DRAFT

ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE RECTIFICATION OF THE UNLAWFUL CONSTRUCTION AND OPERATION OF THE 4.5KM 50kV POWERLINE BETWEEN ESKOM HELIOS MAIN TRANSMISSION SUBSTATION AND TRANSNET HELIOS TRACTION FEEDER SUBSTATION WITHIN THE JURISDICTION OF HANTAM LOCAL MUNICIPALITY IN THE NORTHERN CAPE PROVINCE

FEBRUARY 2022

PREPARED FOR:

TRANSENT HOLDINGS SOC LIMITED

DOCUMENT CONTROL

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE RECTIFICATION OF THE UNLAWFUL CONSTRUCTION AND OPERATION OF THE 4.5KM 50kV POWERLINE BETWEEN ESKOM HELIOS MAIN TRANSMISSION SUBSTATION AND TRANSNET HELIOS TRACTION FEEDER SUBSTATION WITHIN THE JURISDICTION OF HANTAM LOCAL MUNICIPALITY IN THE NORTHERN CAPE PROVINCE

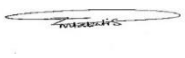
Quality Control		
Report	**Compiled By:**	**Peer Reviewed By:**
Environmental Management Programme	Sinako Mtakati 	Masala Mugwagwa  Munyadzi Rikhotso 

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS	
BAR	Basic Assessment Report
CARA	Conservation of Agricultural Resources Act (Act 43 of 1983)
CEO	Contractor Environmental Officer
DFFE	Department of Forestry, Fisheries and the Environment
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act, 1989 (Act 73 of 1989)
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
HAS	Hazardous Substance Act (Act 15 of 1973)
HIA	Heritage Impact Assessment
NEMA	National Environmental Management Act (Act 107 of 1998)
NEM:AQA	National Environmental Air Quality Act (Act 39 of 2004)
NEM:BA	National Environmental Management Biodiversity Act (Act 10 of 2004)
NEM:WA	National Environmental Management Waste Act (Act 36 of 2008)
NHRA	National Heritage Resources Act (Act 25 of 1999)
NWA	National Water Act (Act 36 of 1998)
OHSA	Occupational Health and Safety Act (Act of 85 of 1993)
SACNASP	South African Council of Natural Scientist Profession
SAHRA	South African Heritage Resources Agency
Tx	Transmission
WULA	Water Use Licence Application

1. INTRODUCTION

The Sishen-Saldanha line, Transnet Freight Rail's (TFR) iron ore export corridor, forms the backbone of the company's growth strategy. As part of the Transnet Orex expansion, TFR plans to replace the 9E Electrical Locomotives and Diesel Locomotives with the new energy-efficient 15E Electrical Locomotives. To enable TFR to expand their operations without overloading and interruption of supply, a Basic Assessment (BA) process was undertaken in 2014. The scope of work entailed construction of approximately 15km 50kV from the existing Eskom Helios Main Transmission Substation (MTS) to the proposed new Transnet Traction Feeder Substation (TFS) and associated infrastructure. The project was authorised by the Department of Environmental Affairs (DEA) currently known as the Department of Forestry, Fisheries and the Environment (DFFE), on the 2nd of April 2015 with the reference number 14/12/16/3/3/1/1247, and construction activities commenced in August 2020.

During negotiations with the landowner, an agreement was not reached to construct a portion (approximately 4.5km) of the approved 15km powerline on Farm Sous 226. Consequently, Transnet deviated the powerline as follows:

- A temporary 4.5km bypass powerline was constructed along the eastern border of the existing Eskom servitude from the Helios MTS to the boundary between the Rona Rupert Trust and the Lintvelt Trust.
- The bypass powerline is required to allow for the continuation of the movement of trains during the construction of the new 15km 50kV powerline. Further, the temporary bypass line was constructed using concrete masts like the masts being used by Transnet along the OREX rail line. In addition, the concrete masts are positioned at ±80m intervals.
- After completion and commissioning of the temporary by-pass line, the existing Eskom Over Headline (OHL) will be removed from the Helios MTS to the boundary of the Rona Rupert Trust and Lintvelt Trust near towers HEL/8TRA21 and HEL/8TRA22.
- With the existing Eskom OHL complete and lattice towers removed, the new Eskom OHL will be constructed along the centreline of the existing Eskom servitude.
- Once the new Eskom OHL has been completed and successfully commissioned the temporary bypass line will be removed and affected areas re-instated as directed.
- The new Transnet Traction Feeder Substation (TFS) will then be fed from the Helios MTS via the New Eskom OHL.

The construction of the bypass and the new 15km 50kV powerlines will take place in the existing Eskom servitudes within the 200m corridor that was studied and approved by DFFE in 2015.

Nsovo Environmental Consulting (hereafter referred to as Nsovo) has been appointed by Transnet SOC Limited (hereafter referred to as Transnet) to undertake the Section 24 G Rectification Application process, and compile an Environmental Management Programme (EMPr) for the unlawful construction of the 4.5km 50kV powerline between Eskom Helios MTS and Transnet TFS within the jurisdiction of Hantam Local Municipality in the Northern Cape Province.

The project proponent is Transnet SOC Limited, whereas the Competent Authority (CA) is the National Department of Forestry, Fisheries and the Environment (DFFE).

The EMPr aims to give effect to preventative measures to control the construction and operation activities on site. Further, it aims to provide a guideline for the mitigation and management measures to be implemented to avoid, reduce, and minimise potential environmental impacts arising from the proposed activity. It has been developed to ensure compliance with National Legislative and Regulatory requirements as well as best practice and align with Transnet's minimum requirements.

2. PURPOSE AND SCOPE OF THE EMPR

This EMPr serves as a guideline for the management of the site and provides specifications and regulations that must be adhered to in all instances. It is the responsibility of all parties, including contractors and sub-contractors, involved in the daily activities to commit to the implementation of the EMPr throughout the project.

The objectives of the EMPr are to:

- Ensure that the activity is undertaken in compliance with national and provincial environmental legislations as well as local by-laws and policies;
- Ensure that CEMP as well as the Standard Environmental Specification (SES) and Transnet policies, and other relevant policies are always underwritten;
- Detail mitigation measures, timeframes, and criteria for assessing the success or failure of each measure;
- Provide detailed monitoring programmes to ensure compliance;
- Provide input and strategies for environmental quality control and risk management;
- To preserve the natural environment by limiting destructive actions on site;
- Ensure appropriate restoration of areas affected by construction;
- Prevent long term environmental degradation; and
- Ensure that activities on site considers the rights of other land users to enjoy a safe and healthy living environment.

3. DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Nsovo is the independent Environmental Consultant and meets the general requirements of an Environmental Assessment Practitioner (EAP) as stipulated in Regulations 13 (3) of the NEMA: EIA 2014 Regulation as amended. Nsovo therefore is:

- Independent and Objective;
- Has expertise in conducting EIA's including EMPr;
- Considers all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

Table 1: Details of the Environmental Assessment Practitioner (EAP)

Name of Company	Nsovo Environmental Consulting
Person Responsible	Munyadziwa Rikhotso Pr.Sci.Nat.
Professional Registration	Registered with the South African Council for Natural Scientific Professions (SACNASP).

	Environmental Assessment Practitioner Association of South Africa (EAPASA) (Pending).
Postal Address	40 Lyncon Road Carlswald Midrand 1684
Telephone Number	087 803 9294
Fax Number	086 602 8821
Email	munyadzi@nsovo.co.za
Qualifications & Experience	B.Sc. Honours Geography **18 years of experience**
Project Related Expertise	In terms of project related expertise, the Environmental Assessment Practitioner has completed the following projects: • EIA for the proposed Tubatse strengthening Phase 1 – Senakangwedi B integration within the jurisdiction of Greater Tubatse Local Municipality in Limpopo Province. • EMPr, WULA and EA amendment for the proposed Juno - Gromis 400kV power line • Basic Assessment for the proposed Decommissioning and Demolition of Verwoedberg Substation and 275kV power.

CV attached as **Appendix E.**

4. PROJECT DESCRIPTION

The Sishen-Saldanha line, Transnet Freight Rail's (TFR) iron ore export corridor, forms the backbone of the company's growth strategy. as part of the Transnet Orex expansion, TFR plans to replace the 9E Electrical Locomotives and Diesel Locomotives with the new energy-efficient 15E Electrical Locomotives. To enable TFR to expand their operations without overloading and interruption of supply, a Basic Assessment (BA) process was undertaken in 2014. The scope of work entailed construction of approximately 15km 50kV from the existing Eskom Helios Main Transmission Substation (MTS) to the proposed new Transnet Traction Feeder Substation (TFS) and associated infrastructure. The project was authorised by the Department of

Environmental Affairs (DEA) currently known as the Department of Forestry, Fisheries and the Environment (DFFE), on the 2nd of April 2015 with the reference number 14/12/16/3/3/1/1247, and construction activities commenced in August 2020.

