5] | Trade<br>[SIC: 6] | Transport<br>[SIC: 7] | Business<br>services<br>[SIC: 8] | Community<br>services [SIC:<br>9] | General<br>government | Total        |
|-------------------|--------------------|-------------------------|--------------------|---------------------------|-----------------------|--------------------------|-------------------|-----------------------|----------------------------------|-----------------------------------|-----------------------|--------------|
| Albert Luthuli LM | 1995               | 11,466                  | 2,108              | 1,604                     | 96                    | 1,548                    | 3,435             | 739                   | 795                              | 2,473                             | 3,988                 | 28,251       |
|                   | 2001               | 8,949                   | 752                | 1,836                     | 130                   | 1,436                    | 4,655             | 588                   | 1,226                            | 3,034                             | 4,210                 | 26,815       |
|                   | 2005               | 6,033                   | 748                | 1,992                     | 115                   | 1,433                    | 6,431             | 752                   | 1,964                            | 3,461                             | 4,884                 | 27,813       |
|                   | 2011               | 2,720                   | 1,398              | 1,379                     | 141                   | 1,222                    | 9,403             | 884                   | 3,063                            | 3,884                             | 6,554                 | 30,650       |
|                   | <b>Avg. Change</b> | <b>-4.5%</b>            | <b>-2.0%</b>       | <b>-0.8%</b>              | <b>2.8%</b>           | <b>-1.2%</b>             | <b>10.2%</b>      | <b>1.2%</b>           | <b>16.8%</b>                     | <b>3.4%</b>                       | <b>3.8%</b>           | <b>0.5%</b>  |
| Msukaligwa LM     | 1995               | 14,225                  | 2,929              | 2,669                     | 244                   | 2,478                    | 6,074             | 1,543                 | 2,131                            | 3,504                             | 3,318                 | 39,114       |
|                   | 2001               | 10,568                  | 1,970              | 2,685                     | 199                   | 1,349                    | 7,355             | 1,224                 | 2,397                            | 4,134                             | 3,468                 | 35,350       |
|                   | 2005               | 7,909                   | 1,511              | 2,681                     | 262                   | 1,572                    | 9,255             | 1,667                 | 2,553                            | 4,651                             | 4,073                 | 36,134       |
|                   | 2011               | 3,950                   | 1,689              | 1,610                     | 654                   | 1,701                    | 11,931            | 2,133                 | 2,518                            | 5,293                             | 5,494                 | 36,971       |
|                   | <b>Avg. Change</b> | <b>-4.2%</b>            | <b>-2.5%</b>       | <b>-2.3%</b>              | <b>9.9%</b>           | <b>-1.8%</b>             | <b>5.7%</b>       | <b>2.2%</b>           | <b>1.1%</b>                      | <b>3.0%</b>                       | <b>3.9%</b>           | <b>-0.3%</b> |
| Mkhondo LM        | 1995               | 16,992                  | 706                | 4,395                     | 75                    | 1,350                    | 3,876             | 645                   | 743                              | 1,897                             | 1,448                 | 32,128       |
|                   | 2001               | 12,378                  | 677                | 3,878                     | 70                    | 1,042                    | 5,421             | 500                   | 1,086                            | 2,744                             | 1,859                 | 29,655       |
|                   | 2005               | 9,225                   | 1,267              | 2,058                     | 50                    | 1,039                    | 4,922             | 715                   | 1,298                            | 2,234                             | 1,581                 | 24,389       |
|                   | 2011               | 3,958                   | 3,454              | 375                       | 60                    | 911                      | 4,068             | 970                   | 1,282                            | 1,588                             | 1,190                 | 17,857       |
|                   | <b>Avg. Change</b> | <b>-4.5%</b>            | <b>22.9%</b>       | <b>-5.4%</b>              | <b>-1.2%</b>          | <b>-1.9%</b>             | <b>0.3%</b>       | <b>3.0%</b>           | <b>4.3%</b>                      | <b>-1.0%</b>                      | <b>-1.0%</b>          | <b>-2.6%</b> |

The overall employment figures for the three municipalities remained relatively constant over the 16 year period from 1995 to 2011. There are however a few aspects that need to be discussed.

The most noticeable is the differential growth rates in employment creation between the sectors. In all three of the municipalities there has been a decrease in employment in the Agriculture sector. The implication is important since these workers are jobless and have to leave farms. They usually end up in informal settlements on the urban periphery.

In the Albert Luthuli LM there has been a significant increase in the secondary and tertiary employment sectors, especially in trade in business services. The high increase in these sectors possibly contributed to the overall growth in employment for this municipality.

The Msukaligwa LM has seen a large decrease in overall primary sector employment. All of the other employment sectors have however indicated an overall growth and it is assumed that most of the people who lost their jobs in the primary sector got employed in the secondary and tertiary sector, which showed strong increases, with the exception of the construction industry. There is however a slight decrease in overall employment.

The Mkhondo LM shows a high increase in employment in the mining and quarrying sector. There has however been a decrease in the overall employment of the LM. Overall the primary and secondary sectors are both shedding jobs while the tertiary sector is growing strongly.

Table 8 shows the employment distribution per sector. These figures are expressed in terms of the distribution of employment across the sectors. The most noticeable aspect is that the largest economic sectors are not necessarily the biggest contributors to employment creation.

Table 8: Employment distribution per sector

|                          | Agriculture<br>[SIC: 1] | Mining<br>[SIC: 2] | Manufacturing<br>[SIC: 3] | Utilities<br>[SIC: 4] | Construction<br>[SIC: 5] | Trade<br>[SIC: 6] | Transport<br>[SIC: 7] | Business<br>services | Community<br>services [SIC: | General<br>government | Total      |
|--------------------------|-------------------------|--------------------|---------------------------|-----------------------|--------------------------|-------------------|-----------------------|----------------------|-----------------------------|-----------------------|------------|
| <b>Albert Luthuli LM</b> | 8.9<br>%                | 4.6%               | 4.5%                      | 0.5%                  | 4.0%                     | 30.7<br>%         | 2.9%                  | 10.0<br>%            | 12.7<br>%                   | 21.4<br>%             | 100.0<br>% |
| <b>Msukaligwa LM</b>     | 10.7<br>%               | 4.6%               | 4.4%                      | 1.8%                  | 4.6%                     | 32.3<br>%         | 5.8%                  | 6.8%                 | 14.3<br>%                   | 14.9<br>%             | 100.0<br>% |
| <b>Mkhondo LM</b>        | 22.2<br>%               | 19.3<br>%          | 2.1%                      | 0.3%                  | 5.1%                     | 22.8<br>%         | 5.4%                  | 7.2%                 | 8.9%                        | 6.7%                  | 100.0<br>% |

Changes in employment

Employment is not a static issue and changes in employment are very important, and can shed light on the development of the municipalities over the past few years. The tables below give a comparison between the employment situation in 1995 and in 2011 for each of the local municipalities under consideration.

## Albert Luthuli

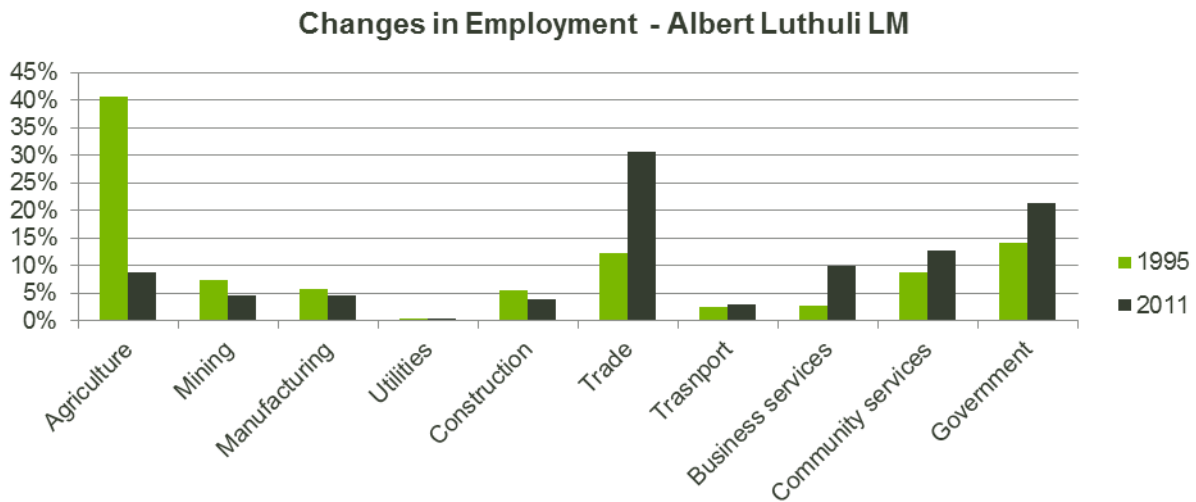


Figure 7: Comparative employment situation in 1995 and 2011 (Employment per sector) – Albert Luthuli LM

Figure 7 shows an overall decrease in primary sector employment, with the most significant decrease in the agricultural sector. There is however a clear increase in secondary and tertiary sector employment.

Figure 8 clearly indicates a decline in primary and secondary employment, but also indicates a significant increase in employment in the tertiary sector.

## Msukaligwa

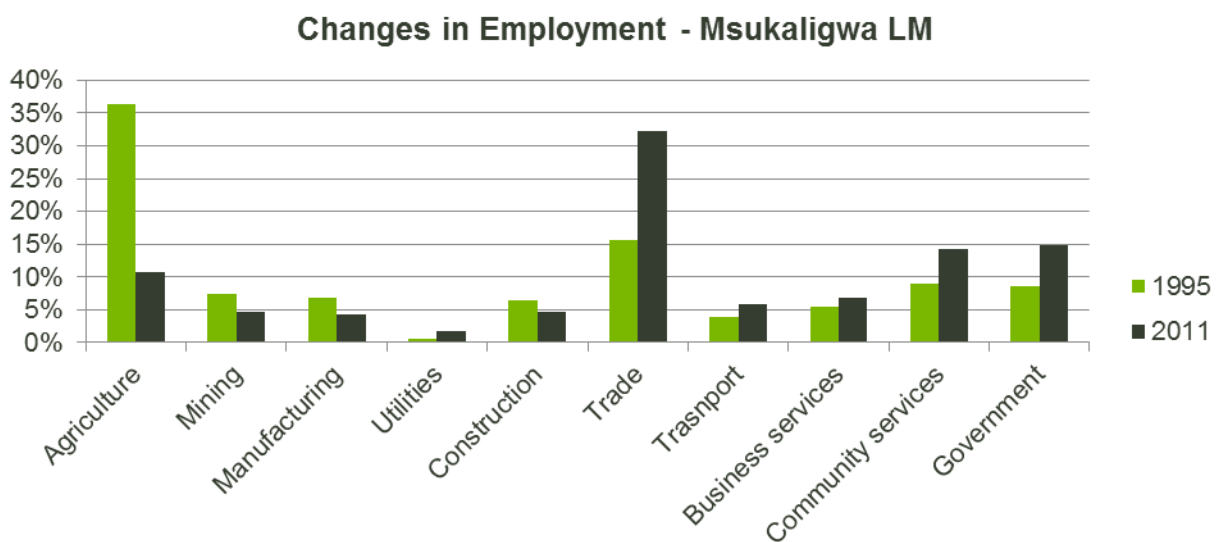


Figure 8: Comparative employment situation in 1995 and 2011 (Employment per sector) – Msukaligwa LM

**Mkhondo**

**Changes in Employment - Mkhondo LM**

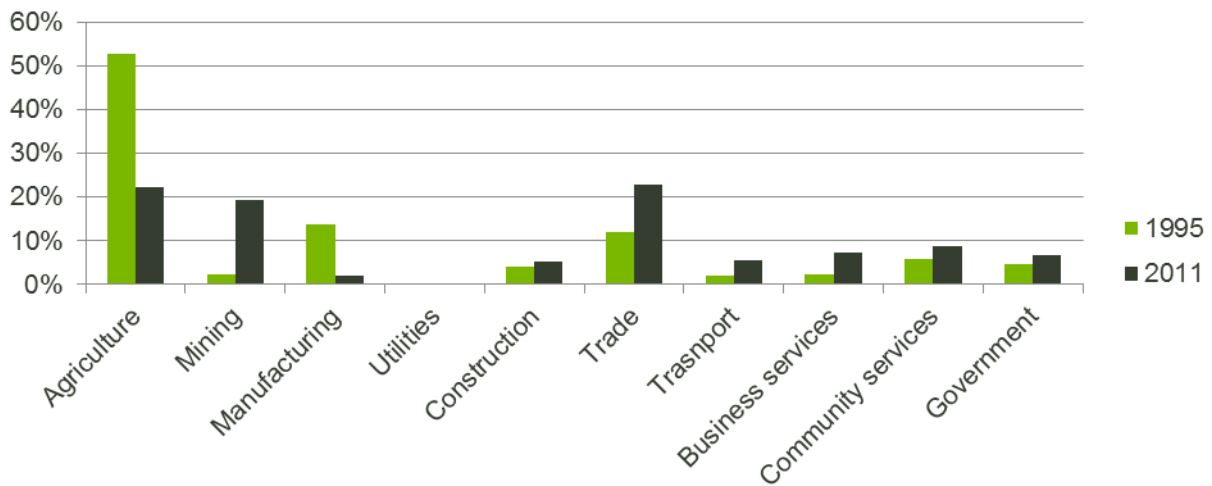


Figure 9: Comparative employment situation in 1995 and 2011 (Employment per sector) – Mkhondo LM

Figure 9 shows a high decrease in agriculture, which has also been identified in the other two local municipalities in the study area. In contrast to the other two municipalities, there is a high increase in mining employment. Similar to the other two municipalities, the increase in the secondary and tertiary employment sectors is noted.

It is not possible to draw any specific conclusion regarding labour productivity. The interplay between labour and capital is not assessed. The Albert Luthuli and Msukaligwa LMs indicate a decrease in GVA output for the primary sector, but an increase for the secondary and tertiary sectors. This confirms the trends that were identified in the comparative employment figures. The Mkhondo LM in contrast indicated a growth in GVA output for the primary sector, and a decrease in the secondary sector. If one assumes that these labour units show significant opportunities for substituting labour with capital, then one might conclude that there was an overall increase in labour productivity over the assessment period.

