

Passenger Rail Agency of South
Africa (PRASA)



**ENVIRONMENTAL SCREENING REPORT
FOR THE
PRASA ROLLING STOCK PROCUREMENT
PROJECT PHASE 2
DEPOT SITE SELECTION PROCESS**

DURBAN

February 2012
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Executive Summary

The Passenger Rail Agency of South Africa (PRASA) intends to modernise and upgrade their current railway services and their key objective is to promote rail as the preferred mode of transport for the majority of South Africans. PRASA is currently investigating the location of suitable modern maintenance depots sites, country wide, as part of the Rolling Stock Fleet Renewal Project.

Two sites were identified in Durban, the Springfield site and the Durban Central site. The Springfield site is located within the Umgeni Business Park (also known as Springfield Park) along Umgeni Road, within the boundaries of the eThekweni Municipality, approximately 10 km north of the Durban CBD. The Durban central Depot site is located between Umgeni Road and Masabalala Yengwa Avenue just to the north of Durban's Central Business District (CBD).

Figure 1: Location of the Central Durban Depot

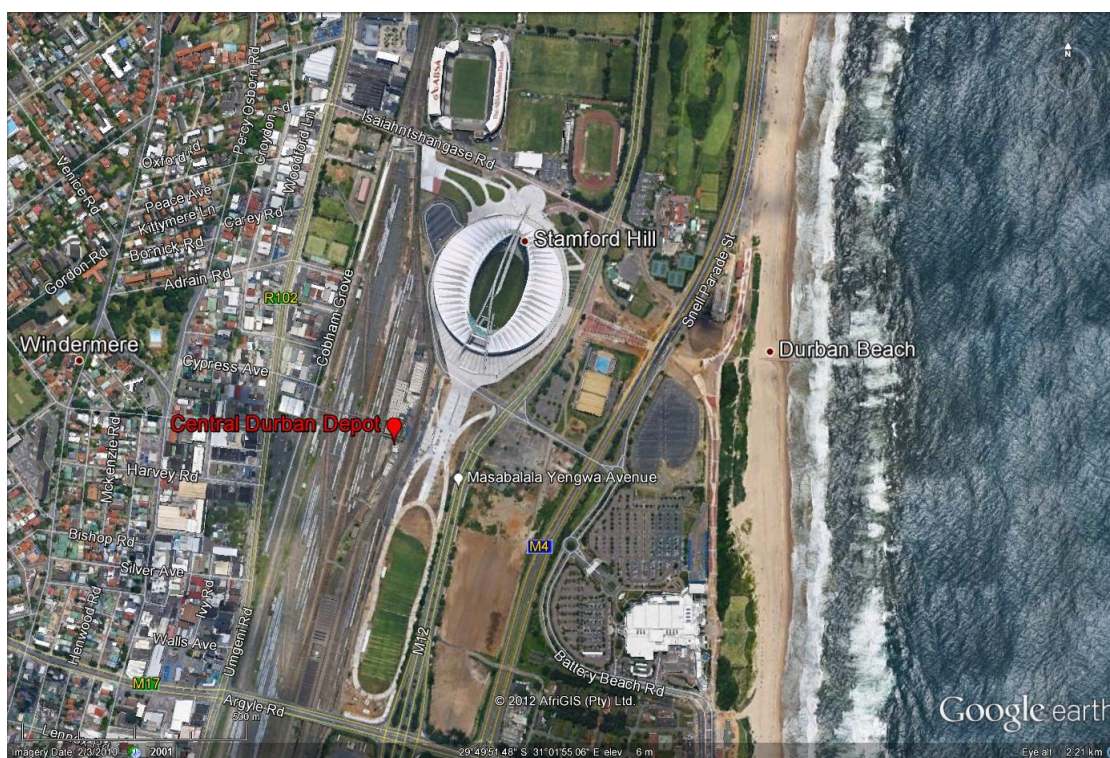




Figure 2: Location of the Springfield Depot



The following was reported on from a desktop and via site visits for the two sites; Durban Central Depot and Springfield Depot:

- Legislative framework;
- Site specific environmental descriptions and project aspects;
- Current historical and surrounding land use;
- Climate;
- Geology and soils;
- Hydrology;
- Ecology;
- Culture and Heritage;
- Services;
- Transportation infrastructure and public rights of way;
- Socio-economic considerations;
- Social representatives; and
- Other environmental applications required.

The expected timeframe and expected cost of the required environmental projects for each of the sites was also established. The table below summarises these findings:



Table 1: The expected cost and time frame for the two sites and the type of assessments required

Sites	Basic Assessment (BA)	Environmental Impact Assessment (EIA)	Expected Timeframe	Expected Cost
Central Durban Depot	Yes	No	BA - 6 months EIA -14 months WULA – 24 Months ECO – duration of construction phase	BA - R 200,000.00 (excl. Vat) EIA - R 550,000.00 (incl. VAT) WULA – R25 000.00 (excl VAT) ECO – R 5,000.00 per audit (Excl VAT)
Springfield Depot	Yes	Unlikely	BA - 6 months EIA -14 months WULA – 24 Months ECO – duration of construction phase	BA - R 200,000.00 (excl. Vat) EIA - R 550,000.00 (incl. VAT) WULA – R25 000.00 (excl VAT) ECO – R 5,000.00 per audit (Excl VAT)

The prices above are inclusive of the following specialist studies expected to be required:

- Heritage;
- Social;
- Wetland and Surface Water; and
- Ecological.

It is advised that extreme care be exercised in further studies and applications since any activities or associated activities of the PRASA project will result in surface disturbances and this is likely to result in severe adverse impacts on the biological environment. However many of the identified impacts could most probably be effectively managed through appropriate mitigation measures introduced during the planning, design, construction and operation of the new depot.

The following additional key conclusions are drawn from the Environmental Screening Report:

- eThekweni Municipality and other identified authorities would need to be included on any future plans regarding the PRASA Rolling Stock Fleet Renewal Project.



- Since PRASA is a national parastatal organisation, any application for Environmental Authorisation must be made to the National Department of Environmental Affairs (DEA).
- Even if a BA would not be legally required, it may be prudent to undertake a voluntary EIA, develop an EMP, and provide for the appointment of an ECO.
- A Water Use License may be required and needs to be applied for.
- The Major overhead Eskom powerlines on the Springfield Depot may require rerouting or replacing with underground cables
- The ecology of the Umgeni River embankment is considered sensitive and impact thereon needs to be avoided / minimised / mitigated
- The status of soil and subsoil conditions in terms of contamination are unknown and needs to be determined
- Road traffic and public right of way needs to be considered / mitigated (particularly the pedestrian footbridge over the Umgeni River).

Further work required as part of the next phase will involve the following;

- Address gaps of information;
- Determination of the Terms of Reference of the EIA process to be followed;
- Site Alternatives Discussions;
- Site Evaluation Criteria Analysis;
- Potentially significant impacts will undergo further investigation;
- Specialist consultation to directly address potentially significant impacts; and
- Site evaluation and input from specialists.



ENVIRONMENTAL SCREENING REPORT FOR THE PRASA DURBAN AND SPRINGFIELD YARD DEPOT AND WORKSHOP

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1 INTRODUCTION AND BACKGROUND

Arcus GIBB (Pty) Ltd (GIBB), a multi-disciplinary consulting firm, was appointed to undertake Environmental Screening studies for various sites under consideration by the Passenger Rail Agency of South Africa for the construction or upgrade of Maintenance Depots and Staging yards.

The Passenger Rail Agency of South Africa (PRASA) intends to modernise and upgrade their current railway services and their key objective is to promote rail as the preferred mode of transport for the majority of South Africans. According to (PRASA, 2011), this will only become a reality through adequate investment in the existing neglected system.

The poor condition of the unreliable, aging rolling stock is the “single largest obstacle” for PRASA to achieve their planned objective. Combined with a broader strategy to acquire modern technology and a changing passenger demand, PRASA is focused on upgrading and investing in new rolling stock over the next 20 years.

In order to achieve this, PRASA is currently investigating the location of suitable modern maintenance depots sites, country wide, as part of the Rolling Stock Fleet Renewal Project. The proposed depot sites involves either ‘greenfield’ sites or the use and upgrade of current ‘brownfield’ railway sites, where existing facilities may potentially be utilised and upgraded. As part of the process and to find the most suitable and preferred depot, PRASA requires an understanding of the possible environmental challenges and/or fatal flaws of the alternative sites under consideration.

For this purpose of gaining an understanding of the environmental challenges and/or fatal flaws of the alternative sites which were identified in KwaZulu-Natal, South Africa, this Environmental Screening Report was prepared. It details the results and findings of the relevant discussions and site visit during a meeting held on the 08 February 2012 with representatives of the GIBB project team and Metro Rail; as well as subsequent brief desktop study.

Four alternative depot sites in the Durban (eThekweni Municipality) area, KwaZulu-Natal, as were previously identified by PRASA for the proposed project, included sites at/near:

- Existing Durban Central Rail Servitude near the Moses Mabhida Stadium (brownfield site)
- Existing Springfield Rolling Stock Maintenance Depot on the embankment of the Umgeni River (brownfield site)
- Bayhead Marshalling Yard (brownfield site)
- New site between the residential areas of Bellair and Hillary (greenfield site).