During negotiations with the landowner, an agreement was not reached to construct a portion (approximately 4.5km) of the approved 15km powerline on Farm Sous 226. Consequently, Transnet deviated the powerline as follows:

- A temporary 4.5km bypass powerline was constructed along the eastern border of the existing Eskom servitude from the Helios MTS to the boundary between the Rona Rupert Trust and the Lintvelt Trust.
- The bypass powerline is required to allow for the continuation of the movement of trains during the construction of the new 15km 50kV powerline. Further, the temporary bypass line was constructed using concrete masts similar to the masts being used by Transnet along the OREX rail line. In addition, the concrete masts are positioned at ±80m intervals.
- After completion and commissioning of the temporary by-pass line, the existing Eskom Over Head Line (OHL) will be removed from the Helios MTS to the boundary of the Rona Rupert Trust and Lintvelt Trust near towers HEL/8TRA21 and HEL/8TRA22.
- With the existing Eskom OHL complete and lattice towers removed, the new Eskom OHL will be constructed along the centerline of the existing Eskom servitude.
- Once the new Eskom OHL has been completed and successfully commissioned the temporary bypass line will be removed and affected areas re-instated as directed.
- The new Transnet Traction Feeder Substation (TFS) will then be fed from the Helios MTS via the New Eskom OHL.

The construction of the bypass and the new 15km 50kV powerlines will take place in the existing Eskom servitudes within the 200m corridor that was studied and approved by DFFE in 2015. The project proponent is Transnet SOC Limited, whereas the Competent Authority (CA) is the National Department of Forestry, Fisheries and the Environment (DFFE). The proposed Section 24 G will be undertaken in terms of the National Environmental Management Act, 1998 (NEMA 107 of 1998), the EIA Regulation of December 2014 as amended, and other applicable Acts and Legislation will be equally considered.

4.1. SUMMARY OF THE SCOPE OF WORK

This section describes the proposed scope of work and the listed activities triggered in terms of the EIA Regulations, 2014 (promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), as amended.

Transnet is applying for a Section 24 G (S 24G) Environmental Authorisation (EA) to rectify the unlawful construction of the 4.5km bypass powerline as detailed below:

- Construction of a temporary 4.5km by-pass line along the eastern border of the existing Eskom servitude from the Helios Main Transmission Substation (MTS) to the boundary between the Rona Rupert Trust and the Lintvelt Trust. The bypass powerline is required to allow for continuation of the movement of trains during construction of the new

50kV powerline. Further, the temporary by-pass line will be constructed using concrete masts like the masts being used by Transnet along the OREX rail line. In addition, the concrete masts will be positioned at ±80m intervals.

- After completion and commissioning of the temporary by-pass line, the existing Eskom Over Headline (OHL) will be removed from the Helios MTS to the boundary of the Rona Rupert Trust and Lintvelt Trust near towers HEL/8TRA21 and HEL/8TRA22.
- With the existing Eskom OHL complete and lattice towers removed, the new Eskom OHL will be constructed along the centre line of the existing Eskom servitude.
- Once the new Eskom OHL has been completed and successfully commissioned the temporary By-pass line will be removed and effected areas re-instated as directed.
- The new Transnet Traction Feeder Substation (TFS) will then be fed from the Helios MTS via the New Eskom OHL.

The construction of the bypass and the new 50kV powerlines will take place in the existing Eskom servitudes within the 200m corridor that was studied and approved by DFFE in 2015.

The development triggers a listed activity, and as such a S24 G process must be undertaken in accordance with the EIA Regulations, 2014 (promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), as amended.

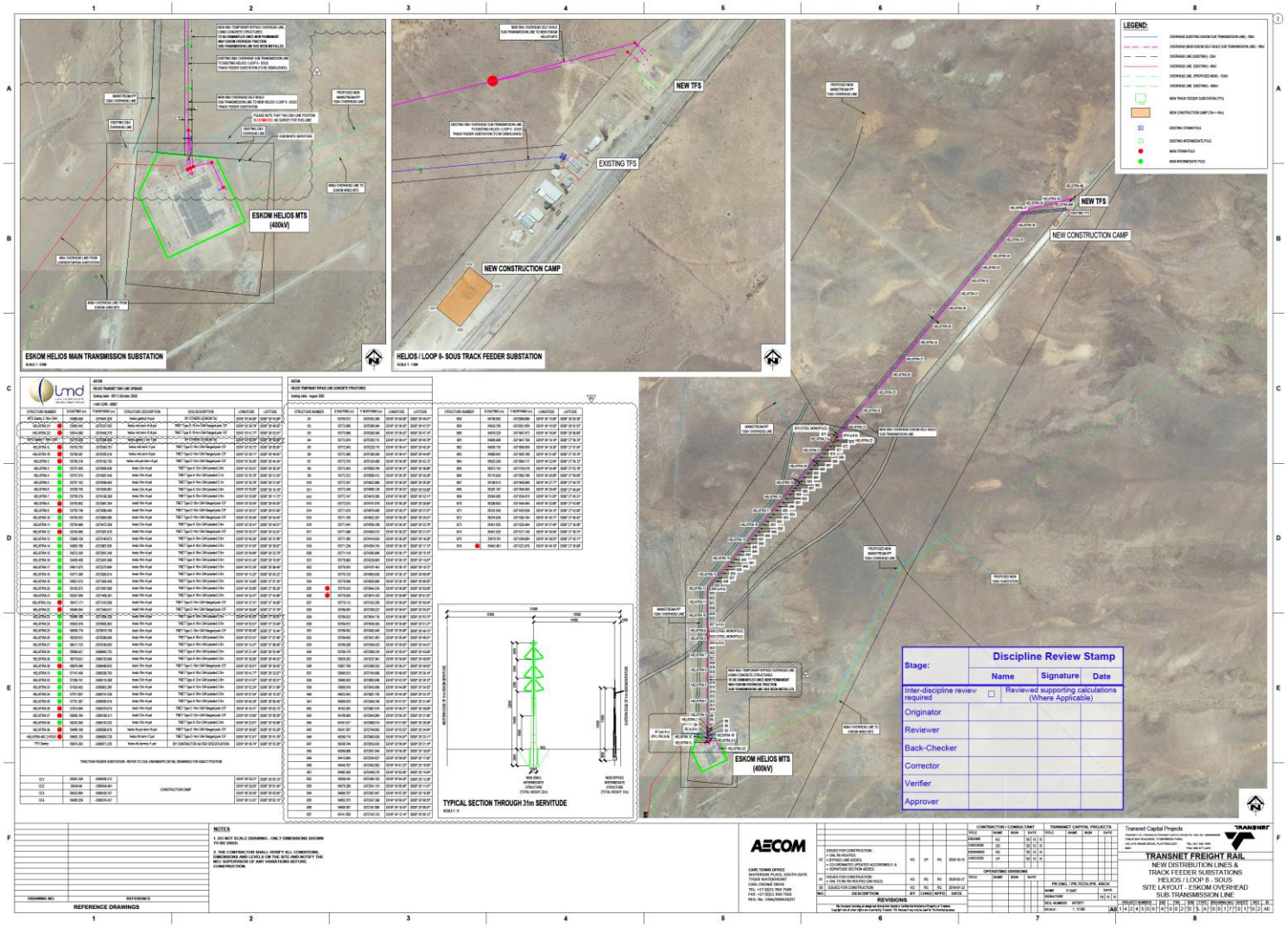


Figure 1: Site Layout Plan

4.1.1. REGIONAL SETTING AND LOCATION OF THE PROJECT

The project is located approximately 52km from Loeriesfontein town, within Ward 5 of the Hantam Local Municipality in the Northern Cape Province of South Africa. Figure 1 below is a locality map that depicts the proposed study area at a scale of 1:50 000.