Migrant labour

To calculate both the size of the migrant labour force and the spatial distribution of their areas of origin, male absenteeism ratios are utilised. In the process, it is firstly assumed that only males in the 15 to 64 year age group will migrate, meaning work on a contract basis in another area and return home at least once a year on average. This assumption is patently invalid as substantial numbers of females also migrate, but it is the only plausible way of establishing a minimum level of male migrant workers. Indications are that migrant labour does not play a role in the studied LMs. The Male to Female ratio is almost a 50/50 split.

**Economic structure and performance**

The table below shows the Gross Value Added (GVA) output per labour unit. GVA is an economic measure of the value of goods and services that are produced in an area.

Table 9: GVA output per labour unit (R'million)

|                    | Albert Luthuli Local Municipality |                  |                 | Msukaligwa Local Municipality |                  |                 | Mkhondo Local Municipality |                  |                 |
|--------------------|-----------------------------------|------------------|-----------------|-------------------------------|------------------|-----------------|----------------------------|------------------|-----------------|
|                    | Primary Sector                    | Secondary Sector | Tertiary Sector | Primary Sector                | Secondary Sector | Tertiary Sector | Primary Sector             | Secondary Sector | Tertiary Sector |
| 1995               | 719                               | 203              | 1,001           | 969                           | 373              | 1,531           | 372                        | 506              | 726             |
| 1996               | 682                               | 223              | 1,049           | 982                           | 390              | 1,601           | 451                        | 534              | 784             |
| 1997               | 615                               | 250              | 1,065           | 975                           | 408              | 1,614           | 442                        | 574              | 813             |
| 1998               | 519                               | 256              | 1,088           | 946                           | 388              | 1,626           | 441                        | 559              | 837             |
| 1999               | 498                               | 262              | 1,129           | 969                           | 370              | 1,670           | 496                        | 536              | 881             |
| 2000               | 460                               | 279              | 1,159           | 952                           | 382              | 1,675           | 540                        | 540              | 898             |
| 2001               | 395                               | 286              | 1,192           | 885                           | 395              | 1,708           | 493                        | 523              | 918             |
| 2002               | 390                               | 334              | 1,241           | 861                           | 447              | 1,743           | 536                        | 531              | 916             |
| 2003               | 399                               | 327              | 1,325           | 831                           | 448              | 1,835           | 605                        | 441              | 917             |
| 2004               | 404                               | 348              | 1,411           | 788                           | 496              | 1,944           | 676                        | 397              | 913             |
| 2005               | 415                               | 369              | 1,522           | 716                           | 552              | 2,063           | 759                        | 359              | 909             |
| 2006               | 373                               | 394              | 1,647           | 647                           | 614              | 2,222           | 771                        | 317              | 913             |
| 2007               | 367                               | 420              | 1,784           | 617                           | 685              | 2,355           | 857                        | 282              | 930             |
| 2008               | 377                               | 444              | 1,888           | 607                           | 735              | 2,465           | 984                        | 242              | 918             |
| 2009               | 359                               | 462              | 1,958           | 563                           | 784              | 2,483           | 1,023                      | 195              | 887             |
| 2010               | 395                               | 509              | 1,994           | 574                           | 787              | 2,499           | 1,058                      | 180              | 880             |
| 2011               | 386                               | 516              | 2,077           | 560                           | 802              | 2,583           | 1,097                      | 176              | 890             |
| % Growth Per annum | -2.72%                            | 9.04%            | 6.32%           | -2.48%                        | 6.78%            | 4.04%           | 11.48%                     | -3.84%           | 1.33%           |

The table is structured according to primary, secondary, and tertiary sector that is grouped as follows:

- Primary Sector
  - Agriculture, forestry and fishing;
  - Mining and quarrying.
- Secondary Sector
  - Manufacturing;
  - Electricity, gas, and water;
  - Construction.
- Tertiary Sector
  - Wholesale and retail trade, catering and accommodation;
  - Transport, storage and communication;
  - Finance, insurance, real estate and business services;
  - Community, social and personal services;
  - General government.

Economic performance of a municipal area's economic system in terms of, factors such as

production activity can be measured by the GVA. The analysis will focus on the GVA produced by the primary, secondary and tertiary economic sectors over time.

The primary sector of the economy involves changing natural resources into primary products. Most products from this sector are considered raw materials for other industries. Major businesses in this sector normally include agriculture, agribusiness, fishing, forestry and all mining and quarrying industries.

The secondary sector generally takes the output of the primary sector and manufactures finished goods or where they are suitable for use by other businesses, for export, or sale to domestic consumers. This sector is often divided into light industry and heavy industry. The sector is made up of manufacturing, electricity, gas and water, and construction.

The tertiary or services sector consists of the "soft" parts of the economy, i.e. activities where people offer their knowledge and time to improve productivity, performance, potential, and sustainability. The basic characteristic of this sector is the production of services instead of end products. Businesses in this sector include wholesale and retail trade, catering and accommodation, transport, storage, communication, finance, insurance, real estate, business services, community, social and personal services, and general government.

### Albert Luthuli

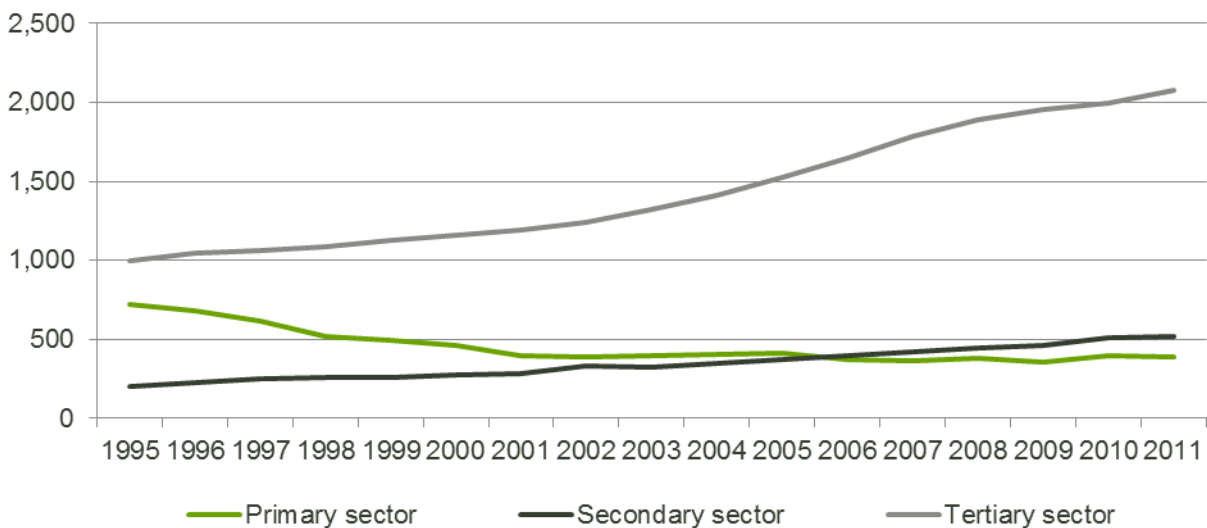


Figure 10: GVA per economic sector (R'million) – Albert Luthuli

**Msukaligwa**

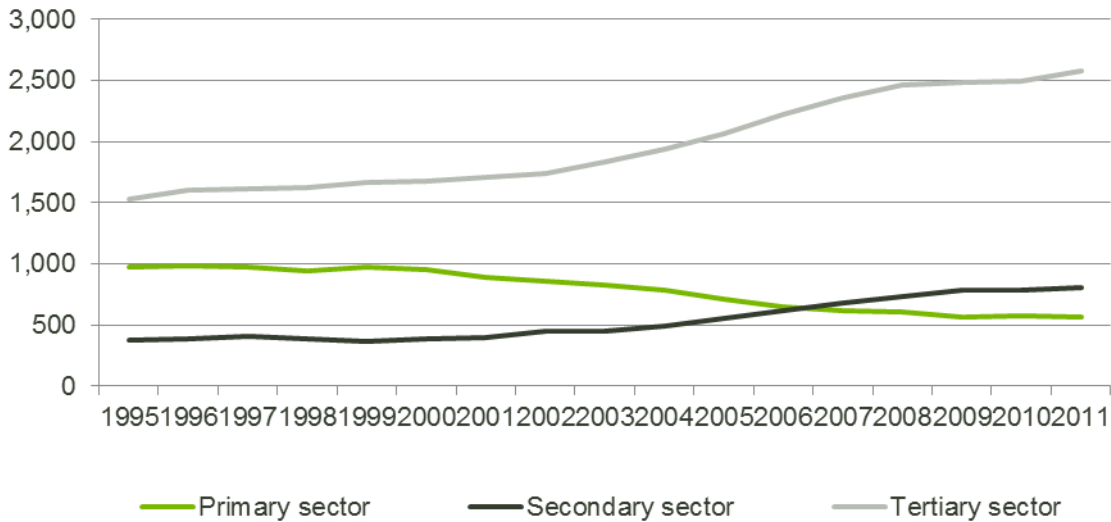


Figure 11: GVA per economic sector (R'million) – Msukaligwa

**Mkhondo**



Figure 12: GVA per economic sector (R'million) – Mkhondo LM

Figure 10, Figure 11, and Figure 12 indicates the largest and strongest overall growing sector in the economy for the three LMs are the tertiary sector. This means its economy is dominated by the service sector. The secondary sector has shown some increase in recent years. The primary sector is getting smaller and does not contribute a lot to the economy in terms of GVA. The Mkhondo LM is however an exception, indicating a strong primary sector growth and a decrease in the secondary sector.

Despite the differences in growth for the employment sectors for the three LMs, Figure 13 indicates an overall growth in total GVA for each of the LMs.



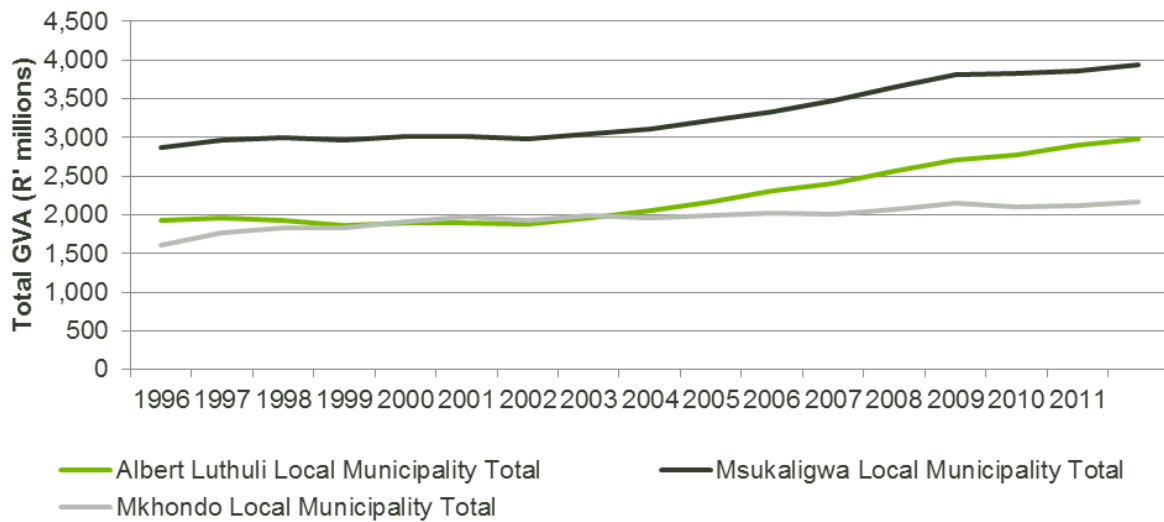


Figure 13: Comparative GVA

Diversification and concentration in the economy

The level of diversification or concentration of a municipal area’s economy is measured by a tress index. A tress index of zero represents a totally diversified economy. On the other hand, the higher the index (closer to 100), the more concentrated or vulnerable the municipal area’s economy to exogenous variables, such as adverse climatic conditions, commodity price fluctuations, etc.

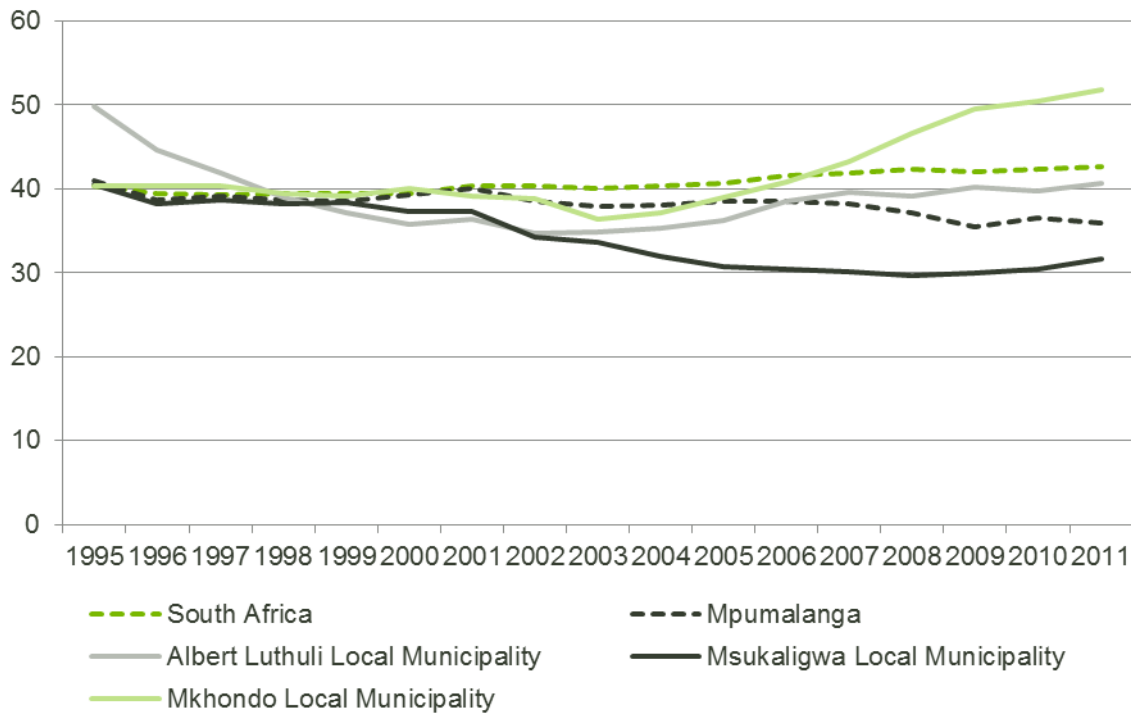


Figure 14: Tress index (10 industries) - Mpumalanga Section

The comparative tress index displayed in Figure 14 shows that the overall economy of the studied LMs is diversifying. Msukaligwa LM is the most diversified of the three LMs, and has higher diversification than Mpumalanga and South Africa. The diversity of the municipality also

increased from 1995 to 2011. The Albert Luthuli LM shows an increase in diversification from 1995 and 2011, although there is a lot of variability in the trend. The diversification is lower than the total Mpumalanga’s diversification, but still higher than South Africa’s diversification. Mkhondo however showed a decrease in diversification. The level of diversification is also lower than the national and provincial level.