During the discussions at the mentioned meeting two sites were immediately eliminated for technical reasons. These were the Bayhead and Bellair/Hillary sites and these sites were therefore not visited or screened further. Although the Bayhead Site reportedly has room for expansion, the Metro Rail representatives advised that the site would however involve crossing the existing Transnet owned railway lines which may create a problem and/or extensive complications. Furthermore, the Bayhead area is considered to be an extremely congested area in terms of road traffic, which may well disrupt depot operation. In turn, the Durban Metro



representatives advised that the Bellair/Hillary Site is technically unfeasible due to steep terrain (requiring special engines) and a single connection to the main rail link, which may result in obstruction of the main.

It was therefore decided to only consider and screen the Durban Central and Springfield alternatives, both brownfield sites.

1.1 Purpose of the Environmental Study

1.1.1 Overall Study

The purpose of the overall study is to determine the most suitable and preferred depot site for the Rolling Stock Fleet Renewal Project within each province. GIBB Environment has been advised that the most suitable site will be selected by PRASA and their associated engineers based on a number of criteria and guiding principles, including the following;

- Centre of Gravity
- Impact on network Operations
- Phasability
- Environmental Challenges
- Town Planning/Zoning
- Construction Program
- Locality
- Safety and Security
- Land Acquisition
- Cost.

The adjudication and application of each of these criteria is not discussed within this report, only those challenges associated with the environment have been reported on accordingly.

1.2 Scope of the Proposed PRASA Activities to be Undertaken

The Rolling Stock Fleet Renewal Project potentially requires a combination of the following construction activities:

- Upgrade / modify existing maintenance depots
- New maintenance depots which require the following
 - Covered maintenance roads, with pits, power and water at each road
 - Approximately 6 or 7 full length roads per depot for routine exams and repairs
 - Component exchange roads, 2 full length roads per depot
 - Drop pits, under floor lift, or synchronized jacks for rapid bogie exchange
 - Other specialized lifting equipment, as required for the trains
 - Shore supply (external power supply for the trains' auxiliaries)
 - Roof access platforms



- Automatic train washing plant, and facilities for pressurized cleaning of underframe equipment
- Under floor wheel lathe
- Paint booth
- Adequate under cover storage for both small and large components
- Fork lift trucks
- New Staging Yards
- Upgrade / modify existing Staging Yards.

The exact location and number of depots and staging yards required, either new or upgraded, however has not yet been determined by PRASA. For the purposes of this report, it has therefore been assumed that both depots and staging yards could be planned for the proposed sites, and these could either be new or upgraded.

1.2.1 Environmental Study - Scope and Limitations

During the Environmental Screening Process the following limitations were identified;

- **Time constraints:** constricted timeframes of this project made it difficult to perform a detailed analysis of both sites
- **Information Gaps:** information provided in this Screening Report was based on defined data sets, existing literature for areas nearby and management inputs.
- **Health and Safety:** Consideration for management of health and safety falls outside the purpose of this document. However, there are a number of overlaps and synergies that are relevant in terms of environmental management that were briefly considered
- **Environmental Management System:** The requirements in terms of an EMS which PRASA may have were not considered, and this therefore needs to be considered separately.
- **Industry Waste Management Plan:** It was not established whether the Minister / MEC has issued a directive in terms of Industry Waste Management Plan for rail facilities.
- **Site contamination:** It is not clear whether any of the sites are contaminated, and if yes what the waste classification and quantity of such contamination would be
- **Trade Permit:** It was not clear whether the existing operations already operate under a Trade Permit from the eThekweni Municipality; and if not whether this would be a requirement
- **Water Use License:** It was not clear whether the existing operations already operate under a WUL

(a) Central Durban Depot

- **Existing wastewater treatment facility:** if there is an existing wastewater treatment facility at the site; and, if yes, whether it has the capacity to deal with the additional wastewater

(b) Central Durban Depot

- **Existing wastewater treatment facility:** Not sure if the existing wastewater treatment facility has the capacity to deal with the additional wastewater.

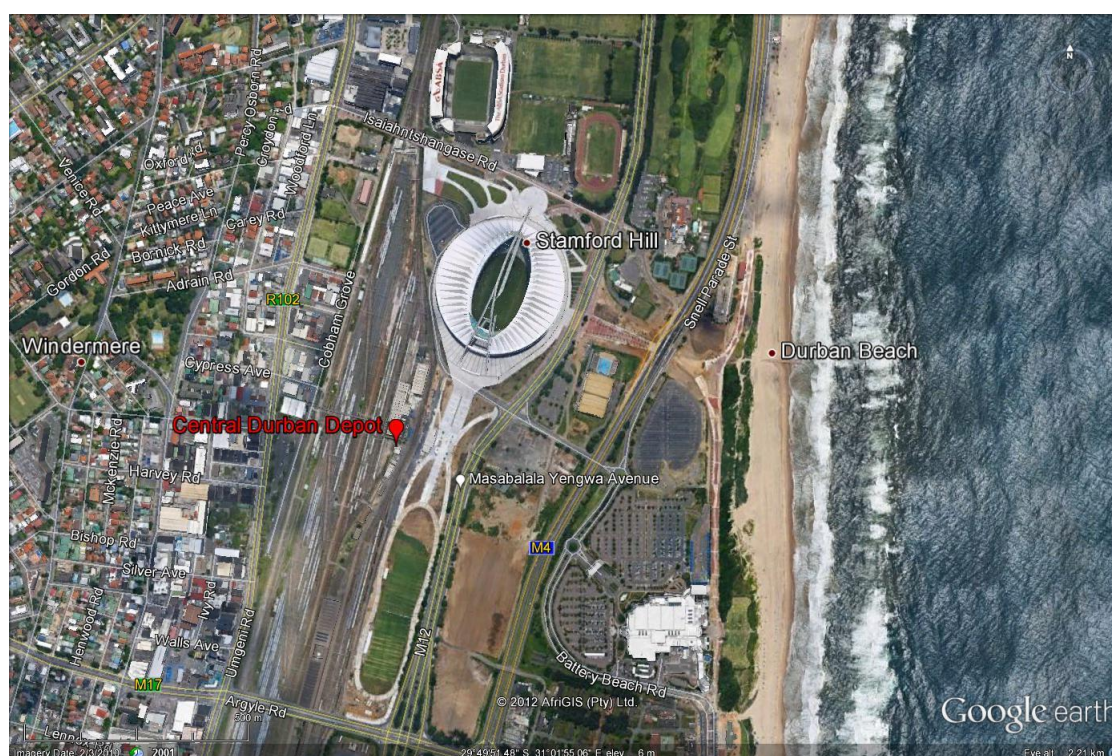


1.3 Locations

1.3.1 Central Durban Depot

A site for the Central Durban Depot is considered within the precinct of Durban's central railway station, and associated rail servitude. As shown in **Figure 1** below, the site is located between Umgeni Road and Masabalala Yengwa Avenue just to the north of Durban's Central Business District (CBD).

Figure 1: Location of the Central Durban Depot



The proposed railway station site covers a total area of approximately 28.5 ha and is located within the rail reserve (owned by PRASA) which, according to PRASA, is zoned transport. Various rail infrastructure facilities exist at the site, most of which are still operational. The project site is surrounded by a variety of commercial and recreational / sports uses, with the residential area of Morningside (Windermere Road) situated further than 100 m from the site (WSP, 2009). The surrounding environment is summarised in **Table 1** below.



Table 1: Surrounding Environment

Direction	Description
North	Isaishntshangase Road and the Kings Park Stadium.
East	Moses Mabhida Stadium, the M12 highway and Durban Beach.
South	Argyle Road and Durban CBD.
West	Adjacent to Cobham Grove and the Umgeni Road and residential area of Windermere and Morningside.

1.3.2 Springfield Depot

The Springfield site is located within the Umgeni Business Park (also known as Springfield Park) along Umgeni Road, within the boundaries of the eThekweni Municipality, approximately 10 km north of the Durban CBD. As shown in **Figure 2** below, the Springfield Depot is also located on the embankments of the Umgeni River.

Figure 2: Location of the Springfield Depot



The site is located adjacent to an area that can be regarded as a major traffic node, linking northern and central eThekweni via rail and road. Some nearby residential developments exist and the Umgeni estuary and surrounding areas provide for recreational opportunities (GIBB, 2010). The surrounding environment is summarised in **Table 2** below.

Table 2: Surrounding Environment

Direction	Description
North	The Lower Umgeni River - approximately 200 m.



	Light industrial and business area occurring along Inanda Road and the Seacow Lake residential area
East	Chris Hani Road Bridge and the Umgeni River Mouth.
South	Umgeni Road and the residential area of Springfield.
West	Umgeni business park and about 1.2 km west is the N2 highway.