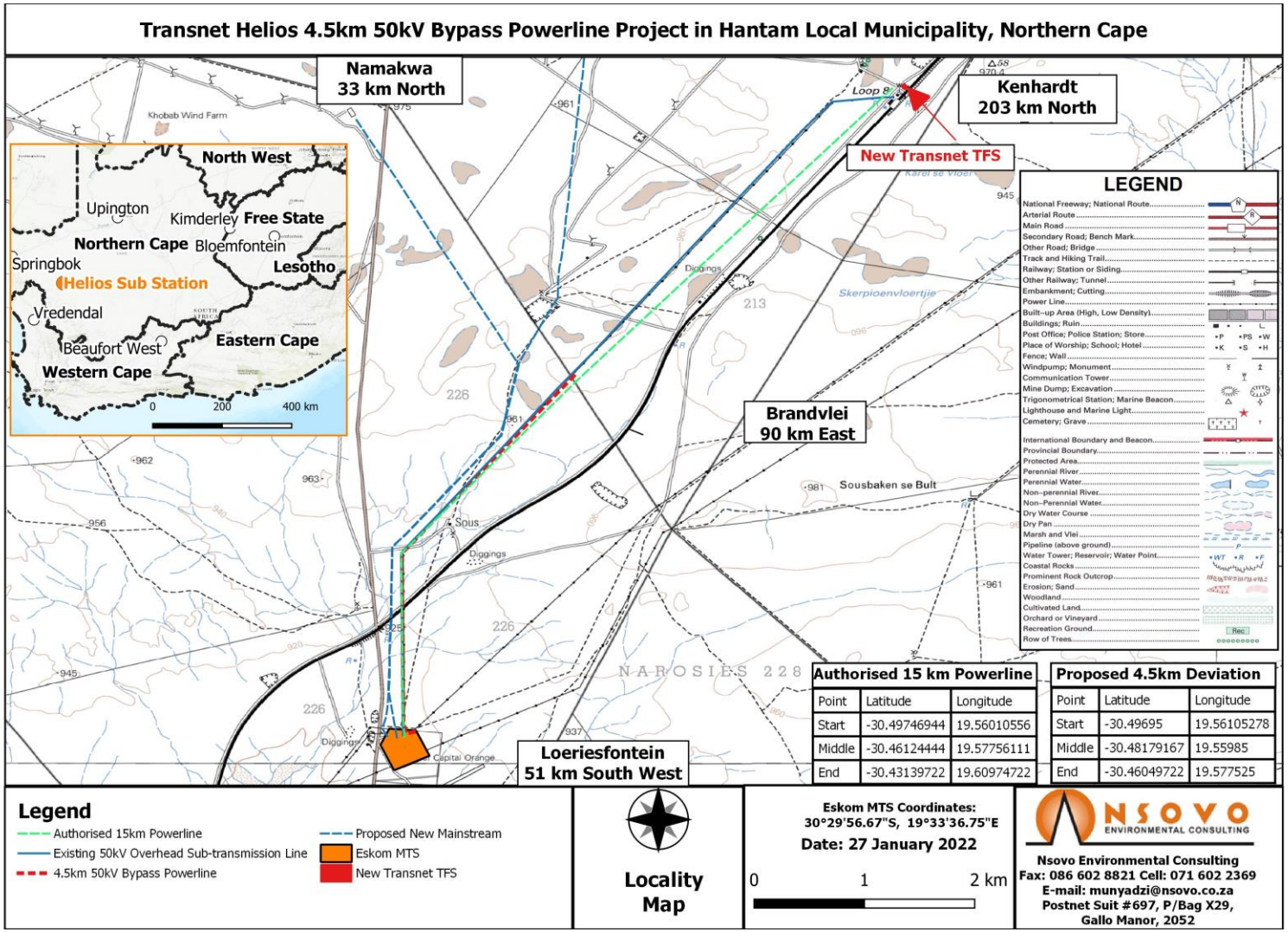


Figure 2: Locality Map of the site

The GPS coordinates and 21 SG code of the affected farms are presented in Table 2, and an A3 map of the site is attached in **Appendix B.**

Table 2: The affected farm name, portion number, and 21 Surveyor General Code

Site Name	Portion Number	21 SG Code
Farm Sous 226, Portion Number 1	1	C01500000000022600001
Farm Sous 226, Portion Number 2	2	C01500000000022600002
Farm Sous 226, Portion Number 3	3	C01500000000022600003

5.1. REGIONAL SETTING

This section outlines parts of the socio-economic and biophysical environment that could be affected by the proposed development. Using the project description and knowledge of the existing environment, potential interactions between the project and the environment are identified below. The project's potential effects on the human environment, socio-economic conditions, physical, and cultural resources are included.

4.1.2. 5.1.1. Socio-economic description

This section presents the socio-economic aspects focusing on the Province and Municipalities within which the proposed construction of the 15km 50kV powerline from the existing Eskom Helios MTS to the proposed new Transnet Helios TFS are.

4.1.3. 5.1.2. Provincial Description of the Proposed Project

Northern Cape is the largest and most sparsely populated province of South Africa. About half of the population is of mixed race. Blacks make up about one-third of the population, and whites constitute about one-tenth. Afrikaans is by far the most widely used language, spoken by about two-thirds of the population. Tswana is spoken by about one-fifth of the population. Several other languages are also spoken, including Xhosa and English. More than two-thirds of the population live in urban areas. The major urban centres are Kimberley and Upington. The capital city of Northern Cape is Kimberly, and other cities and towns include Colesberg, Springbok, De Aar, Upington, Kuruman, and Kathu. The Northern Cape is divided into five district municipalities and further subdivided into 26 local municipalities, of which the site in question falls within the Hantam Local Municipality of the Namakwa District Municipality.

4.1.4. 5.1.3. District Municipality within which the study area is located

The proposed development will be undertaken within the Namakwa District Municipality, a Category C municipality in the Northern Province (StatsSA, 2021). The district has a population of 139 370, which is 10.4 % of the total population of the Northern Cape Province. The annual population growth rate for 2019 was 1.2%. The district had a total number of 41 613 households with a population density of 1.1 people per square kilometres. There are 27 child headed households and 14 145 (37.6%) women headed households (StatsSA, 2021).

4.1.5. 5.1.4. Local Municipality affected

The Hantam Local Municipality is a Category B municipality and is in the Namakwa District Municipality in the Northern Cape Province. It is the largest municipality of six in the district, making up a third of its geographical area. According to StatsSA (2021) Hantam Local Municipality has a total population of 21 578, of which 82,2% are coloured, 12,1% are white, 4,4% are black African, and 0,7% consists of Indian/Asian. The remainder of the population (0,6%) is made up by other groups. Of those aged 20 years and older, 18,8% completed Grade 12, 19,7% have some primary education, 8,4% completed primary education, 30,6% completed some secondary education, 8,1% have some higher education and only 14,4% had no schooling. The main economic sectors in the municipality are agriculture, mining and manufacturing (StatsSA, 2021).

4.1.6. 5.1.5. Climatic condition

The site is located within the low rainfall region of South Africa, with a Mean Annual Precipitation (MAP) of between 100 -200 per annum usually in the summer months. Further, the annual average temperatures range between -2 and 39 ºC (Mucina & Rutherford, 2007).

4.1.7. 5.1.6. Topography and Geology

The site is underlain with a rocky to sandy substrate derived from Mudstones and Shales from the Ecca Group and Dwyka Tillites (Plate 1) (Mucina & Rutherford, 2007). The region is characterised irregular plains, bisected by shallow alluvial water courses (Plate 2), that vary in size. The area is thus characterised by very shallow soils. However, no limestone/calcrete that is present in some areas was observed within the 4.5 km length of servitude.

4.1.8. 5.1.7. Hydrology

According to Sazi Environmental Group Watercourse Assessment Report, 2015, the assessed area forms part of the Lower Orange Water Management Area of South Africa. The Lower Orange WMA (Water Management Area) is the lowest WMA in the Orange/Vaal River basin and as such is affected by upstream activities, both in terms of the upper Orange and the Vaal system. The area is arid with rainfall varying from 400mm in the east to 50mm on the west coast. The topography of the area is flat with large pans or endoreic waterbodies (these are rivers, lakes, or waterbodies that do not drain to the ocean as they exist in closed watersheds) that do not contribute runoff to the Orange River system. The Vaal River is the main tributary to the Orange River; with Ongers and Hartesbeest rivers as tributaries in the south of the Orange River. The WMA has a number of highly intermittent water courses along the coast which drain directly to the ocean. The assessed area formed part of the D53F and E31C quaternary catchment of the Lower Orange Water Management Area which had a number of small watercourses that were not associated with any big river systems in the D53F quaternary catchment. The E31C quaternary catchment houses 3 known rivers, namely the Rooiberg, Raskraal and Saadkraal.

Drainage lines were identified at the site; however, none of these attributed wetland characteristics. The drainage lines identified are believed to flow intermittently, that is, during rainy seasons only. Two dry pan wetlands were identified near the middle section of the power line route.

4.1.9. 5.1.8. Flora and fauna

The site is predominately located within Bushmanland Basin Shrubland (NKb 6) as defined by the National Vegetation Type Map (Mucina & Rutherford, 2018). This vegetation unit is dominated by dwarf shrubs, mostly succulents, interspersed in areas with grasses. No natural trees were observed within the site, except for alien Prosopis trees just outside of the study area.

The ecological assessment report identified the typical species associated with the shrubland unit, highlighting those that were observed. A higher number of forbs (bulbs) and grasses could occur but were not observed due to the prevailing conditions, that and the large shale plains that dominate the southern portion of the site are typically devoid of plant species. This was also reflected in the low number of Protected Plant species (NCNCA & NFA), with 36 species being observed, most of which are listed under Schedule 3 Protected (33) and will require removal / relocation permits before disturbance occurs.

5. GENERAL ENVIRONMENTAL GUIDELINES

This EMPr has been compiled in fulfilment of the requirements of the National Environmental Management Act (Act 107 of 1998) and other associated regulations and is therefore legally binding. The Client must appoint a Safety, Health, Environment and Quality (SHEQ) officer, responsible for implementing the EMPr. The SHEQ officer will ensure that all personnel involved in the project are trained and familiar with the requirements of the EMPr.

There are several management actions required to ensure that the EMPr objectives are met, and this include ensuring that:

- Works are carried out in accordance with relevant environmental statutory requirements and non-statutory policy, as detailed throughout this EMPr;
- Works are carried out to cause the least possible disturbance to the environment and to aid rehabilitation;
- Works are carried out in such a way as to minimise the likelihood of environmental degradation;
- Works are carried out in such a way as to manage the impact of the works (e.g., noise, traffic, etc.) on neighbouring properties;
- All employees engaged in the works comply with the requirements of the EMPr;
- Clear procedures are provided for management of environmental impacts, including corrective actions;
- Identify management responsibilities and reporting requirements to ensure compliance with the EMPr; and
- To ensure safe and healthy conditions for humans and animals during storing and handling of coal.

5.1. SAFETY, HEALTH, ENVIRONMENT AND QUALITY (SHEQ) OFFICER

As indicated above, the SHEQ officer will be responsible for implementing the EMPr through regular monitoring and auditing. Detailed audit reports must be submitted to Transnet at the agreed frequency. If queries arise for issues that cannot be proficiently addressed by the SHEQ officer, advice must be sought accordingly. Advice must be sought from Transnet and/or relevant authority accordingly.