Location coefficient

Basic/Non-Basic ratios are calculated in order to determine the drivers of an economy. The ratio is expressed as the employment in a sector in the local economy divided by the total employment in the local economy. This is in turn divided by the same ratio for the district, provincial or national economy. A ratio greater than one, implies that there is relatively more employment in this sector than in the corresponding economy it is compared to. It therefore generates more than what can locally be consumed and the sector is thus a net exporting sector. This implies that it generates income for the local economy. The opposite is then true for ratios smaller than one.

Table 10: Location coefficient: South Africa

|  | Agriculture, forestry and fishing | Mining and quarrying | Manufacturing | Electricity, gas and water | Construction | Wholesale and retail trade, catering and accommodation | Transport, storage and communication | Finance, insurance, real estate and business services | Community, social and personal services | General government |
|--|-----------------------------------|----------------------|---------------|----------------------------|--------------|--|--------------------------------------|---|---|--------------------|
| <b>Albert Luthuli Local Municipality</b> | 2.14                              | 1.31                 | 0.81          | 0.86                       | 0.51         | 1.34   | 0.71                                 | 0.65  | 1.16                                    | 1.40               |
| <b>Msukaligwa Local Municipality</b>     | 2.19                              | 1.50                 | 0.69          | 3.19                       | 0.57         | 1.22   | 1.95                                 | 0.45  | 1.09                                    | 0.74               |
| <b>Mkhondo Local Municipality</b>        | 5.98                              | 6.14                 | 0.28          | 0.59                       | 0.64         | 0.80   | 1.13                                 | 0.44  | 0.59                                    | 0.29               |

When compared at a national level, all three LMs show good performance for Agriculture and Mining. Additionally Albert Luthuli shows good performance for trade, community and governmental services, Msukaligwa shows good performance for in utilities, trade, transport and community services, and the Mkhondo LM shows good performance in transport. At this level agriculture is the municipalities’ strongest performing sector as well as mining for Mkhondo LM and electricity for Msukaligwa.

Table 11: Location coefficient: Mpumalanga

|  | Agriculture, forestry and fishing | Mining and quarrying | Manufacturing | Electricity, gas and water | Construction | Wholesale and retail trade, catering and accommodation | Transport, storage and communication | Finance, insurance, real estate and business services | Community, social and personal services | General government |
|--|-----------------------------------|----------------------|---------------|----------------------------|--------------|--|--------------------------------------|---|---|--------------------|
| <b>Albert Luthuli Local Municipality</b> | 1.54                              | 0.42                 | 0.67          | 0.39                       | 0.71         | 1.64   | 0.75                                 | 1.17  | 1.23                                    | 2.04               |

|                                      |             |             |      |             |      |             |             |      |             |             |
|--------------------------------------|-------------|-------------|------|-------------|------|-------------|-------------|------|-------------|-------------|
| <b>Msukaligwa Local Municipality</b> | <b>1.57</b> | 0.48        | 0.57 | <b>1.44</b> | 0.80 | <b>1.50</b> | <b>2.06</b> | 0.80 | <b>1.16</b> | <b>1.09</b> |
| <b>Mkhondo Local Municipality</b>    | <b>4.29</b> | <b>1.95</b> | 0.23 | 0.27        | 0.90 | 0.98        | <b>1.19</b> | 0.79 | 0.63        | 0.42        |

In the provincial context Agriculture, construction and the government sector are highlighted as the most important economic activities. This shows the importance of the municipality in the province and the role it plays as a service centre starts to emerge.

Table 12: Location coefficient: Gert Sibande

|  | Agriculture, forestry and fishing | Mining and quarrying | Manufacturing | Electricity, gas and water | Construction | Wholesale and retail trade, catering and accommodation | Transport, storage and communication | Finance, insurance, real estate and business services | Community, social and personal services | General government |
|--|-----------------------------------|----------------------|---------------|----------------------------|--------------|--|--------------------------------------|---|---|--------------------|
| <b>Albert Luthuli Local Municipality</b> | <b>1.02</b>                       | 0.38                 | 0.62          | 0.39                       | 0.76         | <b>1.19</b>  | 0.89                                 | <b>1.44</b>   | <b>1.90</b>                             | <b>2.99</b>        |
| <b>Msukaligwa Local Municipality</b>     | <b>1.05</b>                       | 0.43                 | 0.53          | <b>1.45</b>                | 0.85         | <b>1.09</b>  | <b>2.46</b>                          | 0.99  | <b>1.79</b>                             | <b>1.59</b>        |
| <b>Mkhondo Local Municipality</b>        | <b>2.86</b>                       | <b>1.78</b>          | 0.21          | 0.27                       | 0.95         | 0.71   | <b>1.43</b>                          | 0.98  | 0.97                                    | 0.62               |

When economic sectors are analysed in terms of how well it functions at district level, some important aspects emerges. In the district, the municipalities' agricultural contribution is no longer seen as an important economic sector. This indicates that other local municipalities in the district contribute much more to this sector than municipal. Wholesale, Finance, and general government are the strongest sectors and this emphasises the role the municipality plays as an important service centre for the people in the municipality and those surrounding municipal areas.

### Land use

This section will provide a general discussion of settlement patterns and major land uses in the Gert Sibande District Municipality.

Based on a high level assessment the following observations can be made:

- The Mpumalanga section of the rail line will primarily traverse across cultivated land, forest, woodlands, and plantations, as well as some mining areas.

Some detailed aspects of the land cover of the affected areas will be discussed in the following sections.

### Gert Sibande District Municipality

The Gert Sibande district is the home of major industrial complexes in the province, such as the petro-chemical industries. This district also has a large agricultural sector with strong service centres like Standerton, Ermelo, Bethal and Piet Retief. The settlement patter in this area has developed in orientation to the resource base and economic potential of the area. The

agricultural sector, petrochemical industries and mining activities in the area have led to the distribution of service centres varying in size and function throughout the area. Informal settlements are also found scattered in this district municipality (CSIR, 2007).

The Mpumalanga Land Use Management Plan (Sisonke Development Planners, 2005est.) identified the following important settlements in the Gert Sibande district:

Table 13: Important settlements in the Gert Sibande district

| Settlement Type              | Town/City   | Development Directive  |
|------------------------------|---|--|
| <b>Major Urban Centre</b>    | <ul style="list-style-type: none"> <li>• Bethal;</li> <li>• Carolina;</li> <li>• Embalenhle;</li> <li>• Ermelo;</li> <li>• Evander;</li> <li>• Piet Retief;</li> <li>• Secunda;</li> <li>• Standerton;</li> <li>• Volksrust.</li> </ul> | Aim of centres is to retain the current engineering, social, economic and institutional infrastructure and to strengthen and diversify the economy in order to achieve growth, prosperity and sustainability. The following industrial clustering opportunities should be explored: agriculture, chemical, forestry, and mining. |
| <b>Rural settlement hubs</b> | A total of 39 rural settlement hubs were identified.  | Hubs should fulfill a rural support function. Each hub must accommodate the primary range of social and economic services. The hubs must provide accessibility to the hinterland, not only in the form of roads but also public transport facilities.  |

The Gert Sibande area has a strong agricultural sector that produces maize, sunflower, grain, sorghum, beef, dairy, wool, sheep and wheat. Other types of crops produced in the area incorporate potatoes, oil, seeds, maize and soybeans.

The area between Carolina, Bethal and Ermelo is one of the largest wool-producing areas in the country. The Standerton area is known for its large dairy industry and maize agriculture. The area of Ogies shows high soil potential for irrigation farming.

The district has an estimate of 1,750 commercial farmers, 2,300 emerging, and 5,300 subsistence farmers (MDALA, 2007b).

The area is also well endowed with coal and other mineral deposits and has some of the largest coal mines in South Africa. The major areas for coal in Gert Sibande District are concentrated around Bethal, Secunda, Standerton and Carolina. Linked with these coal mines are some of the world’s largest coal fired power stations, such as Majuba and Tutuka in Gert Sibande District. The area is however confronted by the tension between the agricultural activities in the

sense that valuable agricultural land is being sterilised by mining activities (CSIR, 2007).

The Gert Sibande area has a strong manufacturing component, which is concentrated in the western part of the district, specifically the Secunda area (CSIR, 2007).

There is potential to expand small-scale eco-tourism activities in the vicinity of Chrissiesmeer, because of the unique grassland habitats and the bird life associated with the grassland and wetland areas. The establishment of stop-over facilities linked to the development of the bird watch tourism cluster adds value to the tourism potential of the Gert Sibande District (CSIR, 2007).

The forestry activities in the area relate to pine, eucalyptus and wattle plantations, which are concentrated in the eastern parts of the region stretching from Carolina, Lothair, and Amsterdam down to Piet Retief in the south. Mondi has a manufacturing facility in Gert Sibande, namely the Piet Retief mill. There exists tension between agriculture and forestry activities over the use of land (CSIR, 2007).

## 3 LEGISLATIVE FRAMEWORK

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The management and mitigation of the environmental impacts experienced during construction is governed by environmental legislation. It is of utmost importance that this project is constructed in compliance with all relevant environmental legislation whether National, Provincial and / or Local.

The environmental legislative framework and components for South Africa can best be unpacked and summarised as follows.

### 3.1 National Legislation

#### 3.1.1 The Constitution

Section 24 of the Constitution of the Republic of South Africa Act, 108 of 1996 provides the basic right to an environment which is not harmful to a person's health or well-being, as well as to have the environment protected through legislation and any measures which:-

- Prevent pollution and / ecological degradation;
- Promote conservation;
- Secures ecological sustainable development; and
- The sustainable use of resources.

At the same time, Section 25 of the Constitution guarantees everyone the right of access to information which is essential for them to exercise their Constitutional right including any information pertinent to the environmental assessment (EA) or EIA process. For this reason, Public Participation is considered an essential mechanism for informing stakeholders of their rights and obligations in terms of the project.

#### 3.1.2 The National Environmental Management Act, 107 of 1998 (NEMA)

The National Environmental Management Act (NEMA) creates the fundamental legal framework that gives effect to the environmental right guaranteed in Section 24 of the Constitution and sets out the fundamental principles that apply to environmental decision making.

##### a. The Principles of NEMA

The Principles of NEMA (Chapter 1) not only serve as a framework upon which Environmental Management is based (Section 2(1)(b)), but ensures that people and their needs are always considered (Section 2(2)). This is achieved through avoiding and minimising:

- Disturbance on ecosystems or loss of biological diversity (Section 2(4)(a)(i));

- Pollution and degradation of the environment (Section 2(4)(a)(ii)); and
- Negative impacts on the environment and people's environmental rights (Section 2(4)(a)(viii));

The principles of NEMA further require that a cautious, methodological approach be applied which takes into account knowledge or information gaps (Section 2(4)(a)(vii)) so that, as far as possible, all positive or negative impacts on the environment are considered and assessed in order to facilitate the decision-making process in mitigating these adverse impacts (Section 2(4)(a)(i)).

#### **b. Integrated Environmental Management (Chapter 5)**

Section 24(1) of NEMA requires that the potential impacts of projects or activities must be considered, investigated, assessed and reported to the Competent Authority, while Section 24(2) empowers the Minister (or MEC) to identify such projects or activities which require authorisation. These activities are listed in Government Notice R 544 of 18 June 2010 (activities requiring Basic Assessment); GNR 545 of 18 June 2010 (activities requiring full Environmental Impact Assessment) and GNR 546 of 18 June 2010 (activities requiring Basic Assessment dependent on provincial requirements) published in terms of Section 24D of NEMA. Section 24 (5) of NEMA empowers the Minister (or MEC) to draft regulations which provide a framework for the authorisation process, and which is provided in GNR 543 of 18 June 2010.

In terms of Section 24F, failure to obtain environmental authorisation for listed activities constitutes an offence and, either jointly or severally, convicted persons can be fined up to R5 000 000 as well as face imprisonment for up to ten years.

### **3.1.3 Additional Acts and Frameworks**

In addition to NEMA, the following Acts have some bearing on the proposed activities:

- Hazardous Substances Act, 15 of 1973;
- The Conservation of Agricultural Resources Act, 43 of 1983;
- Occupational Health and Safety Act, 85 of 1993;
- Development Facilitation Act, 67 of 1995;
- National Road Transport Act, 93 of 1996;
- Extension of Security Tenure Act, 62 of 1997;
- Basic Conditions of Employment Act, 75 of 1997;
- Prevention of Illegal Eviction from and Unlawful Occupation of Land Act, 19 of 1998;
- The National Water Act, 36 of 1998;
- South Africa National Road Agency and National Roads Act, 7 of 1998;
- The National Heritage Resources Act, 25 of 1999;
- Promotion for Administrative Justice Act, 3 of 2000;
- Mineral Petroleum Resources Development Act, 28 of 2002;
- The National Environmental Management: Protected Areas Act, 57 of 2003;



- The National Environmental Management: Biodiversity Act, 10 of 2004;
- The National Environmental Management: Waste Act, 59 of 2008;
- Traditional Leadership and Governance Framework Amendment Act, 23 of 2009;
- National Railway Safety Regulator Act, 16 of 2002.