2 LEGISLATIVE FRAMEWORK

This section includes legislation and policy guidelines identified as pertinent to environmental screening for the PRASA Rolling Stock project. The proposed project has been screened against the requirements of the following legislation:

- The Constitution, 1996 (Act No. 108 of 1996);
 - National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended; including associated published guidelines;
 - Environmental Impact Assessment Regulations, 2010 (Government Notice No. R 543, 544 and 545 and 546 of 2010), promulgated in terms of Section 24(5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).
 - National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008);
 - National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004);
 - National Water Act, 1998 (Act No. 36 of 1998);
 - National Heritage Resources Act, 1999 (Act No. 25 of 1999);
 - National Environment Management: Biodiversity Act, 2004 (Act No. 10 of 2004);
 - Occupational Health and Safety Act.
-

2.1 The Constitution of South Africa, 1996 (Act 108 of 1996)

The legal reference source for environmental law in South Africa is found in the Constitution of the Republic of South Africa, Act 108 of 1996. All environmental aspects should be interpreted within the context of the Constitution. The Constitution has enhanced the status of the environment by virtue of the fact that environmental rights have been established (Section 24) and because other rights created in the Bill of Rights may impact on environmental management.

The Constitution also outlines the universal right to an environment that is not detrimental to health and well-being of any person. Inherent in this right is an obligation on the government to enact legislation protecting the environment and to promote economic, social and environmentally sustainable development.

2.2 National Environmental Management Act, 1998 (Act No. 107 of 1998)

The National Environmental Management Act, 1998 (NEMA) is South Africa's overarching framework for environmental legislation. The object of NEMA is to provide for operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of state.

NEMA sets out a number of principles that aim to implement the environmental policy of South Africa. These principles are designed, amongst other purposes, to serve as a general framework for environmental planning, as guidelines by reference to which



organs of state must exercise their functions and to guide other law concerned with the protection or management of the environment.

The principles include a number of internationally recognized environmental law norms and some principles specific to South Africa, namely, the:

- Preventive principle;
- Precautionary principle;
- Polluter pays principle; and
- Equitable access for the previously disadvantaged to ensure human well-being.

Section 28 of the Act underscores the Duty of Care principle, and ensures that environmental screening is incorporated into each activity, although it is not formally termed as such. Section 28 (1) states that:

“Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment”.

As outlined under Section 28(3), measures required to prevent significant pollution or degradation to the environment include assessment and evaluation of impacts, as well as containment, prevention and elimination of sources of pollution which may cause degradation, and to remedy any previous degradation that may have cause.

2.3 Environmental Impact Assessment Regulations, 2010

Chapter 5 of NEMA is designed to promote integrated environmental management. Environmental management must place people and their needs at the forefront of its concerns, and serve their physical, psychological, developmental, cultural and social interests equitably. Activities which are likely to impact on any of these are identified by Regulations promulgated under NEMA, including the new EIA Regulations published under Government Notice Regulations (GNR) 543, 544, 545 and 546 for those activities that require environmental authorisation. These regulations will therefore be used to identify any activities that will require assessment via a formal Basic Assessment or Environmental Impact Assessment process.

Please note that the EIA Regulations of July 2006 have recently been replaced by the new EIA Regulations published on 18 June 2010 and promulgated on 2 August 2010, which have therefore been referred to in this Environmental Screening Report.

2.4 The National Environmental Management: Waste Act, 2009 (Act No. 59 of 2008)

The National Environmental Management: Waste Act, 2009 (NEM:WA) gives effect to the White Paper on Integrated Pollution and Waste Management. It is the intention of this Act to address the current fragmentation in waste legislation in South Africa.



More specifically, the objectives of the NEM:WA are to:

- Protect health, well-being and the environment by providing reasonable measures for:
 - Minimisation of the consumption of natural resources
 - Avoidance and minimisation of the generation of waste
 - Recovery, re-use and recycling of waste
 - Treatment and safe disposal of waste as a last resort
 - Prevention of pollution and ecological degradation
 - Securing ecologically sustainable development while promoting justifiable economic and social development
 - Promoting and ensuring the effective delivery of waste services
 - Remediation of land where contamination presents, or may present, a significant risk of harm
 - Achieving integrated waste management reporting and planning.
- Ensure that people are aware of the impacts of waste on health and the environment.
- Provide for compliance with the measures set out in paragraph (a) (first bullet)
- Generally give effect to section 24 of the Constitution in order to secure an environment that is not harmful to the health and well-being of people.

It is important to note that the National Environmental Management: Waste Act, have replaced sections 19,19A, 20, 24, 24A 24B, and 24C of the Environmental Conservation Act (ECA).

2.5 The National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)

The aim of The National Environmental Management: Air Quality Act, 2004 (NEM:AQA) is to:

- Protect and enhance air quality in the Republic;
- Prevent air pollution and ecological degradation; and
- Secure ecologically sustainable development while promoting justifiable economic and social development.

The NEM:AQA makes provision for the establishment of ambient air quality and emission standards at a national, provincial and local level.

2.5.1 Listed Activities in terms of the NEM:AQA

Government Notice No. 248 of 2010 lists activities that result in atmospheric emissions and which have, or may have, a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage.



2.6 National Water Act, 1998 (Act No. 36 of 1998)

The purpose of the National Water Act, 1998 (NWA) is to ensure the protection, usage, development, management and control of water resources of the Republic by taking into account the following principles:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Redressing the results of the past racial and gender discrimination;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Facilitating social and economic development;
- Providing for growing demand for water use;
- Protecting aquatic and associated ecosystems and their biological diversity;
- Reducing and preventing pollution and the degradation of water resources;
- Meeting international obligations;
- Promoting dam safety; and
- Managing floods and droughts.

The most potentially relevant areas of the NWA are those that deal with the management, protection and usage of water resources. Section 19 also underscores the Duty of Care principle, stipulating that persons who “own, control, use or occupy land” on which an activity or process occurs must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.

2.7 The National Heritage Resources Act, 1998 (Act No. 25 of 1999)

The National Heritage Resources Act, 1998 (NHRA) serves to introduce an integrated and interactive system for the identification, assessment and management of the heritage resources of South Africa. The NHRA promotes good governance and the empowerment of civil society to preserve their heritage for future generations, and states the principles of heritage resource management while making provision for legislation protecting national heritage resources.

2.8 National Environmental Management: Biodiversity Act, 1993 (Act No. 85 of 1993)

The object of the National Environmental Management: Biodiversity Act, 1993 (NEM:BA) is to provide for the management and conservation of South Africa's biodiversity within the framework of NEMA; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.



The objectives of NEM:BA are:

- Within the framework of the National Environmental Management Act, to provide for:
 - the management and conservation of biological diversity within the Republic and of the components of such biological diversity;
 - the use of indigenous biological resources in a sustainable manner; and
 - the fair and equitable sharing among stakeholders of benefits arising from bio-prospecting involving indigenous biological resources;
- To give effect to ratified international agreements relating to biodiversity which are binding on the Republic;
- To provide for co-operative governance in biodiversity management and conservation; and
- To provide for a South African National Biodiversity Institute to assist in achieving the objectives of this Act.

2.9 Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)

While consideration for management of health and safety falls outside the purpose of this document, there are a number of overlaps and synergies that are relevant in terms of environmental management. It is for this reason that this section includes a brief overview of the function, along with an indication of specific relevance in terms of environmental management, of health and safety related Acts.

The purpose of the Occupational Health and Safety Act, Act 85 of 1993 (OHS Act) and associated regulations is to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

By way of managing, controlling and containing occupational hazards, the Environment, whether biophysical or socio-economic, is often also incidentally awarded protection from such hazards. OHS Act regulations, in addition to occupational health and/or safety, may thus be relevant to environmental management; and may thus be of relevance and importance to environmental management of port development activities, in one way or another. A few specific examples are briefly discussed in the subsections below.

Core to OHS Act are the principles and core duties of employers and employees as legislated in Sections 8, 9 and 14 thereof:

- Section 8(1) “Every employer shall provide and maintain, as far as is reasonable practicable, a working environment that is safe and without risk to the health of his employees”
- Section 9(1) “Every employer shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that persons other than those in his employment who may be directly affected by his activities are



not thereby exposed to hazards to their health or safety.” (Note that subsection (2) imposes a similar duty on every self-employed person.)

- Section 14(a) Imposes a duty on every employee at work to take reasonable care for the health and safety of himself and of other person who may be affected by his acts or omissions. An employee is also required to co-operate with his employer concerning his duties in terms of the Act and to obey health and safety rules and procedures laid down by his employer.

The OHS Act imposes various duties on employers to ensure the health and safety of their employees, including taking steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the health and safety of their employees, providing the necessary information, instructions, training and supervision, as well as not permitting any employee to do any work or to produce, process, use, store, handle or transport any article or substance or to operate any plant or machinery unless the precautionary measures have been taken.

In addition, there is a veritable myriad of regulations promulgated under the OHSA which may have relevance to the undertaking of port development project and in particular, in regard to safe working conditions in that context. They include the General Administrative Regulations, General Safety Regulations, Construction Regulations and the Environmental Regulations for Workplaces.

2.9.1 Flammable Liquid Substances

Section 4 of the OHS Act's General Safety Regulations deals with use and storage of flammable liquid substances. These regulations cover, e.g.:

- Mitigation against fire and explosion risk;
- Exposure to hazardous fumes;
- Containment (e.g. bunding) of flammable liquid storage areas to provide for containment of 110% of storage capacity; and
- Safety warning signage.