5.2. FAILURE TO COMPLY WITH THE ENVIRONMENTAL CONSIDERATIONS

The SHEQ officer will, acting reasonably, have the authority to order the work force to suspend part or all the works if he causes unacceptable damage to the environment by not adhering to the specifications set out below. The suspension will be enforced until the offending parties' actions and procedures are corrected, and adequate mitigation measures are implemented.

5.3. PROGRESS / SITE MEETINGS

Environmental issues shall be put on the agenda as a discussion point during meetings. The SHEQ officer, or a designated person involved with environmental issues on the project, shall regularly attend the progress and or site meetings to provide feedback on any outstanding or contentious environmental matters.

5.4. PUBLIC ENGAGEMENT

The links to the community that will be established must be maintained and utilised to the mutual benefit of all parties. The SHEQ officer is responsible for addressing any environmental problems or queries raised by the community and must maintain close contact with the representatives thereof. This EMPr will be made available, on request, for perusal by the public.

The SHEQ officer must keep a complaint register that must record all complaints raised by the Interested and Affected Parties (I&APs) and stakeholders. The complaints must be adequately addressed. The following must be recorded:

- Complainant's name;
- Address;
- Phone number;
- Description of complaint;
- Date when the complaint was raised; and
- Action taken.

6. APPLICABLE LEGISLATION

Following the requirement of Appendix 4 of the amended EIA Regulations of 2014, the EMPr must provide a detailed list of applicable legislation, presented in Table 3. The table highlights the acts and legislation relevant to the project, pertinent to the activities site's activities. The EMPr considers Municipal policies, plans, and by-laws as well as world best practices. The list of legislations applicable to the project is not an exhaustive analysis; however, it provides a guideline to the relevant aspects of each act.

Table 3: Applicable Law and Legislation

Aspect	Relevant Legislation	Brief Description
Environment	• National Environmental Management: Act 1998, (Act No. 107 of 1998).	The overarching principles of sound environmental responsibility are reflected in the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) which applies to all listed projects. Construction and operation of

	• Environmental Impact Assessment Regulations, December 2014 (as amended in April 2017)	activities must be conducted according to the generally accepted principles of sustainable development, integrating social, economic, and environmental factors. The proposed deviation project triggered the following listed activities in terms of the EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998 (as amended in December 2014): **1. Government Notice No. R983 Appendix 1 Activity No: 11** *The development of facilities or infrastructure for the transmission and distribution of electricity –* *(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or* *excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is —* *(b) 2 kilometres or shorter in length.* **2. Government Notice No. R985 Appendix 3 Activity No: 12** *The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.* *g. Northern Cape* *i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEM:BA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;* *ii. Within critical biodiversity areas identified in bioregional plans;* **3. Government Notice No. R985 Appendix 3**

		Activity No: 14 *The development of—* *(xii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs—* *(a) within a watercourse;* *g. Northern Cape* *ii. Outside urban areas:* *(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;* *(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;*
Biodiversity	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	The purpose of the National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM: BA) is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment (NSBA) was developed.
Protected Areas	National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)	The purpose of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) is to provide for the protection, conservation, and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.
Heritage Resources	National Heritage Resources Act, 1999 (Act No. 25 of 1999)	The National Heritage Resources Act, 1999 (Act No. 25 of 1999) legislates the necessity for cultural and Heritage Impact Assessment (HIA) in areas earmarked for development, which exceed 0.5 ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

Air quality management and control	National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)	The objective of the Act is to protect the environment by providing reasonable measures for the protection and enhancement of air quality and to prevent air pollution. The Act makes provision for measures to control dust, noise, and offensive odours. Section 32 of the National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) deals with dust control measures in respect of dust control. Whilst none are promulgated at present, it provides that the Minister or MEC may prescribe measures for the control of dust in specified places or areas, either in general or by specified machinery or in specified instances, the steps to be taken to prevent nuisance or other measures aimed at the control of dust.
Noise Management and Control	Noise Control Regulations in terms of the Environmental Conservation, 1989 (Act 73 of 1989)	The assessment of impacts relating to noise pollution management and control, where appropriate, must form part of the EMPr. Applicable laws regarding noise management and control refer to the National Noise Control Regulations issued the Environment Conservation, 1989 (Act 73 of 1989).
Water	National Water Act, 1998 (Act 36 of 1998)	This National Water Act, 1998 (Act 36 of 1998) provides for fundamental reform of law relating to water resources and use. The preamble to the Act recognises that the aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users.
Agricultural Resources	*Conservation of Agricultural Resources* Act, 1983 (Act No. 43 of 1983)	The Act aims to provide for control over the utilization of natural agricultural resources to promote the conservation of the soil, water resources and vegetation and to combat weeds and invader plants. Section 6 of the Act makes provision for control measures to be applied to achieve the objectives of the Act.
Human	The Constitution of South	The Constitution of South Africa, 1996 (Act No. 108 of 1996)

	Africa, 1996 (Act No. 108 of 1996)	provides for an environmental right (contained in the Bill of Rights, Chapter 2). The state is obliged "to respect, protect, promote and fulfil the social, economic and environmental rights of everyone" The environmental right states that: "Everyone has the right - a) To an environment that is not harmful to their health or well-being; and b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that - • Prevent pollution and ecological degradation; • Promote conservation; and • Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."
Waste	National Environmental Management: Waste Act 59 of 2008	This act provides fundamental reform of the law regulating waste management to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development. This act also ensures the provision of national norms and standards for regulating the management of waste by all spheres of government. The National Environmental Management: Waste Act provides for specific waste management measures; licensing and control of waste management activities; remediation of contaminated land; compliance and enforcement; and for matters connected therewith.

7. METHOD STATEMENTS FOR THE ACTIVITIES TO BE CARRIED OUT

The environmental specifications are required to be underpinned by a series of Method Statements, within which the Contractors and Service Providers are required to outline how any identified environmental risks will practically be mitigated

and managed for the duration of the contract, and how specifications within this EMPr will be met. That is, the Contractor will be required to describe how specified requirements will be achieved through the submission of written Method Statements to the Transnet's construction team, Site Manager and ECO prior to commencement of activities on site:

The Method Statements must cover applicable details with regard to:

- The type of construction activity.
- Where the activity will take place.
- Identification of impacts that might result from the activity.
- Identification of activities or aspects that may cause an impact.
- Methodology and/or specifications for impact prevention for each activity.
- Methodology and/or specifications for impact containment for each activity.
- Emergency/disaster incident and reaction procedures.
- Construction procedures;
- Materials and equipment to be used;
- Getting the equipment to and from site;
- How the equipment/material will be moved while on-site;
- How and where material will be stored;
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- Timing and location of activities;
- Compliance/non-compliance with the Specifications; and » Any other information deemed necessary by the Site Manager.

Specific method statements required may include but not limited to:

- Vegetation clearing;
- Site establishment and site layout plan
- Fauna and Flora management;
- Excavations for installation of pylons;
- Chemical/hazardous substance storage;
- Workshop and Material Equipment Storage;
- Plant- Refuelling;
- Cement/concrete use;
- Logistics of the environmental awareness training;

- Fire management;
- Emergency response;
- Storm water and soil erosion management;
- Waste management;
- Servitude and Access road(s);
- Contaminated water management;
- Temporary site closure;
- Site Rehabilitation;
- Blasting;
- Alien plants removal and use of herbicides and pesticides;
- Dust suppression; and
- Noise Control.

The above does not exhaust any other activities/aspects that may require Method Statement (MS) prior to the commencement of the work. The ECO and site manager may require more MSs to be submitted as the project progresses.

8. PROJECT TEAM

8.1. ROLES AND RESPONSIBILITIES OF THE PROJECT TEAM

8.1.1. Enviromental Control Officer

An independent ECO must be appointed throughout the construction and rehabilitation phases to provide an on-site environmental management service to Transnet. The ECO will be responsible for monitoring, reviewing, and verifying compliance by the Contractor with the environmental specifications. In addition, the ECO will generally be responsible for the planning and management of all environmental activities to ensure effective implementation of the EA, EMPr, landowner conditions and applicable permits and licences. More specifically the ECO will undertake the following responsibilities.

8.1.2. Communication Services

- To liaise closely with the DLM and Contractor's Environmental Officer (CEO).
- To ensure that all the landowner's agreed General and Special Conditions are implemented.
- To agree with landowner on the bush clearing method.
- To assist in conflict resolution.
- To ensure that the Contractor rehabilitates any damage caused during construction.
- To indicate where bird guards, bird diverters, bird lights and aviation warning spheres are to be installed as specified in the EMPr, EA conditions and or the line profile.
- After the final rehabilitation has been completed on a property, to obtain the immediate release from the landowner.

8.1.3. Environmental Management

- Monitoring of site environmental progress in respect of time, deliverables and quality.
- Liaison between Project Manager, SHEQ/SHE/Environmental Manages, Senior Environmental Advisor, Site Supervisor, CEO, I&APs, authorities and stakeholders on environmental matters.
- Recommending EMPr modifications to the Project/SHEQ/SHE/Environmental Manager as and when the site conditions warrant it.
- Communicating changes of the EMPr to all relevant parties.
- Maintaining climatic data on an ECO register using DLM/Contractor EO readings.
- Issuing Contractors Communications and Site Instructions via the Site Supervisor or delegated person as delegated by the Project Manager.
- Monitoring performance of Contractor and sub-contractors to ensure compliance with environmental and statutory requirements.
- Validating the regular site inspection reports prepared by the CEO.
- Checking the CEO's record of environmental incidents (spills, impacts, legal transgressions, etc.) as well as corrective and preventive actions taken.
- Checking the CEO's complaints register in which all complaints are recorded, as well as actions taken.
- Assisting in the resolution of environmental related conflicts.
- Compiling and completing the environmental management related component of the handing-over documentation and any other related documents.
- Timeously identifying any sensitive site issues which may affect environmental aspects and the reporting of this to the Project/SHEQ/SHE/Environmental Manager.
- Monitoring that good housekeeping practices are followed and maintained by the Contractor.
- Monitoring that the ground rehabilitation is initiated on time, complying with the EA, EMPr and to the satisfaction of the landowner.
- Assisting the Contractor and DLM EO with the environmental awareness training course to all site staff, targeted at the level of the workers so that they have a basic understanding of the environment that they are working in. The Contractor will provide an interpreter if needed.
- Monitoring that sensitive areas are demarcated within or alongside the construction areas i.e. sites identified in the EA and the EMPr, and that all personnel are informed of such sites and the reason the site is demarcated.