Application to the DEA for Environmental Authorisation in terms of NEMA does however not absolve the applicant from complying with other statutory requirements, and in addition the following national and provincial legislation will apply inter alia to the project.

It should also be noted that the Swaziland section of the project will also follow a separate EIA process undertaken in terms of the Swaziland legislation. This process commenced in June 2013 in collaboration with Swaziland Railway and the Swaziland Environment Authority (SEA).

### 3.1.4 GN R 543 – the Environmental Authorisation process

The Scoping and Environmental Impact Assessment process is identified in Part 3 of Chapter 3 of the 2010 EIA regulations (regulations 26 to 35), which prescribes the process to be followed as well as the content of the Scoping, Plan of Study for EIA (PoSfEIA) and EIA Reports. The contents of all specialist reports as well as the EMP are specified in Regulations 32 and 33 respectively, while the public participation process is described in detail in Chapter 6 of GNR 543.

Based on NEMA and GNR 543 Transnet requires Environmental Authorisation from the competent authority, the Department of Environmental Affairs in collaboration with the MDEDET, as commenting authorities, to commence with development.

### 3.1.5 GN R 543 – the Environmental Authorisation process

The Scoping and Environmental Impact Assessment process is identified in Part 3 of Chapter 3 (regulations 26 to 35), which prescribes the process to be followed as well as the content of the Scoping, Plan of Study for EIA (PoSfEIA) and EIA Reports. The contents of all specialist reports as well as the EMP are specified in Regulations 32 and 33 respectively, while the public participation process is described in detail in Chapter 6 of GNR 543.

Based on NEMA and GNR 543 Transnet requires Environmental Authorisation from the competent authority, the Department of Environmental Affairs. The provincial environmental authority, the MDEDET will function as a commenting authority.

Application to the DEA for Environmental Authorisation in terms of NEMA does however not absolve the applicant from complying with the above mentioned statutory requirements. In this regard the following national and provincial legislation will apply inter alia to the project.



### 3.1.6 GNR 545 – activities requiring an EIA.

The proposed project and activities are listed in GNR 545, specifically:-

| Number and date of relevant notice | Activity No (s) (in terms of the relevant notice) | Description of listed activity as per the project description   |
|------------------------------------|---|---|
| <b>GN No. R 545</b>                | 11  | This section of the proposed project is basically the construction of railway line from Davel to the Swaziland border in Mpumalanga |

Other listed activities listed in GNR 544 and 546 are also triggered:

Activities are listed in GNR 544 (activities requiring a Basic Assessment), specifically:-

| Number and date of relevant notice | Activity No (s) (in terms of the relevant notice) | Description of listed activity as per the project description  |
|------------------------------------|---|--|
| <b>GN No. R 544</b>                | 9   | Storm water management facilities will be installed in some areas of the railway. It is expected that the facilities will exceed the 1000m length.   |
| <b>GN No. R 544</b>                | 11  | The proposed project will entail the construction of facilities as well as associated infrastructure (bridges, channels, buildings and infrastructure & structures) of the railway line of more than 50m <sup>2</sup> within a watercourse or within 32 metres of a watercourse. |
| <b>GN No. R 544</b>                | 13  | Facilities for the storage of diesel will be established along the line for refuelling purposes. The total volume of diesel to be stored at each of the storage facilities is expected to be more than 80m <sup>3</sup> but less than 500m <sup>3</sup> .                        |
| <b>GN NO. R 544</b>                | 18  | Material shall be removed from watercourses and concrete material introduced during construction of the bridges for the proposed railway link.   |
| <b>GN No. R 544</b>                | 37  | An extension to existing storm water facilities and sewage lines may be required. A total extension of more than 1000m and increase of throughput  |

|                     |    |  |
|---------------------|----|--|
|                     |    | by 10% or more can be expected.  |
| <b>GN No. R 544</b> | 39 | The proposed project will require the upgrade, expansion or replacement of existing bridges and/or other structures. The upgrade will take place outside the existing servitude which in turn will increase the current footprint.   |
| <b>GN No. R 544</b> | 40 | The proposed project will entail the upgrading of existing facilities as well as associated infrastructure by more than 50m <sup>2</sup> within a watercourse or within 32 metres of a watercourse.  |
| <b>GN No. R 544</b> | 49 | The proposed project may include the expansion of facilities or infrastructure for the bulk transportation of dangerous goods, namely industrial chemicals, in gas, liquid or solid form, outside an industrial complex or zone by an increased throughput capacity of 50m <sup>3</sup> or more per day. |
| <b>GN No. R 544</b> | 53 | The proposed Transnet-Swazi Rail link entails the upgrade of the existing railway line. The entire upgrade will take place outside an industrial area. It is envisaged that parts of the upgrade will be outside the reserve of the existing railway lines.  |

The proposed project and activities are listed in GNR 546 (activities requiring Basic Assessment on provincial requirements), specifically:-

| <b>Number and date of relevant notice</b> | <b>Activity No (s) (in terms of the relevant notice)</b> | <b>Description of listed activity as per the project description</b>   |
|---|--|--|
| <b>GN No. R 546</b>                       | 3  | The proposed railway link will include establishment of a number of masts along the line for communication purposes which might occur in the geographical areas identified in the listing notice, this will be confirmed through specialist studies. |
| <b>GN No. R 546</b>                       | 4  | The proposed construction and upgrade of the   |

|                     |    |  |
|---------------------|----|--|
|                     |    | Transnet-Swazi Rail link will include the building of gravel maintenance roads that may be wider than 4m. These roads might occur in the geographical areas identified in the listing notice. This will be confirmed through specialist studies.   |
| <b>GN No. R 546</b> | 10 | There will be areas of refuelling along the line. This will constitute storage of diesel in volumes less than 80m <sup>3</sup> which might occur within the geographical areas identified in the listing notice. This will be confirmed through specialist studies.  |
| <b>GN No. R 546</b> | 12 | The construction and the upgrade of the railway line will constitute removal of indigenous vegetation in areas that exceed 300m <sup>2</sup> . The affected areas may include critically endangered ecosystems depending on the alignment; this will be confirmed through the specialist studies.                              |
| <b>GN No. R 546</b> | 13 | Construction and upgrade of the proposed railway will involve clearing of areas more than 1ha where indigenous vegetation can constitute more than 75% of the total vegetation cleared which might fall within the geographical areas identified in the listing notice. This will be confirmed through the specialist studies. |
| <b>GN No. R 546</b> | 14 | The construction and the upgrade of the railway line will constitute removal indigenous vegetation with the total area that exceeds 5ha which might fall within the geographical areas identified in the listing notice. This will be confirmed through the specialist studies.  |
| <b>GN No. R 546</b> | 16 | The proposed railway line and associated infrastructure will include the construction of buildings and infrastructure exceeding or covering 10m <sup>2</sup> or more within a watercourse or within 32 metres of a watercourse.  |
| <b>GN No. R 546</b> | 19 | The planned roads for construction will require the lengthening of a road by more than 1 kilometre,  |

|                     |    |  |
|---------------------|----|--|
|                     |    | and possibly the widening of a road by more than 4 metres.   |
| <b>GN No. R 546</b> | 23 | The project may involve upgrade of the diesel storage areas that are currently in operation along the railway line and which could fall within the geographical areas identified in the listing notice. This will be confirmed through the specialist studies. |
| <b>GN No. R 546</b> | 24 | The project may also involve the expansion of buildings or infrastructure, expanded by 10m <sup>2</sup> or more within a watercourse or within 32 metres of a watercourse.   |

### 3.2 Provincial legislation

The following Mpumalanga provincial legislation will be taken into account during the EIA process:

- Mpumalanga Nature Conservation Act , 10 of 1998;
- Mpumalanga Tourism and Park Agency Act, 5 of 1998.

## 4 THE EIA PROCESS DESCRIPTION

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### 4.1 Objectives of the EIA

The objectives of the EIA are as follows:

- To ensure compliance with relevant environmental legislation and objectives;
- To identify and address significant issues and concerns through public participation;
- To describe the *status quo* (biophysical, physical and social) of the environment;
- To objectively assess various alternatives for the project;
- To evaluate the potential impact of the project, specific components of the project or activities to be conducted in an objective, independent manner based on the *status quo* environment; and
- To propose mitigation of these impacts and the implementation of the proposed measures, in the form of an Environmental Management Plan, which will conform to international and national best practise and environmental objectives.

## 4.2 Process to Date

The activities conducted to date in the Environmental Impact Assessment are indicated below in Table 14.

Table 14: EIA activities to date.

| Activity  | Timeframes                     |
|---|--------------------------------|
| Lodging of application with DEA                       | 14 May 2013                    |
| Registration of Project with DEA                      | 07 June 2013                   |
| Initial notification and registration of stakeholders | 21 June 2013                   |
| Draft Scoping Report review period                    | 11 July 2013 – 14 August 2013  |
| Notification of Stakeholder and I&AP meetings         | 10 – 12 July 2013              |
| Stakeholder and I&AP meetings                         | 30 July 2013 – 2 August 2013   |
| Stakeholder, I&AP and Focus meetings                  | August 2013                    |
| Submit Final Scoping Report                           | 28 August 2013                 |
| Final Scoping Report review period                    | 2 August 2013 – 1 October 2013 |

## 4.3 Assumptions and Limitations

In undertaking this investigation and compiling this Draft Scoping Report (DSR) the following has been assumed or are limitations of the study, unless otherwise indicated:

- Identification of all landowners and/or occupiers of land potentially affected by the development is still in process due to incomplete available SG information. In certain instances there is also no owner information available from the Deeds office. Landowner identification and notification is on-going.

Notwithstanding the aforementioned limitations, this study is consistent with the requirements of content of SR as stipulated in the NEMA 2010, EIA Regulations.

## 4.4 Authority Involvement

Aurecon, on behalf of Transnet, applied to the DEA for a deviation from regulation 15(1) on 09 April 2013. As no response was received from the DEA, and thus Aurecon submitted the application forms for the Davel to the Swaziland Border section of the Swaziland Railway Link project on 14 May 2013, attaching the above mentioned request for deviation thereto. The Department responded on 28 May 2013, rejecting the application forms on the grounds of rejection of the application for deviation from regulation 15(1). However, after a meeting between Transnet and the DEA on 29 May 2013, the DEA issued the project with an acceptance letter dated 07 June 2013. The acceptance of the applications was on condition that regulation 15(1) is fulfilled and proof of notification to landowners submitted to the Department no later than 30 June 2013. This condition has been complied with and the proof of such notification has been submitted to DEA on 28 June 2013. The MDEDET was also informed of the submitted application.

## 4.5 Context of this Report

As outlined above, the Environmental Assessment process undertaken to date has culminated in the production of a comprehensive draft SR.

To ensure that the requirements of NEMA are met, the Scoping Report contains the following information:

| GN R543 | CONTENT AS REQUIRED BY NEMA   | CHAPTER/ ANNEXURE               |
|---------|---|---------------------------------|
| 28(a)   | <i>Details of (i) the EAP who compiled the report; and</i>                                  | <i>Before Table of Contents</i> |
|         | <i>Details (ii) the expertise of the EAP to carry out an scoping procedures;</i>            | <i>Appendix A</i>               |
| 28(b)   | <i>A detailed description of the proposed activity;</i>                                     | <i>Chapter 1</i>                |
| 28(c)   | <i>A description of any feasible and reasonable alternatives that have been identified;</i> | <i>Chapter 1</i>                |
| 28(d)   | <i>A description of the property on which the activity is to be undertaken and the</i>      | <i>Not Applicable</i>           |

|              |   |                               |
|--------------|---|-------------------------------|
|              | <i>location of the activity on the property, or if it is –</i>  |                               |
|              | <i>(i) a linear activity, a description of the route of the activity; or</i>  | <i>Chapter 1</i>              |
|              | <i>(ii) an ocean-based activity, the coordinates where the activity is to be undertaken;</i>  | <i>Not Applicable</i>         |
| <i>28(e)</i> | <i>A description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity;</i> | <i>Chapter 2</i>              |
| <i>28(f)</i> | <i>An identification of all legislation and guidelines that have been considered in the preparation of the scoping report.</i>  | <i>Chapter 3</i>              |
| <i>28(g)</i> | <i>A description of environmental, social and economic issues and potential impacts, including cumulative impacts, that have been identified;</i>   | <i>Chapter 2</i>              |
| <i>28(h)</i> | <i>Details of the public participation process conducted in terms of regulation (27)a, including –</i>  | <i>Chapter 5</i>              |
|              | <i>(i) steps undertaken in accordance with the plan of study;</i>   |                               |
|              | <i>(ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the application have been displayed, placed or given;</i>   | <i>Appendix C</i>             |
|              | <i>(iii) a list of persons, organisations and organs of state that were identified and registered in terms of regulation 55 as interested and affected parties;</i>   | <i>Appendix C, Annexure E</i> |
|              | <i>(iv) a summary of comments and issues raised by registered interested and</i>  | <i>Appendix C, Annexure F</i> |



|               |  |                              |
|---------------|--|------------------------------|
|               | <i>affected parties, the date of receipt of these comments and the response of the EAP to those comments;</i>  |                              |
| 28(i)         | <i>A description of the need and desirability of the proposed activity and identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity;</i> | Chapter 1                    |
| 28(j)         | <i>A description of identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity;</i>  | Chapter 1                    |
| 28(k)         | <i>Copies of any representation, and comments received in connection with the application of the scoping report from interested and affected parties;</i>  | Not Applicable               |
| 28(l) and (m) | <i>Copies of the minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants; and any response by the EAP to those representation, comments and views;</i>  | Not Applicable at this stage |
| 28(n)         | <i>A plan of study for Environmental Impact Assessment which sets out the proposed approach to the environmental impact assessment of the application, which must include -</i>  | Chapter 6                    |
|               | <i>(i) A description of the tasks that will be undertaken as part of the environmental impact assessment</i>   | Chapter 6                    |

|              |   |                       |
|--------------|---|-----------------------|
|              | <i>process, including any specialist reports or specialised processes, and the manner in which such tasks will be undertaken;</i>                                   |                       |
|              | <i>(ii) An indication of the stages at which the competent authority will be consulted;</i>   | <i>Chapter 6</i>      |
|              | <i>(iii) A description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity;</i> | <i>Chapter 6</i>      |
|              | <i>(iv) Particulars of the public participation process that will be conducted during the environmental impact assessment process;</i>                              | <i>Chapter 6</i>      |
| <i>28(o)</i> | <i>Any specific information required by the competent authority;</i>  | <i>Chapter 4</i>      |
| <i>28(p)</i> | <i>Any other matters required in terms of sections 24(4)(a) and (b) of the Act.</i>   | <i>Not Applicable</i> |
| <i>28(2)</i> | <i>In addition, a scoping report must take into account any guidelines applicable to the kind of activity which is the subject of the application.</i>              | <i>Not Applicable</i> |

## 5 THE PUBLIC PARTICIPATION (PP) PROCESS

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### 5.1 Introduction

Consultation with the public forms an integral component of the environmental authorisation process. The PP Process in particular allows Interested & Affected Parties (I&APs) and other identified stakeholders to be informed about potential decisions that may affect them, and it affords them the opportunity to influence those decisions. Through effective Public Participation informed decision making by the Competent Authority is ensured, as the views of all parties affected by a proposed activity has been considered.