2.9.2 Hazardous Chemical Substances

Requirements for hazardous chemical substances are covered under the OHS Act, most notably under section 7 of the General Administrative Regulations and the Regulations for Hazardous Chemical Substances. The former deals with the need for “every person who manufactures, imports, sells or supplies any hazardous chemical substances for use at work to provide a Material Safety Data Sheet (MSDS). Also, every employer shall keep and avail to any interested or affected person an MSDS for any hazardous chemical substance for use at work. The Regulations for Hazardous Chemical Substances are applicable to any employer or self-employed person who carries out work at a workplace which may expose any person to the intake of a hazardous chemical substance at that workplace. The regulations include a requirement for the employer to assess the potential exposure and to either eliminate the risk of exposure or provide adequate protection against the exposure. The regulations include Occupational Exposure Limits (OELs).

In accordance with section 10(3) and section 15 employers shall ensure that the emission of a hazardous chemical substance into the atmosphere complies with relevant legislation and that hazardous chemical substances wastes are recycled where reasonably practicable.



2.9.3 Asbestos Regulation

Asbestos containing material is typically used as building material in ports (e.g. buildings, pipelines) due to its resistance to corrosion in the coastal environment. Asbestos is also used as a high temperature resistant insulation. As such the Asbestos Regulations may be relevant to environmental management as it deals e.g. with control of asbestos dust; packaging, transport and storage; demolition; and disposal of asbestos waste.

2.10 eThekweni Bylaws and Trade Permits

The eThekweni Municipality has certain requirements in terms of bylaws and trade permits. These include, *inter alia*:

- The Scheduled Trades and Occupations Bylaws, for permission to conduct Scheduled trade/occupation
- The Sewage Disposal Bylaws for permission to discharge trade effluent to sewer
- The Sewage Disposal Bylaws for the permission to tanker conservancy or trade effluent to an approved Council facility
- Package Plants
- Refuse Removal Bylaws
- Interim Code Relating to Fire Prevention and Flammable Liquids and Substance



3 DATA SOURCES

In the preparation of the Screening Report the following Data Sources were used;

- Arcus GIBB (Pty) Ltd, August 2005. *Environmental Scoping for the Proposed Widening of the Lower Umgeni River*, Draft Scoping Report J25130A.
- Arcus GIBB (Pty) Ltd, January 2010. *Proposed NCP Substation at Umgeni Business Park Environmental Impact Assessment*, Draft EIR J27327.
- Arcus GIBB, February 2009. *Moses Mabhida Storm Water Management Report*.
- Drennan, Maud and Partners, May 2009. *Geotechnical Investigation for the proposed Moses Mabhida Station*.
- PRASA, 25 July 2011. *PRASA Feasibility Study: Detailed feasibility study for the procurement, financing and maintenance of rolling stock for the Metrorail services*.
- WSP Environmental (Pty) Ltd, June 2009. *Environmental Management Plan for Moses Mabhida Railway Station*.
- WSP Environmental (Pty) Ltd, June 2009. *Environmental Impact Assessment for Moses Mabhida Railway Station*.



4 ENVIRONMENTAL SCREENING FINDINGS

GIBB has undertaken a preliminary environmental screening of the potential positive and negative impacts of the proposed Central Durban Depot and Springfield Depot on the biophysical, socioeconomic and cultural environments.

The screening exercise assisted in identifying those activities that may require management action and mitigation or that require further detailed assessment. While some detail were provided the aim was to identify the environmental challenges, risks and requirements on a relatively high level basis for site selection and planning purposes. High level mitigation measures, where applicable and where possible at this stage, have been proposed in **Section 5.5**, to reduce the negative impacts identified to-date.

Both sites and most of the environment surroundings have been impacted and disturbed by human activities and would therefore be considered 'disturbed' compared to the original natural environment. Nevertheless, a number of environmental implications have been identified that would require to be addressed during the project planning process. The subsections below provide the site specific environmental descriptions, legal compliance, environmental implications and fatal flaw considerations.

4.1 GIS Sensitivity Mapping

A sensitivity mapping exercise was undertaken for each of the provinces and specifically showing the erven being considered as part of the Rolling Stock Upgrade project by PRASA within each province.

The purpose of the exercise was to pro-actively identify sensitive areas that should ideally be avoided by PRASA or alternatively, make known the potential risks and environmental impacts that would then likely be associated with the Rolling Stock upgrades should they proceed within certain areas. It should be noted that the sensitivity analysis has not been undertaken in order to predict the significance of impacts, but has been used as a tool to pro-actively identify areas most suited to development, from an environmental point of view, so that significant impacts can be avoided, where possible.

The maps should always be used together with appropriately executed fieldwork to inform site level decisions. Study of the maps alone cannot replace on-site assessments for land use applications.

The set of maps for the KwaZulu Natal region comprises 1 overview map and 4 detailed maps and are attached as **Appendix A** to this report. The overview map illustrates the full PRASA rail network currently being considered for upgrade, overlain by the main environmental aspects for consideration at this level of study. This larger scale map provides important city-wide context. The 3 detailed maps provided a closer view along sections of the rail network, as well as closer views of erven that have been considered accordingly.



4.2 Site Specific Environmental Description and Project Aspects

This section provides a description of the environment setting within the study area of the Central Durban and Springfield Depots, while the environmental implications and fatal flaw analysis identified to be of significance for the proposed depot sites is detailed in **Section 5.4** below.

This description includes information attained from the site visit undertaken; a desktop and literature survey and is described at a level deemed appropriate for Environmental Screening.

Due to the similar nature and proximity of both sites, there is no need to describe all aspects of the potentially affected environments separately. Thus, where no distinction is made between the sites, the same description is valid for both sites.

Both the proposed Springfield Depot and Central Durban Depot sites occur in an area where most of the environment surrounding the site has been impacted and disturbed by human activities. Predominant land uses near the proposed sites and surrounding areas include light industrial, urban residential, road and rail transport network servitudes and some recreation.

In terms of the biophysical environments, the most significant features are the Indian Ocean, which is approximately 700 m from the Central Durban Depot and the Umgeni River which is adjacent to the Springfield Depot site, with the latter lying the floodplain of the river.

4.2.1 Current, Historical and Surrounding Landuse

(a) Central Durban Depot

The proposed site is located within the rail reserve (owned by PRASA) which, according to PRASA, is zoned 'transport'. The project site is within Stamford Hill highly urbanised area and is surrounded by a variety of commercial and recreational / sports uses particularly the Durban's Kings Park Sporting Precinct, with the residential area of Morningside (Windermere Road) situated further than 100 m from the site (WSP, 2009). The well known tourist and recreational Durban beachfront ('golden mile') is approximately 700 m from the site.

(b) Springfield Depot

The proposed site is located within the PRASA rail reserve, within the Umgeni Business Park. The Umgeni Business Park, contributes significantly to generating revenue and providing jobs within the eThekweni area (GIBB, 2009).

As mentioned, the site occurs within the floodplain of the Lower Umgeni River. While site specific information was not readily available, it is known that extensive areas within the floodplain were reclaimed in the 1960's by dumping various layers of fill, composed mostly of ash, sand, rubble and other wastes.

The nearest residential area is approximately 400m, and from a visual perspective the area is overlooked by the higher lying areas of Springfield and Morningside.



4.2.2 Climate

The climate of both the sites falls under the macroclimate of Durban (including northern Durban) which is typically warm and sunny, with occasional light steady rainfall. The air is heavy with humidity and the subtropical latitude results in long hot summers and relatively mild winters. Average temperatures range from 16°C to 25°C in winter and 23°C to 33°C in summer (September to April). Durban's hottest months are typically between January and March, with an average daily temperature of approximately 28°C. The average precipitation over a 12-month period for Durban is 1009 mm. The highest average monthly rainfall has been recorded to occur from January to March at 122 mm (GIBB, 2009).

4.2.3 Geology and Soils

The geology of Durban is underlain by alluvium of the Quaternary age. Historically, sea levels were depressed by approximately 100 m and deep channels were eroded into the bedrock. It is likely that the alluvium, consisting predominantly of silts, sands and clays is up to 30 m thick. The alluvium is underlain by Permian age dark grey shales and sandstone interspersed with boulder shale of the Karoo sequence and Dwyka formation. A SouthWest–NorthEast trending fault has been identified on the southern edge of the alluvium (GIBB, 2010).

(a) Central Durban Depot

The site is situated on the flat coastal plain bounded by the Berea dune ridge to the west and by the Umgeni River and harbour to the north and south respectively. The area is underlain by unconsolidated clays and sands of alluvial and estuarine origin at shallow depth, with Cretaceous siltstones and boulder beds capping Pietermaritzburg Formation shale underneath the unconsolidated sediments (Drennan, Maud and Partners, 2009:5).

The unconsolidated alluvial sediments are likely to overlay a weathered yellow brown to darker grey, very soft rock sandy siltstone Cretaceous bedrock with light grey calcium carbonate concretions and shell material inclusions. The possibility that the Cretaceous bedrock has pinched out exists below the proposed site and the alluvial sediments directly overlie tillite bedrock of Dwyka Group, this underlies the Cretaceous bedrock.

(b) Springfield Depot

Based on our current understanding, the site occurs on the Umgeni Estuary sandy bed, which is highly erodible with the result that it undergoes significant changes during major floods due to erosion and sedimentation. This changes the bed level. In its natural state, before the river was confined by canalisation and the various developments, the alignment of the river would thus probably have been altered after major floods (GIBB, 2005).