8.1.4. Monitoring

- Validating the site environmental monitoring plan.
- Validating the "Punch List/daily pre-warning" and reporting all defects and non-conformances as per the Control of Nonconformity Procedure.

- Carrying out environmental surveillances.
- Validating and recording of certificates proving the legal disposal of waste streams.

8.1.5. Reporting

- To complete a daily diary and monthly (completed by the 24th of each month) reporting to Land and Rights and the Project/SHEQ/SHE/Environmental.
- To prepare monthly monitoring reports for submission to the DEA, Environmental Compliance Section as and when required.
- Manage the compliance of the Contractor according to the EA, EMPr and landowner conditions. The reports are to include photographic images of special occurrences taking place during the reporting period.
- To attend site meetings as required.
- To inform Land Development and Management and the Project/SHEQ/SHE/Environmental Manager of any activities that are detrimental to the environment or are not in line with the EA and the EMPr conditions, and the Landowner' Agreed General and Special conditions.

8.1.6. Administration

- To assure a proper site ECO administration function to cater for all environmental site related correspondence.
- To execute environmental responsibilities as per DLM's Risk Management System.
- To promote and maintain sound relationships with the landowners, community, Contractors and suppliers.

8.1.7. Contractor

- To provide all necessary supervision during the execution of the project.
- To be on site always.
- To appoint a competent Contractor Environmental Officer (CEO).
- To implement the projects as per the approved project plan.
- To ensure that implementation is conducted in an environmentally acceptable manner.
- To fulfil all obligations as per the agreed contract.
- To comply with special conditions as stipulated by landowners during the negotiation process.
- To inform and educate all employees about the environmental risks associated with the different construction activities and lessen significant impacts to the environment.
- To report environmental incidents.
- To provide environmental training.
- To ensure compliance with pertinent environmental legislations and other legally binding documents.

8.1.8. Contractor

- To provide all necessary supervision during the execution of the project. He/ She should always be available on site .
- To appoint a competent Contractor Environmental Officer (CEO).
- To implement the projects as per the approved project plan.
- To ensure that implementation is conducted in an environmentally acceptable manner.
- To fulfil all obligations as per the agreed contract.
- To comply with special conditions as stipulated by Landowners during the negotiation process.
- To inform and educate all employees about the environmental risks associated with the different construction activities and lessen significant impacts to the environment.
- Transnet Environmental Representative to implement and integrate environmental management systems by ensuring compliance to ISO 14001 and monitoring performance.
- To report environmental incidents.
- To provide environmental training.
- To ensure compliance with pertinent environmental legislations and other legally binding documents.

8.1.9. Authorising Department

The role of the Authority is to enforce compliance with the EA and the EMPr.

9. DESCRIPTION OF MITIGATION MEASURES

This section serves to prescribe mitigation measures to prevent, reduce, eliminate or compensate for impacts, to acceptable/insignificant levels.

9.1. PRE- CONSTRUCTION MANAGEMENT PROGRAMME

The pre-construction management programme is to be used as a guide during the planning, design and detailing of the development components. This part of the programme is to be referenced by all involved in decision making during the planning and design phases.

9.1.1. Negotiations with affected landowners

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
To ensure that landowners are aware of activities taking place within their properties.	Transnet must ensure that all affected landowners are negotiated with and that written consent is obtained prior to construction activities.	Signed landowner consent forms.	Transnet	Prior commencement of construction activities

9.1.2. Commissioning of tender

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
Ensure that proper environmental foundations are established prior to commencing with construction by informing all parties of appropriate environmental protection measures.	• The successful tendering contractors must be made aware of the contents of this EMPr and any penalties arising from noncompliance prior to the commencement of construction activities. • All contractors must be made aware of the audit and monitoring requirements as stipulated in this EMPr. • The EA holder must appoint an Environmental Control Officer (ECO) who must be responsible to monitor compliance to the EMPr. • Inform the department of the appointment of the	• Signed Declaration by contractor. • Appointment Letter	• Transnet • Contractor	Prior commencement of construction activities

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	ECO and provide the candidate's contact details.			

9.2. SEARCH AND RESCUE OF SPECIES OF CONCERN

9.2.1. Plant Species:

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To conserve protected and other species.	36 protected plant species were observed in the proposed development area. Most of these plants are listed under Schedule 3 Protected (33) and will require removal/relocation permits before disturbance occurs. The loss of habitat of these plants will result in the loss of biodiversity within the affected areas site. Therefore, the following is recommended: • Application for all the necessary plant removal /relocation permits form the responsible authorities must be undertaken accordingly. • Suitable safe receiving areas must be identified prior to search and rescue commencing. • Search and rescue of all identified protected plant species must be prioritised.	• Permits • Agreements with safe receiving placing and associated receipts.	• Transnet • Contractor	Prior commencement of construction activities

9.2.2. Bird Species:

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To conserve protected and other species.	244 bird species occur across the development site, and 14 of these species are Red List species, with 4 classifieds as Endangered, 4 classified as Vulnerable and 6 Near-threatened. In addition, there are 2 species listed as Bonn species. Electrocutions, collisions, loss of habitat, may impact on them. Therefore, the following is recommended: • Steel monopole design must be used for any new towers required for this power line. • New line must be constructed adjacent to the existing power line as well as by marking the line with anti-collision bird flappers. • An avifaunal walk down must be commissioned once the line has been surveyed and pegged to indicate the exact spans requiring marking.	Agreements with safe receiving placing and associated receipts	• Transnet • Contractor	Prior commencement of construction activities

9.3. CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAMME

The mitigation measures proposed for the construction phase are also applicable for the operational phase of the project.

9.3.1. Site Establishment

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
To ensure minimal disturbance of the environment during the site establishment.	Construction camps on the site must be established on the least sensitive areas preferably within already disturbed areas. After completion of the construction activities, these areas must be rehabilitated. **Site Plan:** Documentation for the proposed camp site must be prepared by the Contractor prior to the commencement of the construction activities and must be submitted to Transnet for approval. This documentation must include, but not limited to the following: • Site access (including entry and exit points). • All material and equipment storage areas including storage areas for hazardous substances. • Construction offices and other structures. • Security requirements including temporary and permanent fencing, and lighting. • Solid waste management facilities. • Storm water control measures. • Provision of potable water and mobile chemical ablution facilities. Throughout the period of construction, the Contractor must restrict all activities to within the designated areas as per the	• Observation • Site Plan • Landowner agreements	• ECO • Contractor • CEO	Prior to site establishment

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	construction layout plan. Any relaxation or modification of the construction layout plan must be approved by the ECO. **Site Camps:** The following restrictions must be placed on the site camp for the construction staff in general: • The use of water courses for washing of clothes. • The use of welding equipment, oxy-acetylene torches and other bare flames where veld fires can be a hazard. • Collection of firewood. • Poaching of any form. • Use of surrounding veld as toilets. **Vegetation Clearing:** • The natural vegetation encountered on site must be conserved and left intact as much as possible. • Only flora within the construction footprint must be cleared. Clearance must be as per the approved Method statement in line with Transnet policies. • Search and rescue must be done by a suitable Specialist in accordance with the permit requirements from the responsible authorities and in consultation with the ECO.			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	Water for human consumption: Water for human consumption must always be available at the site offices and at other convenient locations on site. Water must be obtained from an approved source. **Sewage Treatment:** • Chemical toilets must be supplied at a ratio of 1 toilet per 15 persons and must be regularly cleaned and maintained by the Contractor. • The Contractor must arrange for regular emptying of toilets and must be entirely responsible for enforcing their use and for maintenance. • The ablution facilities must be at least 100m away from the identified FEPA watercourses and associated buffers. • All ablution facilities must be anchored to prevent them from being toppled by the wind. Only rigid material such as steel wires and droppers will be used for anchoring of toilets. No conductors or rope may be used for this purpose.			