As per the Integrated Environmental Management Guidelines Series 7 (2010), published by the Department of Environmental Affairs, the benefits of public participation include the following:

- It provides an opportunity for I&APs, EAP's and the Competent Authority to obtain clear, accurate and understandable information about the environmental impacts associated with the proposed activity or implications of a decision;
- It provides I&APs with an opportunity to voice their support, concerns and questions regarding the project, application or decision;
- It provides I&APs with the opportunity of suggesting ways for reducing or mitigating any negative impacts of the project and for enhancing its positive impacts;
- It enables an applicant to incorporate the needs, preferences and values of affected parties into its application;
- It provides opportunities for clearing up misunderstandings about technical issues, resolving disputes and reconciling conflicting interests, it is an important aspect of securing transparency and accountability in decision-making; and
- It contributes toward maintaining a healthy, vibrant democracy.

### 5.2 Approach to the Public Participation Process

The approach followed for the Public Participation Process to date and which will continue throughout the EIA Process is as per Chapter 6 of the Environmental Impact Assessment Regulations, 2010 published in Government Notice No 543 of 18 June 2010.

The following Guideline Documents published by the DEA are also being utilised to inform the Public Process;

- Integrated Environmental Management Guideline Series 7 – Public Participation in the EIA Process, Department of Environmental Affairs (2010); and

- Public Participation Guidelines, Guideline Document 4 of 2006.

### 5.3 Public Participation Process up to date

The public participation process commenced in June 2013 and included the activities as listed below.

#### 5.3.1 Placement of Advertisement

A legal notice was placed in two local newspapers and in one national paper as the project extends into the provincial boundaries of both Mpumalanga and Kwa-Zulu Natal. The content of the legal notice published in English, Afrikaans and IsiZulu included:

- Details regarding the application;
- The nature and location of the proposed activity;
- Where further information on the application or activity can be obtained from; and
- Manner in which representations in respect of the application may be made and details of the applicable contact person.

The notices appeared as follows:

- **The Highvelder** (Mpumalanga): 27 June 2013 (English);
- **The Zululand Observer** (Kwa-Zulu Natal): 24 June 2013 (Afrikaans & English);
- **Die Beeld** (Afrikaans Edition, National): 25 & 27 June 2013 (Afrikaans); and
- **The Umlozi** (IsiZulu Edition for Kwa-Zulu Natal): 20 June 2013 (IsiZulu)

**Refer to Newspaper Advertisements: date of publication (Annexure C of Appendix C)**

#### 5.3.2 Direct notification of landowners and other identified I&APs

In conjunction with the placement of newspaper advertisements a Background Information Document (BID) with comment and registration sheet and a notification letter was compiled and distributed through registered post to directly affected landowners along the route alignment. These documents were also distributed to other I&APs which have been identified. The BID was also available for download from the Aurecon and Transnet websites. A copy of the BID and notification letters is included in **Annexure B of Appendix C. Proof of notification of landowners is also included in this attachment.**

**Affected land owners** were identified following receipt of a Transnet stakeholder database which was based on existing railway line servitude information. Aurecon then proceeded to overlay the proposed alignment/corridor onto digital cadastral Surveyor General Information in order to identify parent farms and farm portion boundaries which were affected by the railway alignment. Some of the available SG information was incomplete. Once a list of the affected properties was compiled, deed searches were undertaken in order to obtain postal addresses for the owners of affected land. Contact details for the owners of certain of the properties were however not available through the Deed searches and Aurecon is investigating alternative methods for notifying these landowners. From past experiences it is noted here that it is not always practically possible to hand deliver notification letters due to the nature of certain of the properties (e.g. no one resides on the property, locked gates prevent access). Every effort will be made to ensure that all affected property owners are informed of the proposal during the EIA Process and are provided with a fair opportunity to submit their comments. A **land owner database** has been compiled and is included in **Annexure E of Appendix C**. Aurecon anticipates that the placement of the legal notices will assist with the identification and participation of landowners. Aurecon is also in the process of communicating with the Lothair Farmers Association and other landowners and will request assistance with the identification of affected landowners.

**Other stakeholders** identified and notified other than directly affected property owners included:

- Organs of state which have jurisdiction in respect of the activity (National, Provincial and Local Authorities);
- Parastatals such as Eskom and Telkom who may be affected by the proposed activity;
- Non-government organisations such as the Endangered Wildlife Trust and the Mpumalanga Wetland Forum;
- Local communities and Farmers Associations; and
- Other organisations potentially affected by the activity.

A register (I&AP database) has been opened and is being maintained which contains the contact details of:

- All persons / institutions / organisations and associations that have been notified;
- All persons / institutions that have requested to be included in the database'
- All organs of State which have jurisdiction in respect of the activity.

The I&AP database can be found in **Annexure E of Appendix C**. Note that the identification of affected stakeholders is an on-going process and this list should not be seen as final. Affected stakeholders may register throughout the lifespan of the EIA Process.

### 5.3.3 Site notice boards

In order to notify the surrounding communities and immediate adjacent landowners of the proposed development, and to invite them to participate in the EIA Process site notices were erected in conspicuous locations along the route of the railway alignment. To ensure adequate notification of potential stakeholders, notice boards were also erected at public facilities such as Municipal Buildings, Public Libraries and popular shopping centres frequented by local residents. The notices were prepared in English, Afrikaans and IsiZulu.

**Refer to annexure D of Appendix C for a complete list indicating the locations at which the notice boards were erected. An A4 copy of the Notice boards as well as photos of site notices erected along the route is also included under this attachment.**

### 5.3.4 Issues and Response trail

Issues, comments and concerns raised during the public participation process are compiled into an Issues and Response Report (refer to **Annexure F of Appendix C**). All comments received up to date have been captured and distributed to members of the project team for further consideration. Responses have been provided on comments which have been received. The Issues and Response Report is used for the evaluation of environmental impacts and serves to identify issues which require further scrutiny during the EIA investigation.

### 5.3.5 Draft Scoping Report available for public review

The Draft Scoping Report has been made available for review and comment by registered I&APs and key stakeholders between 11 July – 14 August 2013. The Report with Appendices has been made available for download from the Aurecon website at [www.aurecongroup.co.za](http://www.aurecongroup.co.za) as well as on Transnet's website at [www.transnet.co.za](http://www.transnet.co.za) .

Hard copies of the Reports will also be available for review by the public at the following venues:

- Ermelo Public Library
- No public facility was available in Lothair which was deemed appropriate (public accessibility and operating hours were insufficient). The Lothair Farmers Association will therefore be furnished with 1 hard copy and several electronic copies of the DSR as several Farms in the Lothair district will be affected by the construction of a new portion of the railway line.

Registered I&APs have been notified of the availability of the Draft Scoping Report through post, facsimile and email.

The following organs of state have been provided with copies of the Draft Scoping Report:

- Department of Water Affairs;
- MDEDET
- Provincial Roads Authorities
- Department Public Works
- Department Agriculture And Land Administration
- Gert Sibande District Municipality
- Affected Municipalities: Msukaligwa and Mkhondo local municipalities
- Eskom
- Telkom
- Mpumalanga Tourism and Parks Agency (MTPA)
- South African National Roads Agency Limited (SANRAL)
- South African Heritage Resources Agency (SAHRA)
- Ezemvelo Kzn Wildlife
- Department of Agriculture, Forestry and Fisheries (DAFF)

All comments received on the Draft Scoping Report will be included in the Issues and Response Report of the Final Scoping Report for submission to DEA. Take note that registered I&APs will again be afforded an opportunity to provide comment on the Final Scoping Report.

## 5.4 Public Consultation

The following venues have been identified for the Public Meetings which will be held. Note that these venues may be subject to change based on feedback received from affected stakeholders. Aurecon is in process of communicating with the applicable Traditional Authorities and venues for meetings with these stakeholders are still to be confirmed.

- 1 x Public Meeting at the Davel Primary School;
- 1 x Focus Group Meeting with Lothair Farmers Association in Lothair;

I&APs will be invited to these meetings in conjunction with the release of the Draft Scoping Report. An invitation will be sent to all I&APs listed on the current database. The invite will include details regarding the dates, times and venues for these meetings.



The purpose of these meetings is to afford I&APs an opportunity to discuss the findings of the Draft Scoping Report with members of the project team. The meetings will also serve to clarify any potential inaccuracies which may have arisen regarding the railway alignment and landowner details. Furthermore these meetings also provide an opportunity for the EAP to clearly explain the EIA Process and to ensure that I&APs understand the importance of their participation. It also serves to identify any additional stakeholders that should be contacted and invited to participate in the process. Minutes of these meetings will be included in the Final Scoping Report for submission to DEA. Any issues or concerns raised at these meetings will be captured in the Issues and Response Report.

## 5.5 Comment Final Scoping Report

Following the expiry date for submission of comments on the Draft Scoping Report, the Final Scoping Report will be prepared for submission to DEA. Registered I&APs will be provided 21 days to review the Final Scoping Report and will be requested to submit their comments within this timeframe directly to the Competent Authority.

# 6 ISSUES IDENTIFIED DURING THE SCOPING PHASE

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The proposed construction and upgrade of the Davel to Nerston section of the Swaziland Railway Link project is anticipated to impact on a range of biophysical, social and economic aspects of the environment. One of the main purposes of the EIA process is to understand the significance of these potential impacts and to identify suitable mitigation measures, both positive and negative.

A summary of issues raised to date are indicated below. The Plan of Study for the EIA in Section 7 provides a detailed indication of how these issues will be addressed.

***As this document serves as the draft scoping report, it is important to note that the issues raised during the public consultation process will be added to this section after the report has been distributed for comments.*** The detail contained below has been sourced from the preliminary specialist input reports which can be found in Appendix B, annexures A through J.

## 6.1 Environmental Issues Raised

### 6.1.1 Ecological Issues Raised

Eighty one (81) non-perennial and seven (7) perennial watercourses cross the existing, as well as the proposed 35m wide railway corridors. These watercourses form the basis for identifying potential wetland and riparian areas to be investigated during field surveys.

All waterbodies that lie within 500m of the proposed development footprints will be investigated during a dedicated field survey as set out in this document. For the purpose of activities within the 1:100 year floodline or the wetland/riparian area (whichever is the greatest), an application for a Water Use License must be made. In addition, activities close to wetlands are excluded from the General Authorization for S21 (c) and (i) water uses (government gazette No. 389) due to the complexity and potentially cumulative impact on a wetlands and rivers and the resources as a whole (DWA, 2010). Therefore all activities within 500m of wetlands or rivers should be subject to an application for authorization.

The Davel - Nerston line will traverse a number of important habitats:

- Irreplaceable - development criteria = “linear developments are restricted”
- Highly significant – development criteria = “linear developments are restricted”
- Important or necessary (ecosystem functioning or corridors) - development criteria = “linear developments are restricted”

The remaining areas were categorised as follows:

- No Natural habitat remaining - development criteria = “linear developments are permitted”
- Least concern - development criteria = “linear developments are permitted”

A portion of the line falls within two Highly Significant catchments. This is possibly due to this catchment forming part of the catchment divide between the Vaal River and the Olifants. Most of these rivers are categorised with a PES score Class C or Moderately Modified, which is a rather unique occurrence considering the general landscape change that has occurred over time.

During the EIA phase, intensive habitat matching will be conducted and ground-truthed to determine the exact status and importance of the habitats observed at a finer scale as well as identify the presence any Species of Special Concern (Faunal & Floral).

The following issues and impacts have been identified together with potential impacts which will be investigated during the EIA phase:

Issue 1- Destruction of natural habitat:

- Impact 1- Loss of habitat and removal of vegetation – terrestrial
- Impact 2 - Loss of habitat and removal of vegetation – wetland and waterbodies
- Impact 2 - Loss of corridors
- Impact 3 - Loss of ecotones

Issue 2 – Loss of endangered species

- Impact 1 – Loss of rare and endangered species
- Impact 2 – Introduction of alien and invasive species

Issue 3 – Removal of topsoils and soil erosion

- Impact 1 – an increase in soil erosion

Issue 4 – Introduction of alien vegetation

- Impact 1 – introduction of alien or invasive plants

## 6.1.2 Geohydrological Issues Raised

The potential for groundwater contamination is associated with uncontrolled spills of fuels and lubricants during the construction phase, as well as any hazardous material transported during the operational phase. The extent and impact of potential groundwater contamination is largely dependent on the nature of the subsurface soil, geological & geohydrological conditions. This will be assessed during the EIA phase.