As mentioned, extensive areas within the Lower Umgeni River flood plain was reclaimed by dumping of various layers of fill, composed mostly of ash, sand, rubble and other wastes. In some areas the fill layers are loose, highly compressible and of low density, having been end tipped with little compaction. There is also evidence of landfill gas at certain sites (on the opposite side of the river close to the NCP industrial site) (GIBB, 2010).



Quarries/mines can be found relatively near to the site, which were used to mine material for brick as well as to quarry for stone. There are also ongoing sand winning activities from the river bed in the vicinity.

4.2.4 Hydrology

(a) Central Durban Depot

The Central Durban Depot site is located relatively close to the Indian Ocean just south of the Umgeni River mouth. It is situated on a flat low lying plain just beyond the base of the Berea ridge and is characterised by relatively shallow ground water conditions. The area generally drains in an easterly direction. Stormwater generated by low return period events is allowed to infiltrate the ground. All surrounding areas are connected to the municipal stormwater system (GIBB, 2009).

(b) Springfield Depot

The main hydrological feature in proximity to the proposed site is the adjacent lower Umgeni River.

In 1987 the lower Umgeni River came down in flood, which was estimated to be between 65 and 130 year storm event, this affected a large portion of the Umgeni River floodplain in which the Umgeni Business Park was established. The 1987 floods thus provide for a typical example of flood impact that can be expected during future similar or higher flood events (GIBB, 2005). During the meeting on 8 February 2012 representatives of Metro Rail advised that the site was indeed also flooded during previous flood events.

The proposed site is located just upstream of the estuarine plain that discharges into the Indian Ocean. Floodplains exist in areas just upstream and downstream, which have been fully reclaimed for light industrial and business developments.

The lower Umgeni Catchment is drained by a number of rivers, of which the closest upstream of the affected river section include the Umhlangane, Palmiet, and Molweni. Just before reaching the estuarine plain the Umgeni River cuts its way between the Riverside and Windsor Park creating cliffs and gorges.

No natural drainage lines or stormwater culverts appear to traverse the site. However, municipal stormwater culverts are in proximity to the site.

Should the site extend into the currently undeveloped river embankment and thereby infringe further on the flood plain, flooding of the surrounding areas might be exasperated. For this reason the eThekweni Municipality Coastal, Stormwater and Catchment Management Department needs to be consulted. In fact, this Department has received Environmental Authorisation to widen the Umgeni River (north bank at Conaugh Bridge downstream of the site to alleviate the flooding. Extension into the floodplain might also trigger the need for a Water Use License (refer to **Section 4.3.1**).

4.2.5 Ecology

No significant ecological systems or habitats are found at the alternative sites, provided the site footprint is kept within the footprint of existing PRASA properties.



However, as shown on the GIS Map (**Appendix A**) small pockets of 'critically endangered threatened ecosystems' are recorded in the proximity of the proposed Central Durban Depot; while the Umgeni River embankments also record as 'critically endangered threatened ecosystem'. These would require consideration in determining the site footprint, construction and operational impact. Of particular importance is to recognise the sensitive environment associated with the Umgeni River Estuary with its mangrove swamp about 5 to 6 km downstream from the site.

As mentioned, the proposed sites are both significantly impacted by human activity.

(a) Central Durban Depot

Flora

The Central Durban Depot site is almost completely developed with rail infrastructure and there is little to no real vegetation. Only small pockets of vegetation surround the site.

Fauna

While much the same species as described for the Springfield Depot could possibly venture on the site, these would likely be chased away by the current rail and urban activities.

(b) Springfield Depot

Flora

Vegetation at the Springfield Site consists of kept lawns, patches of grass and a few trees. However, should the site or construction footprint extend into the currently undeveloped river embankment, river bank vegetation might be impacted.

Fauna

Due to the significant human impact on the proposed sites and surrounding environments, it is unlikely that any significant faunal species are present. The very limited available habitat at and near the site may however host small mammals (mice, moles), lizards (skinks, agamas) and snakes.

The proximity of the lower Umgeni River and its estuary to the Springfield site does also provide for the possibility of birds being present. Most rivers in southern Africa are in the east and extreme south, in the higher rainfall areas. Thirteen species of water bird are mostly restricted to riverine habitats in southern Africa. The map distribution of these species correlates with the river courses in southern Africa. Species known to inhabit or migrate through the surrounding area include storks, pelican, heron, kingfisher, Egyptian geese and Fish Eagle some of which that are listed as Red Data species (GIBB, 2005).

The affected habitats are not expected to contain any rare or endangered species.

4.2.6 Culture and Heritage

No heritage resources are known to occur in the study areas based on previous studies. Also none of the man-made structures or buildings on the sites would be older than 60 years and as such would not have any heritage protection.



At the Springfield depot, since the existing site has been reclaimed from the flood plain, it is unlikely that any heritage features exists.

4.2.7 Services

(a) Central Durban Depot

Within the Central Durban Depot there are primarily railway services and associated activities. Recreational activities are found in and around the site. No major overhead transmission lines were observed. The existence and status of underground services were not established.

(b) Springfield Depot

At the Springfield Depot of particular concern is the existing Eskom high voltage overhead power lines which traverse the site, and for this reason may require rerouting. Also traversing the site is a concrete footbridge which passes over the Umgeni River. This bridge might constitute an obstruction during the construction phase. The existence and status of underground services were not established.

4.2.8 Transport Infrastructure and Public Rights of Way

The proposed sites are in an urban industrial area, with moderate to high volumes of traffic, including industrial vehicles and trucks. Both sites are regarded as major traffic nodes, linking northern and central eThekweni via rail and road.

Access to the sites during construction and operation would be obtained through the existing tarred access routes. Both sites have good road access off main roads and both sites are accessible for the labour force via public and private transport. Traffic impacts may be experienced due to construction traffic and this could potentially result in congestion, particularly during peak hours. Construction activities that may impact traffic will however be of short duration.

Both sites do not block any right of way, provided that existing road and pedestrian infrastructure is kept intact.

4.2.9 Socio-Economic Considerations and Social Receptiveness

(a) Central Durban Depot

Since the site is located within an existing rail precinct, it is unlikely that the public would raise any major concerns or objections to the project, provided the buildings do not result in blocking seaviews of the Morningside residential areas and provided that noise levels do not exceed the current background noise level. The Metro Rail representatives advised that due to the lack of available space the depot buildings would likely replace existing buildings of similar structure and height (existing activities would need to be relocated). Also, the current background noise levels are already relatively high from a host of urban activities.

The proposed Central Durban Depot site is located close to recreational areas for soccer, rugby and swimming particularly the Durban's Kings Park Sporting Precinct and municipal owned recreational facilities (tennis and bowls). Also the Moses



Mabhida Stadium is a prominent tourism attraction near the site and has a variety of attractions the public utilise.

(b) Springfield Depot

With the site being located at an existing rail maintenance depot at which similar activities are currently being undertaken, it is unlikely that the public would raise any major concerns or objections to the project, from a socio-economic perspective.

The most prominent Socio-Economic feature in the area is the Umgeni Business Park, which contributes significantly to generating revenue and providing jobs within the eThekweni area. As such the proposed activity also fits well into the local land use.

In terms of social sensitivities, it is important to note that the Umgeni Estuary is located downstream of the Project site. The estuary and surrounding areas have been developed to provide for a variety of recreational opportunities for leisure and sport, such as, angling, walking, jogging, cycling, golfing, bird-watching, canoeing and rowing.

The recreational features include the following:

- The estuary itself;
- Windsor Park, a recreational park with lawns, walkways, food outlets, games facilities, sports ground and golf course;
- Umgeni River Nature Trail; and
- Umgeni Bird Park.

4.3 Environmental Legal Compliance

Taking into consideration the proposed activities and the sites as have been investigated, **Tables 4.1, 4.2** and **4.3** below present the potential listed activities and licensing requirements which can be anticipated for each of the sites in question.

Where potential (i.e. 'maybe') triggers have been identified, these will need to be resolved either during the final design phase or alternatively through authority pre-meetings in the next phase of the project.



Table 4.1: Activities requiring Basic Assessment Process

GN R544 Activity No.	Central Durban Depot	Springfield Depot	Reason
<p>Activity 9: The construction of facilities or infrastructure exceeding' 1000 metres in length for the bulk transportation of water, sewage or storm water</p> <p>(i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more, excluding where: (b) such facilities or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or (c) where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.</p>	No	No	The project does not involve the <u>bulk</u> transportation of water. We are not aware that it impacts any such infrastructure.
<p>Activity 10: The construction of facilities or infrastructure for the transmission and distribution of electricity:</p> <p>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.</p>	No	Maybe	At the Springfield depot the potentially affected Eskom overhead lines may need to be rerouted or placed underground.
<p>Activity 11: The construction of:</p> <p>(iii) bridges; (v) weirs; (vi) bulk storm water outlet structures; (x) buildings exceeding 50 square metres in size; and (xi) infrastructure or structures covering 50 square metres or more.</p> <p>Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	No	Yes	At the Springfield depot, activities may expand into the Umgeni River Embankment.
<p>Activity 13: The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic meters.</p>	TBC	TBC	Unsure at this stage as to what the quantity of hazardous substances required will be.
<p>Activity 18: The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or</p>	No	Yes	As per comment for Activity 11 above.