9.4. SENSITIVE ECOLOGY

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
To ensure that the sensitive area is not disturbed. To ensure minimal or if all possible no disturbance to the vegetation on and around the site. To ensure the control of alien invasive species and to ensure that the rehabilitation of indigenous vegetation is as close to the original state as possible.	A portion of the proposed development will encroach on a Critical Biodiversity Area (CBA) that is associated with watercourses. Further, the proposed development is near an Ecological Support Area (ESA). Therefore, the following must be implemented: • Develop and implement a Rehabilitation and Monitoring Plan. • Develop a Plant and Animal Search and Rescue Plan for implementation prior to any construction activities with the requisite permits in place as supplied by DENC. • Develop an Alien Management Plan for implementation during the construction phase. The plan must also be implemented into all future phases of the project. • The project must share roads and infrastructure where possible to reduce the overall footprint and reduce stormwater and erosion and sedimentation related impacts • Relocate, demarcate or recommend conservation / preservation measures for any identified ecologically "sensitive" and/or protected species and areas. • Where possible construction in highly sensitive areas	• Observation • ECO to monitor • Site plan	Transnet Contractor	Prior to construction

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	must take place during the dry season to minimise impacts on bulbs and annuals. • No laydown areas may be located within identified areas of high ecological sensitivity. • Creation of new access tracks should be minimised in all areas of natural vegetation. • Point out and/or demarcate all ecologically "sensitive" areas to the contractors (e.g. red data habitats & species, water courses, sensitive soils, steep slopes and areas susceptible to erosion). • Demarcate and create a DWS approved buffer for the area near the FEPA watercourses and consider it a no-go area. • Ensure that the demarcated areas are clearly barricaded before construction starts. Barrication must be maintained in good order throughout the course of the construction. • Avoid construction in sensitive vegetation types and FEPA watercourse areas. The recommendations of the ecological specialist studies must be strictly implemented, especially as far as limitation of the construction footprint and rehabilitation of disturbed areas is concerned. • Construction activities must be restricted to the immediate footprint of the construction of the			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	powerline and the sub-station to avoid any additional disturbance impacts on bird species residing in the broader area.			

9.5. ROADS

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
To ensure minimal and or no additional disturbance of the environment as primary access roads already exist.	• Access routes to the site already exist. The Contractor must always make use of existing routes. • The Contractor must erect and maintain marker pegs along the boundaries of the working areas, access roads, haul roads or paths before commencing any other work. If proved insufficient for control, these must be replaced by fencing with the additional cost being borne by the Contractor. • All existing farm roads (private roads) damaged during the construction phase, must be repaired to the satisfaction of the landowner post the construction phase, as per the conditions of the written contractual agreement between the landowner and the contractor. • Upon completion of the construction, the Contractor will ensure that the access roads are returned to a state no worse than prior to construction commencing.	• Use of designated access roads • No complaints from the landowners • No destruction of or • damage to known archaeological sites	• Contractor • ECO • CEO	• On-going during the construction phase

9.6. MATERIALS HANDLING, USE AND STORAGE

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure safe handling, storage use and disposal of hazardous substances. • To ensure full compliance with the requirements of the applicable legislation.	The Contractor's management and maintenance of plant and machinery will be strictly monitored according to the criteria given below: **Safety:** • All the necessary handling and safety equipment required for the safe use of hydrocarbons shall be provided by the Contractor to be used and/or worn by the staff. • The Contractor must comply with the Occupational Health and Safety Act (Act 85 of 1993) and Construction Regulations, 2003. **Hazardous Material Storage:** • Hydrocarbons and hazardous substances must be stored under controlled conditions. • All hazardous materials must be stored in a secured, designated area with restricted entry. • Storage of hazardous products must be in suitable containers. In addition, hazard signs indicating the nature of the stored materials must be displayed on the storage facility or containment structure as well as Material Safety Data Sheets (MSDS). **Fuels and Gas Storage:** • Fuel must be stored in a steel tank supplied and maintained	• Observation • Incident Report	ECO & Contractor CEO	Continuous throughout the construction phase

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	by the Contractor according to safety procedures. • The Contractor must ensure that diesel is stored in appropriate storage tanks or in bowsers. • The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 110% of the total capacity of all the storage tanks/ bowsers. The floor of the bund must be sloped, draining to an oil separator. • Gas welding cylinders and LPG cylinders must be stored in a secure and well-ventilated area. The Contractor must supply enough firefighting equipment in event of an accident and strictly no smoking will be allowed where fuel is stored and used.			

9.7. CONSTRUCTION EMPR TRAINING

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency

• To ensure that all site personnel have basic level of environmental awareness training.	• The CEO must arrange for Environmental Awareness Training programs for the personnel on site and the team with the contents of this EMPr, either in written format, or verbally. • Daily took box talks must be undertaken daily by the Contractor EO.	• Signed training attendance Register • Declaration of good conduct signed by all site personnel	CEO & Contractor	• Prior construction and to continue throughout construction through toolbox talks.

9.8. WATER SUPPLY

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure availability of water for various uses as and when required. • To ensure that water usage is minimised. • To conserve water resources always. • To encourage the Reducing, Reusing, and Recycling of water	• The client/ECO must point out to the Contractors where they can obtain water for construction purposes (e.g. water for dust suppression as well as for drinking). • The Contractor must not make use of/collect water from any other source than those authorised by the DWS.		Transnet EO Contractor EO	Ongoing during the construction phase

9.9. VEHICULAR ACCESS AND MOVEMENT OF CONSTRUCTION VEHICLES

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Damage to protected /endangered vegetation. • Damage to sensitive areas. • Erosion and loss of topsoil.	• To prevent ecological damage. • Minimise damage to the identified watercourses • Minimise erosion of embankments and subsequent siltation of watercourses	• CARA • NEMBA • NWA	• A physical access Method Statement must be compiled by the Contractor and accepted by the ECO and Transnet Representative. • Access roads must be maintained by the Contractor. The Contractor must erect and maintain marker pegs along the boundaries of the working areas, access roads, haul roads or paths before commencing any other work. If proved insufficient for control, these must be replaced. • Ensure that access roads to the site are of a suitable quality to eliminate soil erosion and channel storm water. • No illegal use of private roads during construction. • Where it is necessary for access roads to traverse drainage lines, rocky drift crossings must be used as these have little impact on flow pattern, but limit erosion and other	• Access plan approved by the ECO • No complaints from residents and landowners • No access roads through the identified CBA • No visible erosion scars once construction is completed • Erosion is not evident on slopes.	• Photographic record of private roads prior to the Contractor using the roads • Site plan • Regular monitoring of access roads conditions • Monitoring of impacts into the surrounding areas	ECO & Contractor CEO	Continuous during the construction phase.

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			impacts. • Upon completion of the project all roads required for operational phase must be maintained and repaired as required. • Roads not required for maintenance activities during the operational phase must be fully rehabilitated.				

9.10. MOVEMENT OF CONSTRUCTION PERSONNEL AND EQUIPMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Impact on sensitive environs. • Trespassing • Safety and security.	• To ensure controlled and manageable movement of personnel and	• TRMPV ACV2 REV1	• The Contractor must ensure that all construction personnel, labourers and equipment always remain within the demarcated construction sites. • Ensure that access to the site, including related infrastructure and machinery is restricted to authorised personnel only. • Where construction personnel and/or equipment wish to move outside the	• No trespassing of contractor's workforce. • No complaints from landowners	• Security registers. • Complaints register	ECO & Contractor	Continuous throughout the construction phase.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	equipment.		boundaries of the site, the Contractor/ labourers must obtain permission from the CEO in consultation with the ECO. • All equipment moved onto site or off site during the project is subject to the legal requirements as well as Transnet specifications for the transport of such equipment. • The Contractor must meet these safety requirements under all circumstances. • All equipment transported must be clearly labelled as to their potential hazards according to specifications. • All the required safety labelling on the containers and trucks used must be in place. • The Contractor must ensure that all the necessary precautions against damage to the environment and injury to persons are taken in the event of an accident and must supply a method statement to that effect. • The Contractor is to ensure that no machinery, personnel, material, or				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			equipment enters 'No-Go' areas during the project				

9.11. VEGETATION

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Damage to protected/endangered vegetation • Damage to topsoil	• To conserve flora. • To ensure the control of alien invasive species and to ensure that rehabilitation is as close as possible to the original state	• NEMBA • CARA	Some of the towers will be in proximity to sensitive areas. Protected species present on site include *Hoodia gordonii* and *Aloinopsis luckhoffii.* • The natural vegetation encountered on the site must be conserved and left intact as much as possible. • Only vegetation directly affected by the works may be cleared. • Demarcate the construction footprint. • No open fires are permitted within naturally vegetated areas. • Construction workers must not remove flora, and neither may	• No alien species • No disturbance of protected flora • Minimal disturbance of vegetation including crops	• Observation • Complaints register	• ECO & • Contractor • CEO	On-going during the construction phase.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			anyone collect seed from the plants without permission from the local authority. • Bush clearing in the servitude or around the substation must be in accordance to Transnet Vegetation Management Guideline (Reference – TGL41-334). • No bush clearing is to be undertaken without the knowledge thereof by the property owner. It is recommended that the owner is informed of the basic construction process during initial interaction so that he is aware of the vegetation clearing that will occur. • Only manual removal of weed will be permitted on site. Chemical and Mechanical (Tlb, bulldozer) control is not allowed on site. • Implement an alien invasive plant monitoring and management plan whereby the spread of alien and invasive plant species into the areas				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			disturbed by the construction of the power are regularly removed and re-infestation monitored.				