## 6.2 Social, Economic and Cultural Issues Raised

### 6.2.1 Social Issues Raised

#### Negative Socio-economic Impacts

- A loss of land and assets to the railway servitude or areas to be occupied by project-related surface infrastructure;
- A population influx (due to the presence of a construction and operational workforce, as well as an influx of job-seekers into the area), with a possible concomitant increase in social pathologies and increased pressure on existing infrastructure and services;
- Disruption of access routes and daily movement patterns by the construction and/or permanent servitude;
- Impacts on sense of place. Such impacts may arise as a result of the visual intrusion of project-related infrastructure, as well as noise and traffic impacts during construction;
- Dust caused by the construction works and from movement of heavy equipment. During the construction phase, the local community and construction workers would be inconvenienced by the dust generated by the construction works;
- Noise and vibration due to the construction works and from movement of heavy equipment. Movement of heavy machinery on existing local roads may be one of the core problems for the local community during the construction phase. Vibration may also damage structures located nearby;
- Socio-cultural differences and conflicts between migrant workers and the local community. Single men predominately occupy the construction camps which could create social conflicts, usually as a result of cultural differences, alcohol abuse or being away from their wives or girlfriends for extended periods of time. A possible reason for conflict would be the perception among locals that the outsiders are taking up jobs that could have gone to unemployed members of the local community. An influx of unemployed job seekers could also add to the potential for conflict;
- Diseases associated with the arrival of temporary labour in the area. Various social pathologies, such as drug/alcohol misuse, abuse of woman and children and incidences of sexually transmitted diseases (STDs) may increase with the influx of job-seekers into the area;

- Crime. An inflow of construction workers and job seekers may also be accompanied by an increase in crime. Even if specific instances of crime are not as a result of the newcomers, they may still be ascribed to them by local communities; and
- Informal settlements. Once construction is concluded and the camp is vacated, it may be illegally occupied by unlawful tenant.

#### Positive Socio-economic Impacts

- Local employment and job opportunities. The construction phase of the project will have a positive impact on the local labour market. It is anticipated that the operational phase will also create permanent employment opportunities for the local affected communities though some level of technical skills and qualifications may be needed;
- Local economy opportunities and economic empowerment. The construction phase of the project will have temporary positive impacts on the local economy; and
- Establishment/ upgrading of services.

**The specialist will investigate the above mentioned impacts further in the EIA phase in collaboration with the heritage and social specialists.**

### **6.3 Health and Safety issues raised during the Scoping Phase**

#### **6.3.1 Safety and Security Aspects**

An emergency response plan should be compiled and incorporated into the EMPs for both the construction and operational phases. Issues pertaining to regular inspections, monitoring mechanisms, maintenance and emergency response will be incorporated into this EMP.

Safety requirements linked to the existing development footprint of the proposed construction site will be investigated and reported in the legislative and institutional requirements of the EIA report. These aspects will further be incorporated into the design and layout of the proposed facility. Where necessary, monitoring and inspection mechanisms will be included in the construction and operational phases of the EMP.

### **6.4 Institutional and Legal Aspects Raised During the Scoping Phase**

#### **6.4.1 Project Lifecycle**

The project is effectively in the preliminary design phase, and no detailed design is available as such. Where applicable comment and suggestions made during the scoping phase will be incorporated into the design.

#### **6.4.2 Alternatives to and Need for the Project**

A detailed alternatives assessment will be conducted in the EIA phase, based on alternatives identified during the Scoping Phase (Chapter 1.2). These alternatives include evaluation of the

no-go option; alternatives to site selection; and alternatives to construction methodologies and site layout. The need for the project will be evaluated and presented in the EIA report.

### 6.4.3 Availability of Specialist Reports and Information Relevant to the Application

All documentation relevant to this environmental application, particularly specialist reports and background information used to compile the Scoping Report will be appended to the final reports and made available during the required comment periods.

## 7 PLAN OF STUDY FOR THE EIA

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### 7.1 Tasks to be undertaken during the EIA

#### 7.1.1 Specialist Assessments

Detailed specialist assessments will be conducted should the final scoping report and the plan of study for Environmental Impact Assessment (EIA) be accepted by the Department of Environmental Affairs. The specialist studies proposed for the EIA are:

- Hydrological assessment
- Waste management
- Social impact assessment (including possible resettlement action plan)
- Socio-economic impact assessment
- Geohydrological study
- Ecological assessment
- Wetland assessment and delineation
- Air quality assessment
- Noise and vibration studies
- Cultural/archaeological assessment

The plan of study summary with regards to the individual specialist studies to be undertaken can be found in Table 15. The individual scoping reports from each of the above mentioned specialists can be found in **Annexures A through J of Appendix B**.

Table 15: Plan of study for EIA with respect to the preliminary specialist studies that have been done.

| During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken |  |
|--|--|
| Ecological Assessment  | <p>Due to the limited level of detail that is normally considered during a screening assessment, it is considered imperative to conduct detailed ecological (flora and fauna) investigation within areas earmarked in this report (See Section 2.5). This would include, but not necessarily be limited to:</p> <p>Flora:</p> <ul style="list-style-type: none"> <li>• Provide a description of the general floristic species diversity and community composition;</li> <li>• Evaluating the occurrence of potential Red Data taxa;</li> <li>• Demarcating physiognomic units based on floristic relevès; and</li> <li>• Provide an indication on the ecological condition (successional stage) of the predetermined physiognomic units.</li> </ul> <p>Fauna:</p> <ul style="list-style-type: none"> <li>• A detailed faunal assessment based on field observation;</li> <li>• An avifaunal assessment with particular reference towards the occurrence species sensitive to the placement of transmission lines;</li> <li>• An evaluation of the occurrence of any of the listed conservation needy species.</li> </ul> <p>Wetlands and rivers:</p> <p>As highlighted in the above sections a large proportion of the available habitat related to sensitive or important</p> |



| During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken |   |
|--|---|
|  | <p>taxa, are associated with the wetland / riverine / moist habitats. The EIA phase will thus focus on critical assessment of the wetland / riverine systems in the following way:</p> <ul style="list-style-type: none"> <li>• Delineation of any important wetland and river boundaries using the requisite techniques based upon the latest Wetland Classification systems (SANBI, 2009);</li> <li>• Indicate suitable buffer zones as prescribed by the relevant provincial policies / conservation plans</li> <li>• Assess the status of the observed faunal and floral populations observed;</li> <li>• Assess the potential impacts on the functioning of these systems.</li> </ul>  |
| Waste Management   | <p>The proposed methodology for the application for Waste Management License will be governed by the National Environmental Management Waste Act, 59 of 2008.</p> <p><b>National Environmental Management Waste Act, 59 of 2008.</b></p> <p>Schedule (Section 19(1)) <b>Category A</b> states that:</p> <p><i>“Any person who wishes to commence, undertake or conduct an activity listed under this Category (A), must conduct a <b>basic assessment process</b>, as stipulated in the Environmental Impact Assessment Regulations made under Section 24(5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as part of a waste management licence application.”</i></p> <p>The following are listed Category A activities that may apply to the proposed sites:</p> <p><b>Storage and transfer of waste</b></p> |

| During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken |   |
|--|---|
|  | <p>1. <i>The temporary storage of general waste at a facility, including a waste transfer facility and container yard that has the capacity to receive in excess of 30 tons of general waste per day of that has a throughput capacity in excess of 20m<sup>3</sup> per day, including the construction of a facility and associated structures and infrastructure for such storage.</i></p> <p><i>And Possibly;</i></p> <p><b>Recycling and Recovery</b></p> <p>3. <i>The sorting and shredding of general waste at a facility that has the capacity to receive in excess of one ton of general waste per day, including the construction of a facility in associated structures and infrastructure for such sorting or shredding.</i></p>   |
| Socio - Economic Impact Assessment   | <p>The socio-economic impact assessment will be undertaken in order to assess socio-cultural and economic data on affected populations and communities. This study will depend on the results of the Scoping Phase and existing baseline data focusing on the following key socio-economic indicators:</p> <ul style="list-style-type: none"> <li>• Demographic characteristics (i.e. population number, population density by km<sup>2</sup>, annual population growth rate, male/female ratio, etc);</li> <li>• Human Development Indicators;</li> <li>• Settlement and migration pattern, housing and household economy;</li> <li>• Poverty and livelihoods;</li> <li>• Employment (i.e. unemployment rate, employment by sector, formal and informal sectors, agricultural activities);</li> <li>• Economic activity (total annual income, income sources – i.e. cash income and income derived from</li> </ul> |

**During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken**

- subsistence activities, household income and per capita income; agricultural activities and livestock husbandry; artisanal activities, natural resources related activities, household division of labour);
- Local political and decision making structures and authority;
- Health indicators; and
- Services (i.e. health and education services, electricity access, water supply)

This information will be used to compile a report describing the socio-economic and cultural environment for the areas affected by the project. Any potential impacts that may arise from the proposed project will be identified and assessed, and mitigation measures will be proposed where applicable to mitigate any negative impacts and enhance positive impacts.

**7.1.2 Identification and assessment of the potential positive and negative impacts**

Potential positive and negative impacts of the proposed undertaking on the socio-economic environment will be identified and assessed during its various phases. It is anticipated that these may include the following:

- The creation of employment opportunities and opportunities for local enterprises;
- A loss of land and assets to the railway line servitude or areas to be occupied by project-related surface infrastructure;
- Physical and/or economic displacement of people (e.g. non-landowning tenants);<sup>1</sup>
- A population influx (due to the presence of a construction and operational workforce, as well as an influx of job-seekers into the area), with a possible concomitant increase in social pathologies and increased pressure on existing infrastructure and services;
- Disruption of access routes and daily movement patterns by the construction and/or permanent servitude;

<sup>1</sup> Although the study will estimate the numbers of households and individuals that will be displaced by the project, and will make recommendations regarding mitigation/ compensation measures to ensure that displaced persons are not worse off as a result of the project, it will not involve the compilation of a Resettlement Action Plan.

| During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>• Impacts on sense of place. Such impacts may arise as a result of the visual intrusion of project-related infrastructure, as well as noise and traffic impacts during construction;<sup>2</sup> and</li> <li>• Potential safety and security impacts, which may result from an increase in traffic during construction, as well as increased criminal activity due to easy access to properties via the permanent pipeline servitude.</li> </ul> <p><b>7.1.3 Proposals to mitigate any potential negative socio-economic, cultural and public health and safety impacts.</b></p> <p>Such mitigation measures may include:</p> <ul style="list-style-type: none"> <li>• Optimisation of project benefits through employment creation and corporate social investment by the project proponent;</li> <li>• Involvement of affected landowners and residents to negotiate appropriate compensation measures to address the possible loss of, or damage to, land or property as a result of the project; and</li> <li>• Liaison with local and regional authorities to address the increased strain on services and infrastructure.</li> </ul> |
| Cultural /<br>Archaeological<br>Assessment<br>(Heritage)   | <p>The following will be required to manage the heritage resources within the final corridor alignment.</p> <p><b>Methodology</b></p> <p><i>Aerial Photographical Survey</i></p> <p>Aerial photographs will be utilised to identify possible places where archaeological sites might be located.</p> <p><i>Physical Surveying</i></p>  |

<sup>2</sup> Although an impact on an area's sense of place may result in an effect on property values, the study will not attempt to quantify the latter impact. It is assumed that, if it is found that property values may suffer a significant impact because of the project, a separate specialist study will be undertaken to quantify this impact.

| During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken |  |
|--|--|
|  | <p>The fieldwork component will consist of a selective walk through/site visit of the proposed salignment and is aimed at locating heritage resources falling within (and directly adjacent to) the proposed alignment. The locations of all heritage resources that are recorded during the survey will be documented using a hand-held GPS. Furthermore, the documentation will reflect a brief qualitative description and statement of significance for each site and includes a photographic record of all the sites.</p> <p>It is important to also note that informal social consultation (i.e. with local community members, residents and knowledgeable individuals) will be undertaken during the fieldwork component. The aim of social consultation is to identify any tangible and intangible resources (i.e. sacred places, myths and indigenous knowledge systems) that may exist.</p> <p><b>Deliverable</b></p> <p>A report will be written which would include the following components:</p> <ul style="list-style-type: none"> <li>• The identification and mapping of all heritage resources in the affected area;</li> <li>• An assessment of the significance of such resources in terms of the heritage assessment criteria;</li> <li>• An assessment of the impact of the development of such heritage resources;</li> <li>• If heritage resources will be adversely affected by the proposed development, consideration of the alternatives; and</li> <li>• Proposed mitigation of any adverse effects during and after the completion of the proposed development.</li> </ul> |
| Social Impact Assessment   | <p>The following methodology is proposed to be adopted for the undertaking of the SIA:</p> <ul style="list-style-type: none"> <li>• A desktop study of the general socio-demographic context for the proposed project with reference to the relevant project phases, affected provinces and the respective district and local environments;</li> </ul>   |

**During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken**

- Description of the organisational and institutional context of this project based on the same desktop review;
- Semi-structured interviews with affected persons and households to develop a description of the social environment for each of the proposed phase with reference to the socio-demographic context;
- Where concentration of households are affected (for instance, small farm communities), focus group discussions will be used to develop a description of the social environment; and
- Where appropriate, key informant interviews will be conducted with social leaders and representatives from relevant institutions of governance.

While the background study will be based on secondary data sources, interaction with the social environment will be qualitative in nature to allow for the collection of rich data. Data analysis will be largely determined by the data categories inherent to the social data.

We anticipate focusing on the following social impacts:

- Presence of (temporary) construction workers;
- Displacement and dispossession, including competing interests in scarce, non-renewable natural resources;
- Diversification of economic activities in the region;
- Diversification of land use; and
- Enhanced transport and rural accessibility.