<p>moving of soil, sand, shells, shell grit, pebbles or rock from:</p> <ul style="list-style-type: none"> (i) a watercourse; (ii) the sea; (iii) the seashore; (iv) the littoral active zone, an estuary or a distance of 100 metres inland of the high water mark of the sea or an estuary, or whichever distance is the greater but excluding where such infilling, depositing, dredging, excavation, removal or moving. <ul style="list-style-type: none"> (i) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or (ii) occurs behind the development setback line. 			
<p>Activity 23: The transformation of undeveloped, vacant or derelict land to:</p> <ul style="list-style-type: none"> (i) residential, retail, commercial, recreational ,industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares, or (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares <p>except where such transformation takes place for linear activities.</p>	No	Maybe	For the Springfield depot, most of the site is likely to sit on the existing rail footprint; however it is possible that they might extend into undeveloped river embankment area.
<p>Activity 24: The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, at the time of the coming into effect of this Schedule such land was zoned open space, conservation or had an equivalent zoning.</p>	No	Maybe	See comment for Activity 11 above.
<p>Activity 27: The decommissioning of existing facilities or infrastructure, for:</p> <ul style="list-style-type: none"> (i) electricity generation with a threshold of more than 10MW; (ii) electricity transmission and distribution with a threshold of more than 132kV; (iii) nuclear reactors and storage of nuclear fuel; (iv) activities, where the facility or the land on which it is located is contaminated ; (v) storage, or storage and handling, of dangerous goods of more than 80 cubic metres; <p>But excluding any facilities or infrastructure that commenced</p>	Maybe	Maybe	Unsure whether the land is contaminated.



under an environmental authorization issued in terms of the Environmental Impact Assessment Regulations, 2006 made under section 24(5) of the Act and published in Government Notice No. 385 of 2006, or Notice No. 543 of 2010.			
Activity 28: The expansion of or changes to existing facilities for any process or activity where such expansion or changes will result in the need for a new, or amendment of, an existing permit or license in terms of national or provincial legislation governing the release of emissions or pollution, excluding where the facility, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.	Maybe	Maybe	At the Durban depot it is unsure whether a WUL is in place. The Springfield depot has an existing WUL which may need to be amended.
Activity 53: The expansion of railway lines, stations or shunting yards where there will be an increased development footprint excluding: (i) railway lines, shunting yards and railway stations in industrial complexes or zones; (ii) underground railway lines in mines; and (iii) additional railway lines within the reserve of an existing railway line.	Yes	Yes	Both facilities are existing rail facilities.
Activity 56: Phased activities for all activities listed in this Schedule, which commenced on or after the effective date of this Schedule, where any one phase of the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold; - excluding the following activities listed in this Schedule: 2; 11(i)-(vii); 16(i)-(iv); 17;19; 20; 22(i) & 22(iii); 25; 26; 27(iii) & (iv); 28; 39; 45(i)-(iv) & (vii)-(xv); 50;	No	Not Applicable	At the Springfield depot, a BA has already been triggered.
GN R546 Activity No.	Central Durban Depot	Springfield Depot	Reason
Activity 4: The construction of a road wider than 4 metres with a reserve less than 13, 5 metres. (a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces: i. In an estuary; ii. Outside urban areas, in:	Unlikely	Unlikely	Existing access routes will likely be used.



<p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(dd) Sites or areas identified in terms of an International Convention;</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(ff) Core areas in biosphere reserves;</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;</p> <p>(hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined.</p> <p>iii. In urban areas:</p> <p>(aa) Areas zoned for use as public open space;</p> <p>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose;</p> <p>(cc) seawards of the development setback line or within urban protected areas.</p>			
<p>Activity 10: The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.</p> <p>(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces:</p> <p>i. In an estuary;</p> <p>ii. Outside urban areas, in:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p>	Unlikely	Possibly	



<p>(dd) Sites or areas identified in terms of an International Convention;</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(ff) Core areas in biosphere reserves;</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;</p> <p>(hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined;</p> <p>(ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined;</p> <p>(jj) Within 500 metres of an estuary.</p> <p>iii. In urban areas:</p> <p>(aa) Areas zoned for use as public open space;</p> <p>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose;</p> <p>(cc) Within 500 metres of an estuary.</p>			
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Table 4.2: Activities requiring full EIA

Activity No.	Central Durban Depot	Springfield Depot	Reason
Activity 3: The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres	No	Unlikely	Same comment as for Activity 11 in Listing Notice 1 above.
Activity 11: The construction of railway lines, stations or shunting yards, excluding - (i) railway lines, shunting yards, and railway stations in industrial complexes or zones; (ii) underground railway lines in a mining area; and (i) additional railway lines within the reserve of an existing railway line.	No	No	Both sites occur within or next to railway lines and industrial zones.
Activity 15: The physical alteration of undeveloped vacant or derelict land for residential, retail, commercial recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; except where such physical alteration takes place for: (i) linear development activities; or (ii) agriculture or afforestation where activity 16 in this Schedule will apply	No	Unlikely	Same comment as for Activity 11 in Listing Notice 1 above.



Table 4.3: Activities requiring other permits / licenses

Activity No.	Central Durban Depot	Springfield Depot	Reason
<p>National Environmental Management Act: Waste Act, 2008(Act no. 59 of 2008: Category A: Basic Assessment (a) The storage, including the temporary storage, of general waste at a facility that has the capacity to store in excess of 100m³ of general waste at any one time. (b) The storage, including the temporary storage of hazardous waste at a facility that has the capacity to store in excess 35m³ of hazardous waste at any one time. (c) The storage of waste tyres in a storage area exceeding 500m². (d) The construction of facilities for activities listed in category A of this Schedule. (e) The expansion of facilities of/or changes to existing facilities for any process or activity, which requires and amendment of an existing permit or license or a new permit or license in terms of legislation governing the release of pollution, effluent or waste. The decommissioning of activities listed in this schedule.</p>	Unlikely	Unlikely	
<p>National Heritage Resource Act, 1999: a.) Establish whether any of the development activities entails the redevelopment of buildings or structures that are more than 60 years old. b.) Establish whether any of the development activities entail the construction of linear structures such as railways or electricity supply more than 300 m long, or the construction of a bridge which is longer than 50 m. c.) Establish whether the development of any depot or station entails the consolidation, rezoning or subdivision of an area exceeding the minimum thresholds stipulated in the Act.</p>	Unlikely	Unlikely	
<p>National Water Act, 1998: Establish whether any of the development activities entail a water use. Particular attention should be given to those activities requiring the crossing of a watercourse or wetland, and those which generate liquid waste or effluent.</p>	Unlikely	Maybe	



<p>a.) Industrial and sanitary wastewater cannot be directly or indirectly discharged to storm water drainage systems, surface or groundwater;</p> <p>b.) Persons storing chemicals and oils must take the necessary precautions to prevent leakage into storm water drains or water courses, unless specifically authorised by the regulatory authority;</p> <p>c.) It is generally prohibited to allow stormwater to enter sewer systems;</p> <p>d.) Industrial effluents may be discharged to sewer only with the permission of the regulatory authority, who may impose effluent discharge limits to be complied with;</p> <p>e.) It is an offence to wilfully or negligently pollute surface water or groundwater;</p> <p>f.) In the event of a pollution incident, the offending party is obliged to report the incident to the regulatory authority; and</p> <p>g.) The regulatory authority can take the necessary steps to prevent the pollution of water resources and can recover the costs of clean-up from the polluter.</p>			
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4.3.1 Other Specific Environmental Applications Required

Air Quality

It is not anticipated that an Air Quality Licence will be required for the activities likely to be associated with the depots. This is since no major point emission source operations are likely to take place at the depots. However, this needs to be confirmed.

However, OHS requirements would be applicable to areas where hazardous substances that could cause fumes are used or stored (e.g. flammable stores, paint booths, pressure cleaning, sand blasting).

Considering the large quantity of asbestos containing roofs, ceilings and/or cladding on the existing building at the Springfield Depot site, provisions must be put in place to ensure that such buildings are appropriately maintained, so that asbestos fibre are not released and wind-blown into the surrounding environment. The relevant requirements of the OHS Act also need to be adhered to or implemented during demolition of such buildings and/or handling of asbestos wastes. This can be an expensive and time consuming exercise. Specialist service providers need to be appointed to undertake this work and ensure that the waste is disposed of appropriately.

Should landfill gas be a problem at any of the sites, this needs to be taken into consideration during the design to mitigate against a fire or asphyxiation risk. (OHS Act Duty of Care)

Water

A Water Use License (WUL) from the Department of Water Affairs (DWA) may be required for discharge of wastewater and potentially contaminated stormwater into surface water resources (streams, river, estuary, ocean, etc.). In the case of the Springfield Depot site it was noted during the site visit that a WUL is apparently in place but this may need to be amended. The status in terms of wastewater discharge at the Central Durban Depot was not established. The Metro Rail representative, however, advised that no wastewater treatment facilities were in place at the site.

Any encroachment into the Umgeni River floodplain, should this be considered for the Springfield Depot, would in terms of Section 21 of the Water Act constitute a 'water use' and as such would require a Water Use License Application (WULA) to be submitted and a Water Use License (WUL) to be obtain from the Department of Water Affairs.