9.12. PROTECTION OF FAUNA AND AVIFAUNA

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Damage to habitat • Negative impact on bird due to electrocution and faulting • Negative impact on animal life.	• To conserve animal life. • To make sure that impact on natural vegetation is kept to the very minimum in order to conserve suitable habitats as much as possible. • To prevent	• NEMBA	• Considering the loss of natural habitat in the area and the fragmentation of the remaining areas, the towers could potentially lead to the increased loss and fragmentation of fauna habitat. Therefore, a Transnet approved bird friendly pole design must be used. • Under no circumstances shall any animals (Stock or game) be handled, killed or be interfered with by the Contractor, his employees, his subcontractors or his subcontractors' employees.	• No reported faunal injuries • No complaints from landowners	• Complaints register that records complaints from landowners • Daily inspection	• ECO & • Contractor • CEO	On-going during the construction phase.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	degradation of suitable sensitive fauna habitats. • To prevent contamination of water within the nearby watercourse thereby preserving several amphibian species. • To ensure that impact on sensitive fauna species area kept to a minimum • To ensure that		• No hunting of fauna and avifauna shall be tolerated by the Contractor or his personnel on the site. • The Contractor and his employees must not bring any domesticated animals onto the site. • The Contractor must keep the site clean and tidy from rubbish that can attract animals. • Fauna rescue and relocation programme must be implemented. • Any open excavations must be inspected early morning prior to the daily construction activities. The open excavations must be back-filled as soon as possible • Records of any injured or deaths of fauna within the construction servitude must be kept by the ECO. • Pesticides that are environmentally friendly must be used if necessary.				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	ecological linkages are maintained along the power line route. • To prevent injury or death of fauna species as a result of falling into open excavations • To prevent collision of birds with power lines. • To prevent electrical faulting		• All towers close to water must be fitted with the standard Transnet Bird Guards as per the Transnet Transmission guidelines.				

9.13. HERITAGE AND/OR ARCHAEOLOGICAL SITES

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Destruction of sites of archaeological and heritage significance. • Loss of historic cultural landscape. • Loss of intangible heritage value due to change in land use.	• To preserve any heritage, cultural or archaeological sites that might be encountered during the construction phase. • Protection of known sites against destruction, vandalism and theft. • Preservation and appropriate management of any new archaeologic	• NHRA	Several archaeological sites with high significance and dating to the Stone Age and a possible grave were noted along the area proposed for the powerline. The following mitigations measures must be put in place. • No stone robbing or removal of any material is allowed. • All identified archaeological material must be barricaded and marked as no go for the duration of the construction phase. • If any archaeological material (e.g. fossils, bones, artefacts etc.) is found during excavation, the contractor must stop work immediately and inform the Construction Manager. • The Contractor must not recommence working in that area until written permission has been received from the SAHRA.	• Any finds are immediately reported to a suitably qualified archaeologist for further investigation. • No destruction of or damage to known archaeological sites • Management of existing sites and new discoveries in accordance with the recommendations of the Archaeologist • No litigation due to destruction of sites	• Intermittent observation.	• ECO & • Contractor • CEO • Archaeologist	On-going during all excavations

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	al sites should this be discovered during construction.		• Under no circumstances may any heritage material be destroyed or removed from site. • Where burial sites are accidentally disturbed during construction, the affected area must be demarcated as "no go" zone by use of proper barricading and access thereto must be denied.				

9.14. SERVICING AND RE-FUELLING OF CONSTRUCTION EQUIPMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Impact on soil and water resources due to accidental spillages.	• To conserve soils, surface and ground water. • To prevent spillages of hazardous substances	• NEMWA • NWA • OHSA	• All maintenance and repair work must be carried out within an area designated for this purpose, equipped with necessary pollution containment measures. • The Contractor may only change oil or lubricant at agreed and designated locations, except during emergency repair,	• No evidence of hazardous substances polluting the site.	• On-going monitoring with regular inspections and Service Records	• ECO & • Contractor • CEO	On-going during the construction phase

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			following which any accidental spillages must be cleaned up and removed immediately. • Refuelling, greasing or oiling of vehicle and construction machinery must be done on a drip tray or bunded surface. • Drip trays must be placed under vehicles and machinery that are stationary for more than 24hours. • Construction vehicles must be maintained in an acceptable state of repair. • No vehicles or equipment with leaks or causing spills should be permitted to operate at any of the construction sites. • All leaking equipment's must be repaired immediately offsite and emergency repairs must be done on protected ground. • Fuels required during construction must be stored in a central depot at the construction				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			camp. • This storage area must be located on a slab and be contained within a bund capable of containing at least 110% of the total volume in the containers. • Temporary fuel storage tanks and transfer areas must be located on an adequately bunded surface to contain accidental spillages. • Appropriate run-off containment measures must be put in place.				

9.15. WASTE MANAGEMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Visual Impact • Water	• To ensure the efficient management of	• NEMWA	**9.15.1. SOLID WASTE MANAGEMENT** • Effort must be made to separate	• Presence of proper storage	• Intermittent Observation • Waste	• ECO & • Contractor	Daily

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
resources	waste on site • To ensure minimal impact on the surrounding environment • . Minimise waste material being strewn in the environment		waste at source (e.g. containers for glass, paper, metals, plastic, organic waste and hazardous waste). • An adequate number of scavenger proof' refuse bins must be provided at the construction site and must be clearly labelled (general or hazardous) or according to waste streams on site. • The Contractor must ensure that all personnel deposit waste in the waste bins provided. • All waste must be transported in an appropriate manner (e.g., plastic rubbish bags) and disposed of at a licenced waste disposal site. Proof of safe disposal must be kept on site. • The Contractor may not dispose of any waste and / or construction debris by burning or burying.	facilities that are properly labelled. • Post-construction work areas are clear of all waste materials.	Disposal Records	• CEO	

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			• Waste bins must be emptied regularly (i.e., weekly). • Discard all construction waste at a registered waste disposal facility / landfill site, particularly waste or products that could impact on surface or groundwater quality by leaching into or meeting watercourses. • The Contractor must maintain 'good housekeeping' practices and ensure that all work sites and construction camp are kept tidy and litter free. **9.15.2. LIQUID WASTE MANAGEMENT** • An adequate number of suitable containers with lids must be provided at the construction site. • The Contractor must ensure that all personnel discharge wastewater in the drums provided.				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			• All waste must be transported in an appropriate manner and disposed of at a registered waste disposal site.				

9.16. SURFACE AND GROUNDWATER MANAGEMENT

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Possible contamination of water resources.	• To conserve all-natural water resources • To ensure effective water management in order to prevent incorrect diversions of water which result in soil erosion and	NWA	The specialist study identified dry watercourses on site. Several towers will cross the identified non-perennial streams/drainage lines. • The Contractor must take reasonable precautions to prevent the pollution of the ground and water resources on and adjacent to the site as a result of these activities. • No natural watercourse is to be used for the cleaning of tools or any other apparatus. This includes for purposes of bathing, or the washing of	• No water wastage	• Observation • Design Plans	• Contractor • ECO • CEO	Continuous through the construction phase.

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	storm water run-off with negative environmental impacts. • To ensure that the rivers and streams are protected and incur minimal negative impact from the development.		clothes etc. • No spills may be hosed down into a storm water drain or sewer, or into the surrounding natural environment. • All soil contaminated, for example by leaking machines, refuelling spills etc. is to be excavated to the depth of contaminant penetration, placed in suitable drums/containers and removed to a hazardous waste facility. • No extraction of water from any natural resources without the relevant authorisation. • Storm water management measures must be as per the Storm water Management plan. • Erosion control on temporary access roads must be undertaken. • Any physical damage to any aspect of a watercourse must be prohibited.				

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			• Minimise the extent of any damage to flood plains that is necessary to complete the works and will not pollute any river as a result of construction.				

9.17. SENSITIVE AREAS (WATER COURSES AND BUFFERS)

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Changing the quantity and fluctuation properties of the watercourse. • Changing the amount of sediment entering water resource and associated change in turbidity	• To preserve and conserve the sensitive environment.	NWA	Dry watercourses were identified within the immediate vicinity of the proposed power line. • Construction in and around watercourses must preferably be restricted to the dryer months. • Vehicular access through watercourses must be prohibited (unless a GA/WUL is in place). Only pedestrian access must be allowed. • Minimise pedestrian and vehicular access into the watercourses and buffer areas; formalize access roads and make use of existing roads and tracks where feasible, rather than creating new routed	• Undisturbed sensitive environments and/or properly rehabilitated. • Compliance with the WUL conditions.	• Observation • WUL	• CEO • ECO • Contractor	Throughout the construction and post construction to ensure proper rehabilitation.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
(increasing or decreasing the amount) • Alteration of water quality toxic contaminants (including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons. • Changing the physical structure within a water resource (habitat)			through the watercourses. • Cordon-off areas that are under rehabilitation as no-go areas accordingly. If necessary, these areas should be cordoned off to prevent vehicular, pedestrian and livestock access. • Access roads and bridges should span the watercourses without impacting on the seasonal zones. • Runoff from roads must be managed to avoid erosion and pollution problems. • Demarcate the watercourses and buffer zones to limit disturbance and clearly mark these areas as no-go areas.				

9.18. HAZARDOUS MATERIALS

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Impact on soils and water resources	• To ensure safe and proper handling of hazardous material	• HSA	• The Contractor must comply with all National, Regional and Local legislation regarding the storage, transport, use and disposal of petroleum, chemical, harmful and hazardous substances and materials. • The Contractor will furthermore be responsible for the training and education of all personnel on site who will be handling the material about its proper use, handling and disposal. • The Contractor will be responsible for establishing an emergency procedure for dealing with spills or toxic substances. • Storage of all hazardous material is to be safe, tamper proof and under strict control. • Petroleum, chemical, harmful and hazardous waste throughout the site must be stored in appropriate, well maintained containers.	• No incidents reported	• Hazardous material data sheet • Incident reports • Observation of spillages and leakages	• ECO & • Contractor • CEO	Continuous throughout the construction phase

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			• Exercise extreme care with the handling of diesel and other toxic solvents to ensure that spillage is avoided. • Any accidental chemical / fuel spills must be remediated immediately.				