Approach

Due to the dispersed location of the project phases (across 2 provinces and in Swaziland) and the time constraints for this project, it is important to allow sufficient time for the project initiation and planning phases to ensure that all matters have been clarified, concepts well defined and boundaries and protocols are set for social and stakeholder engagement. Three social specialists will be deployed concurrently on the project in

| During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken |  |
|--|--|
|  | <p>order to meet the timeframes. The following activities are envisaged:</p> <ul style="list-style-type: none"> <li>• Collection of background documentation from the client and other secondary sources (e.g. IDP, SDF, Census data, etc.);</li> <li>• Development and review of the research instruments (interview and focus group guidelines). The instruments will be approved by the client before the commencement of fieldwork;</li> <li>• Fieldwork. Each project area will be visited (preferably in conjunction with other site visits that require community interaction) during which key informant and semi-structured interviews will be conducted with affected people. Where appropriate, focus group meetings will be held during the same time. Timely field preparation will be dependent on the amount of available information from the client and meetings with affected parties may have to be arranged at short notice;</li> <li>• Data analysis will be done for each area separately but the SIA will be compiled per province and consolidated into a comprehensive SIA for the proposed project;</li> <li>• Compilation of draft SIA report with a social management plan and presentation to the client; and</li> <li>• Review of comments and finalisation of assessment report.</li> </ul> <p>Deliverables</p> <p>The following deliverables will be presented at the end of this study:</p> <ul style="list-style-type: none"> <li>• A provincial SIA (integrated with the EIA) for Mpumalanga and KwaZulu Natal;</li> <li>• A consolidated SIA for the entire project; and</li> <li>• Social management plan.</li> </ul> |
| Geohydrological Assessment   | <p><b>Geohydrological Description along the Rail Link</b></p> <p>A desk study of all relevant available data, reports and maps will be made. It will be necessary to liaise and consult with the relevant government departments to access information applicable to the investigation. Data</p>   |



**During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken**

from South Africa & Swaziland’s national groundwater database will be requested and assessed. The “Groundwater Resource Maps” of South Africa & Swaziland will be used as base information in the process of delineating aquifers along the railway line. Upon completion of the desk study a report port will be compiled summarising the findings of the study.

**Baseline Geohydrological Investigations at 3 Refuelling Depots**

The following phased approach will be followed:

**Phase 1:** Site visit & Desk study

**Phase 2:** Hydrocensus & Geophysical Survey

**Phase 3:** Drilling

**Phase 4:** Permeability tests and sampling of newly drilled boreholes

**Phase 5:** Reporting

**Phase 1: Desk study & Site visit**

This phase will consist of a desk study of all available information (topographical maps, ortho-photos, geological maps, hydrological information and previous relevant reports) and a site walk-over to familiarise ourselves with the site and its layout.

**Phase 2: Hydrocensus & Geophysical survey**

A borehole census will be done in the area 1 kilometre from the boundary of the project area. The census is necessary to identify legitimate groundwater users and establish the quality, quantity and usage of groundwater in the vicinity of the site. Water samples will be analysed for DRO & GRO (diesel and gasoline range organics), as well as the major inorganic elements. Where possible groundwater levels will also be

| During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken |   |
|--|---|
|  | <p>measured which will assist in the understanding of groundwater flow at the site.</p> <p>Upon completion of the hydrocensus, a geophysical ground survey utilising a combination of techniques such as Electromagnetics, Magnetics or Resistivity will be conducted to locate any geological structures such as dykes or faults which may act as preferential flow paths. Based on the geophysical data the localities for up and downstream monitoring boreholes will be selected.</p> <p><b>Phase 3: Drilling</b></p> <p>Drilling of boreholes is required to investigate the occurrence and quality of groundwater in the area. Normally one up- and two downstream boreholes of 30m deep each should be adequate. Boreholes will be delivered with UPVC casing, a gravel pack, bentonite seal a concrete plinth and lockable cap. Drilling supervision will include appointing a driller contractor and seeing that drilling is executed to specifications. Recording of the lithologies and water strikes intersected in each borehole is recorded during drilling.</p> <p><b>Phase 4: Permeability tests and sampling of the newly drilled boreholes</b></p> <p>Newly drilled boreholes are given a ~ 1 week period to settle and to allow for water levels to return to their static levels. Thereafter a falling head test to determine the hydraulic conductivity of the geological formations underlying the site will be done. Sampling of the water for chemical analysis will be done on completion of the falling head tests.</p> <p><b>Phase 5: Reporting</b></p> <p>The product of this investigation will be a report, constructed in such a way that it can easily be incorporated into the final EIA document.</p> |
| Hydrological Assessment  | <p>The impact assessment will entail the following:</p> <ul style="list-style-type: none"> <li>• Evaluation of environmental impacts - a detailed evaluation of the potential surface water impacts will be</li> </ul>  |

| During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken |   |
|--|---|
|  | <p>undertaken. Potential impacts identified from other specialist studies, such as groundwater, water quality, cumulative impacts, and risks associated with the proposed railway on the surface water resources and downstream users, will be considered. The extent, duration, intensity, probability of occurrence, significance, and degree of confidence in the predictions, will be described. Mitigation actions will be recommended. Where appropriate, simple runoff models will be employed to estimate the magnitude of the potential quantity impacts, including an estimate of channel forming discharge (i.e. 1 in 5 year or 1 in 10 year flood peaks) at identified appropriate river crossings.</p> <ul style="list-style-type: none"> <li>• Risk analysis and programme risk management - A risk analysis would be undertaken for each potential surface water resource impact. The potential impacts of flooding by major rivers on the proposed railway will be described qualitatively as well as a first order assessment of the areas at risk of inundation. Risk management and impact mitigation is dealt with under the Environmental Management Plan.</li> <li>• Environmental Management Plan and mitigation measures - The purpose of this task is to evaluate or propose control measures that can either prevent a hazardous event from occurring, or to reduce its consequences if it occurs. In terms of hydrology and flooding the focus will be on proposed flood protection and discharge control measures as well as specifying compensation flows for downstream water users.</li> </ul> |
| Wetland Assessment and delineation   | <p>The delineation method documented by the Department of Water Affairs and Forestry in their document “An updated manual for identification and delineation of wetlands and riparian areas” (DWAF, 2008), will be followed throughout the field survey. This guideline describes the use of indicators to determine the outer edge of the wetland and riparian areas such as soil and vegetation forms as well as the terrain unit indicator.</p> <p>A hand held GPSmap 76CSx will be used to capture GPS co-ordinates in the field. 1:50 000 cadastral maps and available GIS data will be used as reference material for the mapping of the preliminary wetland</p>  |

| During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken |  |
|--|--|
|  | <p>boundaries. These will be converted to digital image backdrops and delineation lines and boundaries will be imposed accordingly after the field survey.</p> <p>Assessments to be conducted by the wetland specialists include the following:</p> <ul style="list-style-type: none"> <li>• Wetland and riparian delineations;</li> <li>• Wetland and riparian functionality and integrity assessments, such as                             <ul style="list-style-type: none"> <li>○ Ecological Importance and Sensitivity (EIS);</li> <li>○ WetEco Services;</li> <li>○ WET-Health;</li> <li>○ Riparian Vegetation Response Assessment (VEGRAI).</li> </ul> </li> </ul>  |
| Air Quality Assessment   | <p>The following scope of work is entailed in the AQIA during the EIA phase:</p> <ul style="list-style-type: none"> <li>• Determine and document the baseline, ambient air quality conditions of the study area. This should include a description of the pre-project pollutant levels where possible and existing sources of emissions to ambient air quality (if any) associated with the project area;</li> <li>• Identify potential sources of particulate emissions from the proposed project.;</li> <li>• Model the fallout of pollutants of concern and emissions from the project during the construction and operation phases and determine the zones of influence around emission sources accordingly;</li> <li>• Describe any sensitive receptors (e.g. local communities) within the zones of influence identified above;</li> <li>• Assess the significance of impacts to the receiving air quality environment and sensitive receptors within the zone of influence according to criteria to be provided by Aurecon (based on the nature,</li> </ul> |

**During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken**

extent, duration, extent, magnitude and probability of the impacts). This assessment is to be conducted for the construction, operation, closure / decommissioning and post-closure phases (if applicable);

- Identify and assess any potential cumulative impacts in terms of the above criteria;
- Provide practical and implementable mitigation measures by which to manage the identified impacts throughout the life of the proposed project. Any changes to the significance of impacts resulting from implementation of mitigation or management measures must be illustrated;
- Report on all legislation, provincial legislation and any ordinances at a local or municipal level that will impact this project and what permits this project will require going forward;
- Describe a monitoring protocol to be implemented throughout the life-of-project;
- Provide shape-files illustrating sensitive receptors, zones of impact etc.;
- Complete, submit and follow-up AEL application forms for the 3 fuel transfer stations.

***Deliverables***

- 1 Baseline air quality and meteorological assessment,
- 2 Air quality impact assessment via dispersion modelling,
- 3 Recommendations in terms of mitigation measures and monitoring plans
- 4 Specialist air quality study report.
- 5 AEL application forms for fuel transfer stations

***Outputs***

1. Specialist air quality study report

| During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken |  |
|--|--|
|  | 2. AEL applications  |
| Noise and Vibration studies  | <p>SANS 10328:2008 (Edition 3) specifies the methodology to assess the noise impacts on the environment due to a proposed activity that might impact on the environment. The standard also stipulates the minimum requirements to be investigated for Scoping purposes. These minimum requirements are:</p> <ol style="list-style-type: none"> <li>1. The purpose of the investigation;</li> <li>2. A brief description of the planned development or the changes that are being considered;</li> <li>3. A brief description of the existing environment;</li> <li>4. The identification of the noise sources that may affect the particular development, together with their respective estimated sound pressure levels or sound power levels (or both);</li> <li>5. The identified noise sources that were not taken into account and the reasons why they were not investigated;</li> <li>6. The identified noise-sensitive developments and the estimated impact on them;</li> <li>7. Any assumptions made with regard to the estimated values used;</li> <li>8. An explanation, either by a brief description or by reference, of the methods that were used to estimate the existing and predicted rating levels;</li> <li>9. The location of the measurement or calculation points, i.e. a description, sketch or map;</li> <li>10. Estimation of the environmental noise impact;</li> <li>11. Alternatives that were considered and the results of those that were investigated;</li> <li>12. A list of all the interested or affected parties that offered any comments with respect to the environmental noise impact investigation;</li> <li>13. A detailed summary of all the comments received from interested or affected parties as well as the procedures and discussions followed to deal with them;</li> <li>14. Conclusions that were reached;</li> </ol> |

**During the EIA phase of the project the following activities relevant to the different specialist studies will be undertaken**

15. Recommendations, i.e. if there could be a significant impact, or if more information is needed, a recommendation that an environmental noise impact assessment be conducted; and
16. If remedial measures will provide an acceptable solution which would prevent a significant impact, these remedial measures should be outlined in detail and included in the final record of decision if the approval is obtained from the relevant authority. If the remedial measures deteriorate after time and a follow-up auditing or maintenance programme (or both) is instituted, this programme should be included in the final recommendations and accepted in the record of decision if the approval is obtained from the relevant authority.

In addition, the Scoping report should contain sufficient information to allow the Environmental Assessment Practitioner (EAP) to compile the Plan of Study for EIA, including the Noise component.

In this regard the following will be included to assist the EAP in the compilation of the Plan of Study (PoS) for the Environmental Noise Impact Assessment (ENIA):

- The potential impact will be evaluated (where possible) in terms of the nature (description of what causes the effect, what/who might be affected and how it/they might be affected) as well as the extent of the impact. This will be done by means of a site visit, where appropriate ambient sound levels will be determined and the identification of potential noise-sensitive developments/areas;
- A statement regarding the potential significance of the identified issues based on the evaluation of the issues/impacts;
- The identification of issues to be investigated in more detail during the Environmental Impact Assessment phase; and
- Details regarding the methodology followed to estimate and assess the potentially significant impacts during the ENIA phase.



## 7.2 Consultation with Competent Authorities

Consultations with the authorities will occur on the following occasion:-

- After the Draft Scoping Report has been made available for comment within the public domain, comments will be incorporated into the Comments and Response Journal and final Scoping Report.
- The Final Scoping Report will once again be made available for comment within the public domain.
- Any final comments will be incorporated into the Final Scoping Report for submission to DEA.
- A site visit with DWA and MDEDET is proposed once the Final Scoping Report has been submitted.
- After the Draft EIA report has been made available for comment within the public domain, comments will be incorporated into the Comments and Response Journal and Final EIA Report for submission to DEA.
- The Final EIA Report will once again be made available for comment within the public domain.
- A second site visit and meeting with DEA is proposed once the Final EIA report is in its commenting period.
- Any final comments will be incorporated into the Final EIA for submission to DEA.
- Apart from the above mentioned occasions, further consultation with authorities will occur whenever necessary.

## 7.3 Assessment Methodology and Approach

### 7.3.1 Introduction

The purpose of this chapter is to describe the assessment methodology utilised in determining the significance of the potential impacts of the proposed activities on the biophysical, social and economic environment. The methodology was developed in 1995 and has been continually refined to date through the application of it to over 400 EIA processes. The methodology is broadly consistent to that described in the DEA's Guideline Document on the EIA Regulations (1998).

### 7.3.2 Evaluation Methods in Environmental Assessment

#### a) Identification of environmental, social and economic attributes

Environmental, social and economic attributes are first identified for which impacts of the proposed activity will be assessed. This is done through initial investigations by the EAP and then through public participation.

#### b) Collection of data and description of *Status Quo* situation

Baseline information is then required to establish the *status quo* for the environmental and social attributes to be evaluated in the impact assessment. This is done through collection and collation of existing spatial information (GIS, aerial photographs, planning databases etc) which is then verified through specialist assessments.

**c) Identification of environmental, social and economic impacts**

The impact of activities to be conducted during various phases of the proposed project on the attributes identified during scoping phase EIA is then evaluated by the EAP through input from the various specialists. The preferred methodology to evaluation is a simple Impact – Activity Checklist.

**d) Impact – Activity Checklist**

This section outlines the methodology used to assess the significance of the potential environmental impacts identified. For each impact, the EXTENT (spatial scale), MAGNITUDE (size or degree scale) and DURATION (time scale) are described (

Table 16). These criteria are used to ascertain the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the EIR represent the full range of plausible and pragmatic measures *but does not necessarily imply that they should or will all be implemented*.<sup>3</sup> The decision as to which mitigation measures to implement lies with Transnet and ultimately with the DEA. The tables on the following pages show the scale used to assess these variables, and defines each of the rating categories.

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<sup>3</sup> The applicant will be requested to indicate which alternative and mitigation measures they are prepared to implement.