The Water Act also requires that appropriate storm and groundwater protection measures be implemented. In the context of the proposed depots, this would be particularly relevant to storage and use of hazardous substances, wash bays, wastewater treatment facilities and stormwater management systems.

Provisions must also be made for legal disposal of sewage wastewater. During construction arrangements must either be made to use existing facilities or provide for the use of portaloos. For permanent facilities, either connections to the existing municipal sewer system or alternative an onsite package plant or septic tank system must be considered. In all cases the necessary approvals must be obtained from the local authorities or DWA.



Materials Handling, Storage and Safety

A maintenance depot will typically require materials handling and storage. While a host of OHS Act requirements are associated with handling and storage (e.g. stacking) of non-hazardous material, most relevant in terms of environmental protection are requirements specific to hazardous materials. For planning purposes the most important consideration is probably the provision of adequate and appropriately design storage facilities for flammable substances. The requirements in terms of eThekweni Municipality's *Interim Code Relating to Fire Prevention and Flammable Liquids and Substance* is also relevant and it is recommended that all plans be discussed with and approved by the local Emergency Services Chief. This needs to include an emergency preparedness and response plan during construction and operation.

At the Springfield Depot the flooding potential needs to be considered when designing storage areas for hazardous substances, e.g. the bund wall height might need to be raised to above the 1:100 year flood event height.

Waste

According to the Waste Act all general and hazardous wastes must be disposed of on an appropriately licensed waste disposal facility (for construction & operation).

The Minister or MEC may also require an Industry Waste Management Plan for the rail precinct. In that eventuality, the proposed development must take cognisance of and comply with such a plan. GIBB is not aware of any such plan having been declared to date.

Considering the 'maintenance workshop' type activities at the depots, it is considered unlikely that waste would be stored in such quantities or duration that a Waste Management License would be required. However, it is recommended that PRASA adopts an approach or a policy whereby waste quantities and/or storage duration will not exceed the minimal thresholds that would trigger a Waste Management Licence. This should however be evaluated in detail.

Culture and Heritage

It is unlikely that any existing buildings at the sites are older than 60 years. Therefore, it is unlikely that demolition permits would be required from Amafa (KZN Heritage). Should any potential heritage features, artefacts, graves, skeletons, fossils, etc. be uncovered during excavations, excavations must be put on hold immediately until such time as Amafa grants permission to recommence.

Municipal Bylaws

It was not established whether these bylaws are applicable to this project, particularly as the operation of the project may well fall under the Metro Rail.



4.4 Overview of Likely Environmental Mitigation Measures Requirements

Although there are numerous mitigation measures which can be listed here, these would ideally be detailed in the draft EMP for the relevant environmental authorisation. The mitigation measures below are specific to the environmental implications identified during the site visit for higher level planning purposes.

4.4.1 Pre-Construction Phase

- Careful planning for compliance with all legal requirements and permits
- Consult with all relevant authorities where services and service infrastructure may be impacted or required (water, electricity, wastewater, sewer, stormwater, emergency, roads, etc.)
- Conducting a geotechnical investigations to establish the sub-soil conditions
- Provision and appropriate design for adequate facilities for hazardous material storage, wastewater and sewage management and treatment, stormwater management, waste storage facilities, etc. (during the construction and operational phases)
- Provision and appropriate layout design for camp and construction site (material laydown, topsoil stockpile, hazardous substances store, waste area, etc.)
- Develop and implement an emergency preparedness and response plan and submit such a plan to the local fire department for their approval (fire prevention and protection, emergency vehicle access and evacuation routes, etc.) (during the construction and operational phases)
- Clearly define and delineate the go and no-go areas, most notably where public health and safety may be affected, and in case of the Springfield Depot to protect the sensitive Umgeni River Ecology.

4.4.2 Construction Phase and Operational Phase

(a) Soil erosion and sediment control

- Ensure that erosion control measures are implemented in areas susceptible to erosion
- Ensure that prior to construction of any fill, all topsoil containing vegetation and organic material should be removed and stockpiled for later use
- Restrict the maximum slope angles of any fill. The fills must be adequately grassed as soon as possible after construction
- Use a combination of improved construction practices and soil stabilisation techniques to reduce sedimentation

(b) Materials Handling, Storage and Safety

- Ensure mixing of concrete takes place on an appropriately designed and managed batch facility, mixing area; and/or for concrete to be brought onto the site in a pre-mix form
- Provide a concrete mixer washdown area and associated washwater treatment facility with impermeable surface and a sump for concrete waste. This waste must then be disposed of at an approved landfill site
- Provide appropriately designed areas for all handling and storage of hazardous substances that would ensure safe handling/storage as well as spill containment



- Allow for spillage control by having appropriate spillage kits

(c) Water and Wastewater Management

- Provide an on-site waste water treatment system for the collection and treatment of 'industrial' wastewater from the workshop areas, that will ensure effective treatment of all the wastewater to an acceptable quality prior to its release into either the surface water or the municipal sewer (dependent on the relevant authorisation)
- Provide for appropriate treatment and disposal of sewage wastewater, either on site or off-site
- Ensure that the use of temporary portable loos during the construction phase do not cause any pollution to water sources as well as pose a health hazard
- Do not allow any forms of secondary pollution should arise from the disposal of sewage and refuse.

(d) Waste Management

- Develop a Waste Management Master Plan (one for construction and one for operation)
- Develop a policy whereby the quantity of waste stored on site would be below the threshold that would trigger the need for a Waste Management License
- Establish the type and amounts of waste that would result from demolition and soil remediation activities and plan for the appropriate handling, storage and disposal thereof (as quantities may be large)
- Provide for waste segregation at source, i.e. separate waste receptacles and appropriately designed bulk waste storage areas and for the separate collection of such waste from the bulk storage area (construction and operation)
- Provide suitable waste disposal areas and containers on site
- Ensure that all waste generated before it is removed for safe disposal must not cause any surface and groundwater pollution
- Encourage the recycling of suitable material (i.e. glass, paper, plastic, etc.)
- Provide for the disposal of any waste to an appropriately licensed recycler or disposal site.
- No waste material of any type must be burnt on site
- Dispose of rubble in a demarcated area on the site or at a registered waste facility if it cannot be responsibly reused or recycled (or in an area agreed with the eThekweni Municipality)
- Prior to demolition of any buildings or structures, all hazardous material must be removed there from for appropriate segregation and disposal
- Ensure that during demolition asbestos material is correctly handled and disposed of by an approved waste contractor

(e) Traffic Aspects

- Ensure that during the construction and operational phases, traffic congestion is mitigated as far as possible
- Design and allocate adequate parking facilities to avoid queuing into public streets during peak arrival periods
- Provide adequate space for construction vehicles to turn around
- Appoint a suitably qualified specialist to perform a traffic impact study.

(f) Heritage Aspects



- Should any potential heritage features, artefacts, graves, skeletons, fossils, etc. be uncovered during excavations, excavations must be put on hold immediately until such time as Amafa grants permission to recommence.

(g) Air Quality

- Further investigation is required to determine the direct impacts of the paint booth and pressurised cleaning activities on the air quality. Air quality specialist may need to be consulted.



5 COSTING IMPLICATIONS AND TIMEFRAMES

5.1 Basic Assessment Process

5.1.1 Costing

A Basic Assessment is shorter in duration than a full EIA Process, taking approximately 6 months from project inception to receipt of the Environmental Authorisation. The BA life cycle is expected to cost in the region of **R 200,000.00** (excl. VAT). **Table 5.1 and Table 5.2 below** provide an approximate breakdown of anticipated costs associated with a full BA process. These fees have been separated into anticipated Consultant and Specialist Fees. Based on the site visits and GIS maps, potential specialist studies required have been highlighted and costed individually below, as some sites may require more specialist studies than other sites.

It is important to note that the costings provided below are approximate values and are only to provide an indication for budgeting / planning purposes. Actual fees will differ depending on final project descriptions and quotations received from various consultants.

Table 5.1: Approximate Consultant Fees for a Basic Assessment Process

ITEM	COST
Project Management	R 10,000.00
Site Visits	R 8,000.00
BA Notice of Intent	R 4,000.00
Authority Consultation	R 8,000.00
Public Participation	R 25,000.00
Draft and Final Basic Assessment Report	R 30,000.00
Draft and Final Environmental Management Plan	R 9,000.00
CONSULTANT FEE SUBTOTAL	R 94,000.00
Disbursements (Copies, telephone, faxes, adverts, travel, printing, couriering)	R 15,000.00
SUB TOTAL	R 15,000.00
GRAND TOTAL excl. V.A.T.	R 109,000.00
V.A.T.	R 15,260.00
GRAND TOTAL incl. V.A.T.	R 124,260.00

Table 5.2: Approximate Specialist Fees for a Basic Assessment Process

ITEM	COST
Heritage Impact Assessment	R 10,000.00
Social Impact Assessment	R 25,000.00
Wetland and Surface Water Assessment	R 25,000.00
Ecological Assessment	R 20,000.00
SPECIALIST FEE SUBTOTAL	R 80,000.00
Disbursements (Copies, telephone, faxes, adverts)	R 15,000.00
SUB TOTAL	R 15,000.00



GRAND TOTAL excl. V.A.T.	R 95,000.00
V.A.T.	R 13,300.00
GRAND TOTAL incl. V.A.T.	R 108,300.00

5.1.2 Proposed Programme

Refer to **Table 5.3** provides an example programme for a typical Basic Assessment lifecycle. The duration of the process is however dependent on, and subject to:

- The availability of information;
- Project data and specifications;
- Response time from the authorities;
- Public involvement review periods;
- Public and school holidays extending over review periods; and
- Any time required for specialist studies.

Table 5.3: Typical Basic Assessment Lifecycle

		Basic Assessment Lifecycle																																			
Phase	Period	Month 1				Month 2				Month 3				Month 4				Month 5				Month 6				Month 7											
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Project Management																																					
Project Management																																					
Inception Meeting																																					
Monthly Internal Progress Meetings																																					
BA application																																					
Site Visits																																					
Public Participation																																					
Advertising (Signboards, Notices)																																					
Registration of I&AP's	30 days																																				
Public Meeting																																					
Draft Basic Assessment Report																																					
Public Review Period	40 days																																				
Final Basic Assessment Report																																					
Review by the Authority	40 days																																				
Authorisation																																					



5.2 EIA Process

5.2.1 Costing

The full EIA process takes approximately 14 months from project inception to receipt of the Environmental Authorisation. The EIA life cycle, including specialist studies is estimated to cost approximately **R 550,000.00** (incl. VAT). **Table 5.4 and Table 5.5** provide an approximate breakdown of anticipated costs associated with a full EIA process.

Table 5.4: Approximate Costing for a full EIA Process

ITEM	COST
Project Management	R 20,000.00
Site Visits x 2	R 10,000.00
EIA Application	R 5,000.00
Authority Consultation	R 10,000.00
Public Participation	R 50,000.00
Draft and Final Scoping Report	R 50,000.00
Draft and Final EIA Report	R 60,000.00
Draft and Final Environmental Management Plan	R 10,000.00
ARCUS GIBB FEE TOTAL	R 215,000.00
Disbursements (Copies, telephone, faxes, adverts, travel, printing, couriering)	R 60,000.00
SUB TOTAL	R 60,000.00
GRAND TOTAL excl. V.A.T.	R 275,000.00
V.A.T.	R 38,500.00
GRAND TOTAL incl. V.A.T.	R 313,500.00

Table 5.5: Approximate Specialist Fees for a Basic Assessment Process

ITEM	COST
Heritage Impact Assessment	R 10,000.00
Social Impact Assessment	R 80,000.00
Wetland and Surface Water Assessment	R 40,000.00
Ecological Assessment	R 40,000.00
SPECIALIST FEE SUBTOTAL	R 170,000.00
Disbursements (Copies, telephone, faxes, adverts)	R 30,000.00
SUB TOTAL	R 15,000.00
GRAND TOTAL excl. V.A.T.	R 200,000.00
V.A.T.	R 28,000.00
GRAND TOTAL incl. V.A.T.	R 228,000.00

5.2.2 Proposed Programme

Refer to **Table 5.6** for breakdown of the EIA lifecycle.



Table 5.7: Typical EIA Lifecycle

		EIA Lifecycle												
Phase	Period	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13
Project Management														
Project Management														
Inception Meeting														
Monthly Internal Progress Meetings														
Appoint sub-consultants														
EIA application														
Site Visits														
Public Participation														
Internal planning workshop														
Advertising (Signboards, Notices)														
Registration of I&AP's	30 days													
Public Meeting														
Draft Scoping Report (DSR)														
DSR and Plan of Study for EIA														
Public Review of DSR	40 days													
Final Scoping Report (FSR)														
Authority Review of FSR	40 days													
Specialist Studies														
Draft EIA Report (EIAR)														
Public Review of Draft EIAR	40 days													
Final EIAR														
Authority Review of Final EIAR	45 days													
Environmental Authorisation														



5.3 Other Permit / License Applications

5.3.1 Waste License / Permit Application

Depending on quantities of general waste, hazardous waste and tyres to be stored, regardless of the storage period, waste licenses or permits will be required for the proposed operations at either of the sites investigated.

Category A waste licenses applications are automatically subject to a Basic Assessment process as stipulated under NEMA. The costs and timeframes associated with obtaining a Category A waste license would be that of undertaking a BA, and detailed in Section 1.4 above.

Category B waste license applications are automatically subject to an EIA process as stipulated under NEMA. The costs and timeframes associated with obtaining a Category B waste license would be that of undertaking an EIA, and detailed in Section 1.5 above.

5.3.2 Heritage Impact Assessments

South African Heritage Resources Agency (SAHRA) as a commenting authority on any environmental application or infrastructure development may require that the consultants / developer undertake a Heritage Impact Assessment (HIA). This HIA needs to be completed by a registered heritage consultant.

An integrated HIA is estimated to cost approximately R 40 000.00. A HIA can be completed in 2 to 3 months.

5.3.3 Water Use Licences Applications (WULAs)

As discussed, a WUL from the DWA may be required for discharge of wastewater into surface water and existing WUL's would need to be amended accordingly. This would only be determined through liaison with DWA. DWA requires R114 to process any WULA.

Undertaking of a single WULA is estimated to cost approximately R25 000.00. The WULA itself can be completed within 2 months, however authority review and approval has historically been known to take up to 12 months. PRASA should plan accordingly when applying for WULAs.



6 CONCLUSION

PRASA is currently investigating the location of suitable sites country wide, for their Rolling Stock Fleet Renewal Project. This involves either completely new 'greenfield' sites or the use and upgrade of current 'brownfield' railway sites, where existing facilities will be utilised as far as possible. As part of the process and to find the most suitable and preferred depot, PRASA also requires an understanding of the possible environmental challenges of the proposed depot sites.

This Environmental Screening Report detailed the results and findings of an environmental screening exercise for the proposed Rolling Stock Fleet Renewal Project for Durban, KwaZulu-Natal. Only two different brownfield sites were assessed, namely the Central Durban Depot and the Springfield Depot. Two additional sites were immediately eliminated based on advise from Metro Rail that the would most certainly be infeasible

Based on discussions during a meeting with Metro Rail representatives, a site visit and an overview of literature from a desktop point of view, it is evident that both depot sites occur within areas which have been heavily modified and influenced by human activities.

As detailed in **Section 5.4**, no definite fatal flaws were identified for either site. Potential environmental fatal flaws identified were primarily for the Springfield Depot site. This is should the site footprint expand into the Umgeni River flood plain and thereby exasperate flooding of the Umgeni Business Park or should it impact the Eskom servitude, without it being feasible to reroute or place the powerline underground.

Considering that both the depot sites footprint will possibly overlap the 'development footprint' of existing rail precincts and servitudes, it is likely that the project would be defined as a rail infrastructure 'expansion' rather than the construction of a new facility. As such the proposed developments may require an Environmental Basic Assessment (BA), rather than a full Scoping and Environmental Impact Assessment (EIA) Process as may be needed for a completely new site. It is therefore imperative to also note that construction may not commence until such time as the Environmental Authorisation has been granted by the authorising authority.

In addition to the potential need of a BA for the expansion of rail infrastructure at the Central Durban Depot and the Springfield Depot, a BA might also be necessary for the Springfield Depot due the proximity to the Umgeni River.

The following key conclusions are drawn from the Environmental Screening Report:

- The purpose of the report is to detail the results and findings of the environmental screening exercise, based on one site visit and an overview of literature from a desktop point of view. It must be noted that the details in this report may be expanded on upon further investigation, liaison with authorities and a full understanding of the depot requirements.
- eThekwin Municipality and other identified authorities would need to be included on any future plans regarding the PRASA Rolling Stock Fleet Renewal Project.
- Since PRASA is a national parastatal organisation, any application for Environmental Authorisation must be made to the National Department of Environmental Affairs (DEA).



- Even if a BA would not be legally required, it may be prudent to undertake a voluntary EIA, develop an EMP, and provide for the appointment of an ECO.
- A Water Use License may be required and needs to be applied for.
- The Major overhead Eskom powerlines on the Springfield Depot may require rerouting or replacing with underground cables
- The ecology of the Umgeni River embankment is considered sensitive and impact thereon needs to be avoided / minimised / mitigated
- The status of soil and subsoil conditions in terms of contamination are unknown and needs to be determined
- Road traffic and public right of way needs to be considered / mitigated (particularly the pedestrian footbridge over the Umgeni River).

With the above conclusions discussed in this Environmental Screening Report, it is therefore advised that extreme care be exercised in further studies and applications since any activities or associated activities of the PRASA project will result in surface disturbances and this is likely to result in severe adverse impacts on the biological environment. However many of the identified impacts could most probably be effectively managed through appropriate mitigation measures introduced during the planning, design, construction and operation of the new depot.


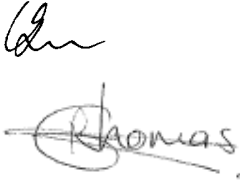

Further work required as part of the next phase will involve the following;

- Address gaps of information
- Determination of the Terms of Reference of the EIA process to be followed
- Site Alternatives Discussions
- Site Evaluation Criteria Analysis
- Potentially significant impacts will undergo further investigation
- Specialist consultation to directly address potentially significant impacts
- Site evaluation and input from specialists



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