Table 16: Criteria for the evaluation of environmental impacts

| CRITERIA  | CATEGORY                   | DESCRIPTION  |
|---|----------------------------|--|
| <b>Extent or spatial influence of impact</b>                | <b>Regional</b>            | Beyond a 10km radius of the proposed construction site                           |
|   | <b>Local</b>               | Within a 10km radius of the centre of the proposed construction site             |
|   | <b>Site specific</b>       | On site or within 100m of the proposed construction site                         |
| <b>Magnitude of impact (at the indicated spatial scale)</b> | <b>High</b>                | Natural and/ or social functions and/ or processes are <i>severely</i> altered   |
|   | <b>Medium</b>              | Natural and/ or social functions and/ or processes are <i>notably</i> altered    |
|   | <b>Low</b>                 | Natural and/ or social functions and/ or processes are <i>slightly</i> altered   |
|   | <b>Very Low</b>            | Natural and/ or social functions and/ or processes are <i>negligibly</i> altered |
|   | <b>Zero</b>                | Natural and/ or social functions and/ or processes remain <i>unaltered</i>       |
| <b>Duration of impact</b>                                   | <b>Construction period</b> | Up to 2 years  |
|   | <b>Medium Term</b>         | Up to 5 years after construction   |
|   | <b>Long Term</b>           | More than 5 years after construction   |

The SIGNIFICANCE of an impact is derived by taking into account the temporal and spatial scales and magnitude. The means of arriving at the different significance ratings is explained in Table 17.

Table 17: Definition of significance ratings

| SIGNIFICANCE RATINGS | LEVEL OF CRITERIA REQUIRED   |
|----------------------|--|
| <b>High</b>          | <ul style="list-style-type: none"> <li>High magnitude with a regional extent and long term duration</li> <li>High magnitude with either a regional extent and medium term duration or a local extent and long term duration</li> <li>Medium magnitude with a regional extent and long term duration</li> </ul> |
| <b>Medium</b>        | <ul style="list-style-type: none"> <li>High magnitude with a local extent and medium term duration</li> <li>High magnitude with a regional extent and construction period or a site</li> </ul>   |

|                 |   |
|-----------------|---|
|                 | <p>specific extent and long term duration</p> <ul style="list-style-type: none"> <li>• High magnitude with either a local extent and construction period duration or a site specific extent and medium term duration</li> <li>• Medium magnitude with any combination of extent and duration except site specific and construction period or regional and long term</li> <li>• Low magnitude with a regional extent and long term duration</li> </ul> |
| <b>Low</b>      | <ul style="list-style-type: none"> <li>• High magnitude with a site specific extent and construction period duration</li> <li>• Medium magnitude with a site specific extent and construction period duration</li> <li>• Low magnitude with any combination of extent and duration except site specific and construction period or regional and long term</li> <li>• Very low magnitude with a regional extent and long term duration</li> </ul>      |
| <b>Very low</b> | <ul style="list-style-type: none"> <li>• Low magnitude with a site specific extent and construction period duration</li> <li>• Very low magnitude with any combination of extent and duration except regional and long term</li> </ul>  |
| <b>Neutral</b>  | <ul style="list-style-type: none"> <li>• Zero magnitude with any combination of extent and duration</li> </ul>  |

Once the significance of an impact has been determined, the PROBABILITY of this impact occurring as well as the CONFIDENCE in the assessment of the impact would be determined using the rating systems outlined in Table 18 and Table 19 respectively. It is important to note that the significance of an impact should always be considered in connection with the probability of that impact occurring. Lastly, the REVERSIBILITY of the impact is estimated using the rating system outlined in Table 20

Table 18: Definition of probability ratings

| PROBABILITY RATINGS | CRITERIA   |
|---------------------|--|
| <b>Definite</b>     | Estimated greater than 95% chance of the impact occurring. |
| <b>Probable</b>     | Estimated 5 to 95% chance of the impact occurring.         |
| <b>Unlikely</b>     | Estimated less than 5% chance of the impact occurring.     |

Table 19: Definition of confidence ratings

| CONFIDENCE RATINGS | CRITERIA  |
|--------------------|---|
| <b>Certain</b>     | Wealth of information on and sound understanding of the environmental |

|               |  |
|---------------|--|
|               | factors potentially influencing the impact.  |
| <b>Sure</b>   | Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact. |
| <b>Unsure</b> | Limited useful information on and understanding of the environmental factors potentially influencing this impact.                              |

Table 20: Definition of reversibility ratings

| REVERSIBILITY RATINGS | CRITERIA   |
|-----------------------|--|
| <b>Irreversible</b>   | The activity will lead to an impact that is permanent. |
| <b>Reversible</b>     | The impact is reversible, within a period of 10 years. |

### 7.3.3 Subjectivity in Assigning Significance

Despite attempts at providing a completely objective and impartial assessment of the environmental implications of development activities, EIA processes can never escape the subjectivity inherent in attempting to define significance. The determination of the significance of an impact depends on both the context (spatial scale and temporal duration) and intensity of that impact. Since the rationalisation of context and intensity will ultimately be prejudiced by the observer, there can be no wholly objective measure by which to judge the components of significance, let alone how they are integrated into a single comparable measure.

This notwithstanding, in order to facilitate informed decision-making, EIAs must endeavour to come to terms with the significance of the potential environmental impacts associated with particular development activities. Recognising this, we have attempted to address potential subjectivity in the current EIA process as follows:

- Being explicit about the difficulty of being completely objective in the determination of significance, as outlined above;
- Developing an explicit methodology for assigning significance to impacts and outlining this methodology in detail in the PoSfEIA and in this EIR. Having an explicit methodology not only forces the assessor to come to terms with the various facets contributing towards the determination of significance, thereby avoiding arbitrary assignment, but also provides the reader of the EIR with a clear summary of how the assessor derived the assigned significance;
- Wherever possible, differentiating between the likely significance of potential environmental impacts as experienced by the various affected parties; and
- Utilising a team approach and internal review of the assessment to facilitate a more rigorous and defensible system.

Although these measures may not totally eliminate subjectivity, they provide an explicit context within which to review the assessment of impacts.

### 7.3.4 Consideration of Cumulative Impacts

Section 2 of the NEMA requires the consideration of cumulative impacts as part of any environmental assessment process. EIAs have traditionally, however, failed to come to terms with such impacts, largely as a result of the following considerations:

- Cumulative effects may be local, regional or global in scale and dealing with such impacts requires co-ordinated institutional arrangements; and
- EIA's are typically carried out on specific developments, whereas cumulative impacts result from broader biophysical, social and economic considerations, which typically cannot be addressed at the project level.



## **7.4 Public Participation during the EIA Phase**

Public participation forms a critical component of the EIA process, as it provides all interested and affected parties with an opportunity to learn about a project, but more importantly to understand how a project will impact on them.

Although the EIA process – including the Public Participation Process – is legislatively controlled, minimum requirements are not often enough in ensuring comprehensive, transparent participation. It is therefore necessary to utilise all participation tools during the EIA process to ensure maximum participation.

### **7.4.1 Public review of documents**

Draft documents, including all supporting documentation, will be made available for public comment. The public will be given a 40 day period to comment and raise issues of concern based on the information contained in the report.

Should the PoSfEIA be approved, the Draft EIA document will be completed and made available for public comment for a 40 day period. It should be noted that this period may be extended on request. All specialist reports prepared as indicated in this document will be appended to the EIA report for public review.

### **7.4.2 Public open days and meetings**

Public meetings are envisaged to take place during the last week of July 2013.

### **7.4.3 Incorporation of comments into the Final EIA**

All comments received during the public review period (including those obtained during public meetings) will be incorporated into the final EIA report which is submitted to DEA for review and approval.

### **7.4.4 Notification of the Environmental Authorisation**

On eventual issuing of an authorisation by DEA, notices will be sent to all registered Interested and Affected Parties that the Environmental Authorisation (EA) has been granted and that it is available for review. These notices will indicate the process required to lodge an appeal, as well as the prescribed timeframes in which documentation should be submitted.

## 8 CONCLUSION AND RECOMMENDATIONS

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### 8.1 Conclusions

The project is currently fast-tracked to an aggressive completion programme. By virtue of its international nature, cohesive and wide-ranging inter-governmental co-operation remains one of the key pillars to success. The creation of a strategic link between South Africa and the export Ports of Richards Bay and Maputo, through Swaziland, has been found to be technically feasible, with certain risks attached.

Two possible corridors are proposed and the potential impact of the construction of the railway line on the environment needs to be assessed in terms of the process prescribed by the National Environmental Management Act, 107 of 1998.

#### Network upgrades

The additional demand on parts of the network brought about by increase in traffic volume from sources other than Mpumalanga and central Gauteng make upgrades of the network a critical planning driver. Expected Limpopo traffic is a major contributor to demand capacity on the southern section of the corridor. This refers particularly to the Phuzumoya-Nsezi section which has the addition of growing North-South line traffic to deal with. This fact should not be permitted to cloud or delay the original strategic intent, namely, to create a new rail link between Swaziland and South Africa.

In summary:

- The upgrade of the existing rail network from Davel to Lothair and from Sidvokodvo to Nsezi is key to the project feasibility, reflected in the viability of the new link section;
- Certain network upgrade activities equal or even surpass the new link in length and scope of civil works required. This is particularly true in respect of the section Sidvokodvo-Phuzumoya to Nsezi;
- Critical infrastructural elements are introduced under route upgrades, including:
  - Davel Yard. Penultimate Work Package, due to long term nature of load consolidation, but will be required for 200 wagon functionality;
  - New line between Breyten and Buhrmanskop, including links for existing and future traffic access and major Level Crossing elimination benefit;
  - New junctions at Lothair and Phuzumoya; and
  - New line between Sidvokodvo and Nsezi, (excluding Pongola River bridge and Mtubatuba tunnel) creating bypass lines at the towns of Golela, Mtubatuba and Hluhluwe.
- All public level crossings will be eliminated;
- Upgrades can be achieved with minimum disruption to current operations; and
- The line between Buhrmanskop and Lothair will need to be closed for the Commodities originating from Lothair will need to be transported by road to Buhrmanskop.

The above, notwithstanding that there are many planning and construction aspects (activities) and many areas of environmental concern attached to the project.

These arise by virtue of:

- The topography of the area, linked to stringent route geometry factors required to meet the design criteria for heavy haul operations as planned.
- The magnitude of earthworks required (high banks and deep cuttings) as well as the number and size of structures involved.
- The rural nature of large sections of the route, environmentally sensitive land use (forestry, subsistence farming) and long linear impact on riverine / floodplain farming and land use.
- Point-type areas of impact such as the proximity to the Westoe Dam near Lothair and numerous river and stream crossings.
- The impact on human settlement, particularly the rural settlement patterns prevailing in the Swaziland section of the new link line.
- The successful conclusion of the EIA process, culminating in Authorisations valid in each of the Partner States is critical to the viability of the Project, timeous commencement of the Works and commencement of train operations according to the agreed programme in the 2nd Quarter of 2017.
- The EIA process will be complex from management and technical perspectives and exhaustive in extent by virtue of:
  - The multinational nature of the project;
  - Complexities inherent in differing legal and governance requirements per Partner State; and
  - The sensitive bio-physical and social setting of the project.

Other permitting processes must not be overlooked in the need to obtain environmental approval under the respective country regulations. Factors such as the need for water use or borrow pit licences need to be clarified as soon as possible, since these processes can be extensive.

An exhaustive and dedicated Stakeholder Engagement Plan (internal as well as external) has been compiled for early implementation. Social impacts in the form of site camp labour requirements are identified.

At this stage the direct labour force could reach 2 180 units, with a potential value of ZAR 2 080 million. This comprises labour components of both construction activities as well as material supply. The Swaziland / RSA split is estimated at approximately 45% / 54%. Viewed as an on-going project, the estimated annual labour budget to operate the corridor amounts to ZAR 115 million. This comprises direct personnel in the fields of Movement, Train Control and Yard functions, as well as Rolling Stock and Infrastructure maintenance.

The “Equator Principles” established by the Equator Principles Financial Institutions are described for applicability to the project. Visible compliance to this set of voluntary guidelines for

the financing industry in assessing environmental and social risks is a prerequisite for funding and investment purposes.

## 8.2 Recommendations

- a) The Public Participation Process as prescribed in the National Environmental Management Act, 107 of 1998 is to be continued during the EIA phase to allow I&APs the opportunity to participate in the process.
- b) Due to the limited level of detail that is normally considered during a screening assessment, it is considered imperative to conduct detailed specialist studies, based on the plan of study for EIA as reflected in chapter 7, should the final scoping report and the plan of study for Environmental Impact Assessment (EIA) be accepted by the Department of Environmental Affairs. The specialist studies proposed for the EIA are:
  - Hydrological assessment;
  - Waste management;
  - Social impact assessment (including possible resettlement action plan);
  - Socio-economic impact assessment;
  - Geohydrological study;
  - Ecological assessment;
  - Wetland assessment and delineation;
  - Air quality assessment;
  - Noise and vibration studies; and
  - Cultural/archaeological assessment.

## 9 REFERENCES

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# Appendices



# Appendix A

## Curriculum Vitae of the Environmental Assessment Practitioners

**Addendum A: Dr Pieter Botha**

**Addendum B: Candice Dürr**

**Addendum C: Claudia Neethling**

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# Appendix B

## Specialist input reports

**Annexure A: Wetland delineation report**

**Annexure B: Ecological report**

**Annexure C: Geohydrological report**

**Annexure D: Hydrological report**

**Annexure E: Waste Management report (to be included in the Final Scoping Report)**

**Annexure F: Social Impact Assessment**

**Annexure G: Air Quality report (To be included in the Final Scoping Report)**

**Annexure H: Noise and vibration report**

**Annexure I: Cultural / Archaeological report (To be included in the Final Scoping Report)**

**Annexure J: Socio-economic assessment**

# Appendix C

## Public Participation documents

**Annexure A: Proof of letter submitted to landowners**

**Annexure B: Notification letter and BID**

**Annexure C: Newspaper Advertisements**

**Annexure D: Site notices**

**Annexure E: Interested and Affected Parties database**

**Annexure F: Public meeting invitation**

**Annexure G: Issues and Response Report: To be completed**

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# Appendix D

## DEA Application Documents

**Addendum A: Application for Deviation from regulation 15(1)**

**Addendum B: EIA application forms**

**Addendum C: DEA rejection letter**

**Addendum D: DEA acceptance letter**

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