9.19. OIL SPILL MANAGEMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Impact on soils and water resources	• To avoid ground and surface water contamination • To ensure proper and safe handling of oil spillages.	• HAS	• The Contractor must prevent potential hydrocarbon spills during construction. • Hydrocarbon must be stored in properly contained areas to minimize accidental spillage. • No hazardous or toxic chemicals or substances should be stored where there could be accidental leakage into subterranean water supplies. • Use of drip trays under stationary vehicles. All spills must be reported to	• No incident reported • Proper use of drip trays • Presence of oil spill kit	• Observation • Incident report	• ECO • Contractor • CEO	On-going during the construction phase.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			the ECO within 24 hours of the spill via a flash report. • The Contractor must always be in possession of a mobile oil spill kit. • The oil spill clean-up and rehabilitation standard need to be implemented.				

9.20. STORM WATER MANAGEMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Possible negative impact on water resources	• To reduce the potential impact from runoff on sensitive areas.	• NWA	• The Contractor must ensure that rainwater pollutants from construction activities do not run-off into natural areas and thus result in a pollution threat. • Storm water must be diverted from the construction works. Where necessary, works must be constructed to attenuate the velocity of the storm water discharge. • Increased runoff due to vegetation clearance and/or soil compaction must	• No evidence of erosion • No evidence of increased siltation	• Site Plan • Observation	• ECO • Contractor • CEO	Continuous during the construction

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			be managed and steps must be taken to ensure that storm water does not lead to excessive levels of silt entering the watercourses. • Necessary storm water control measures must be employed to ensure the sustainability of all the structures. • Effort must be made to ensure that storm water leaving the construction site is not contaminated by any substance, whether solid, liquid or gas. • Storm water works must be constructed, operated and maintained in a suitable manner throughout the project.				

9.21. FIRE

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Destruction of property • Loss of	• To prevent open fires. • To ensure that the	• NEMA • NVFFA • FA	• A fire Management Plan must be put in place by the Contractor and Transnet. Landowners must be consulted in order to incorporate their specific firefighting	• No reported fir incidents • No loss of life	• Fire Management Plan • Daily	• ECO • Contractor	On-going during the construction phase

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
life	workforce is aware of emergency procedures should an incident occur.	• TGL41-336	measures. • All the necessary precautions to ensure that fires are not started as a result of activities on site must be put in place. • Fuels or chemicals must be stored at the designated storage area. • Gas and liquid fuels may not be stored in the same storage area. • All fire control mechanisms (firefighting equipment) will be routinely inspected. Such mechanisms will always be present and accessible. The Contractor must ensure that there is adequate fire-fighting equipment at the fuel stores for emergencies. • No open fires for heating or cooking will be permitted on site, unless otherwise agreed and then only on designated areas. • All staff on site must be made aware of general fire prevention and control methods and the name of the responsible person to alert to the presence of a fire.	• No traces of cigarettes buts outside the designated smoking area.	checks	• CEO	

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			• Designated smoking areas must be provided, with special bins for discarding of cigarette stump. • Fire must be reported immediately.				

9.22. AIR POLLUTION

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Dust nuisance from excavations, vegetation clearing and dirt roads.	• To ensure proper mitigation of air pollution • To avoid dust nuisance from excavation activities and	• NEMAQA	One of the potential air pollutants would be dust emanating from excavation activities and access roads, emissions or exhaust fumes from faulty plant or equipment. If excessive dust arises from any construction activities: • Appropriate dust suppression measures or temporary stabilising mechanisms will be used when dust generation is unavoidable (e.g. adhere to speed limit chemical soil binders, straw, brush packs chipping), particularly during prolonged periods of dry weather. • Removal of vegetation must be avoided	• No complaints from surrounding landowners recorded.	• Observation • Complaints register	• ECO • Contractor • CEO	On-going throughout the construction phase

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	vehicles on dirt roads		until such time as soil stripping is required. • No burning of waste material, such as vegetation from any clearing operations is allowed; • Drive at 40km/hr on the access road in order to minimise or avoid dust pollution.				

9.23. NOISE

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Noise during excavation/ drilling of foundations and associated activities	• To ensure minimal noise disturbances. • To ensure proper mitigation. of noise. • To avoid noise	• ECA	• Machinery and vehicles must be maintained in good working order. • Offending machinery and vehicles will be banned from use on site until they have been repaired. • The project team must endeavour to keep noise generating activities associated with construction activities to a minimum and within working hours. • Where possible the Contractor must use	• No complaints from surrounding landowners recorded.	• Noise monitoring • A register of complaints to be always kept on site and kept up to date.	• Contractor • ECO • CEO	On-going during the construction phase

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	nuisance from operating construction equipment		equipment, which falls within the allowable noise limits. • Any complaints pertaining to noise must be recorded and reported to the ECO and addressed accordingly. • Labourers must be provided with hearing protection as and when required.				

9.24. VISUAL

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
Loss of sense of place.	• To ensure proper mitigation of potential visual impacts. • To maintain the site's aesthetics	• NEMA	• Storage facilities and other temporary structures on site must be located such that they have as little visual impact on residents as possible. • Soil excavated (if any) must not be stockpiled above 2m. • All temporary structures erected on site for the purposes of the project's construction phase must be removed from site upon completion of the project.	• Clean and tidy site. • No complaints from the landowners and affected parties.	• Observation • Complaints register	ECO & Contractor CEO	On-going during the construction phase.

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	.		• Lighting must be enough to ensure security. But, must not constitute 'light pollution' to the surrounding areas. • The site must always be clean and tidy .				

9.25. EXCAVATION, BACKFILLING AND TRENCHING

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Possible erosion • Injury of animal life	• To prevent erosion. • To ensure safety for both human and animals.	• OHSA	While working on areas prone to erosion the following must be adhered to: • Excavations must not be left open for longer than 30 days where at all possible • Excavations must always be barricaded/ fenced of .	• No incidence of animals trapped in trenches reported	• Observation • Incident report	• Contractor / • ECO • CEO	On-going excavations

9.26. AGRICULTURAL ACTIVITIES

Possible Impact	Objective	Applicable	Mitigation / Management Action	Performance	Monitoring Criteria	Responsible	Monitoring

		Legislation/Policy		Indicator		Agent	Frequency
• Negative impacts on agricultural activities as a result of maintenance procedures, servitude clearing	• To limit the impact on agricultural activities	CARA	• Maintain good relations with landowners. • Consult farmers prior to any clearing activities. • Always avoid unnecessary destruction of crops by remaining within the servitude. • No form of disturbance of agricultural stock must be permitted for whatever reason.	• No encroachment into agricultural crops • No negative feedback from landowners	• Observation • Complaints register	• ECO • CEO • Contractor	During and after maintenance procedures

9.27. EROSION AND CONTROL

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Impact on soils and habitats and sensitive environs.	• To prevent erosion and sediment ation.	• NWA • NEMA • CARA	To prevent any form of erosion the following must be adhered to: • During construction, the Contractor must protect areas susceptible to erosion by installing necessary temporary and / or permanent drainage works as soon as possible and by taking suitable measures to prevent surface water concentration into nearby roadways. • Prior to construction, all topsoil must be stripped and stockpiled separately from subsoil and rocky material. • Soil must be stripped in a phased manner to retain vegetation cover for as long as possible. • Stockpiled topsoil must not be compacted and should be replaced as the final soil layer. • No vehicles may be allowed access onto the stockpiles after they have been placed. • Stockpiled soil must be protected by erosion-control berms if exposed for a period of greater than 14 days during the	• No visible signs of erosion	• Observation • Complaints register	• Contractor • ECO • CEO	On-going particularly during excavations

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			wet/windy season. • Topsoil stockpiles must not be contaminated with oil, diesel, petrol, waste or any other foreign matter, which may inhibit the growth of vegetation and micro-organisms in the soil. • Soil must not be stockpiled on drainage lines or near watercourses • The timing of clearing and grubbing must be co-ordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion. • If topsoil will be stockpiled for a longer period, it must be either vegetated with indigenous grasses or covered with a suitable material to prevent erosion and invasion by weeds. • To limit the introduction of alien species into the area, no soil may be imported onto site. • Where required, cut-off trenches can be installed to divert substantial run-off and prevent erosion as and when necessary. • Sensitive areas such as dry				

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			watercourses must be cordoned-off to restrict vehicle and human access into the areas • Where access cannot be avoided into sensitive areas, the amount of vehicle and personnel traffic must be kept to a minimum and must make use of only one route.				

9.28. USE OF CEMENT AND CONCRETE

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Soil pollution.	• To conserve soils, surface and groundwater. • To minimise waste	• NEMA • NEMWA • HSA	The Contractor is advised that cement and concrete are regarded as highly hazardous to the natural environment due to their high pH and the chemicals contained therein. To avoid ground pollution the following must be adhered to: • Pre-mix concrete must be the preferred option where possible. • The batching / mixing area must be properly designated and indicated on	• Areas of construction are clear of all concrete residue/waste following construction.	• Observation • Site Plan	• Contractor • ECO • CEO	Throughout the construction phase

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	concrete from polluting the environment		the site plan and it will always be kept neat and clean. • No batching / mixing activities must be permeable surface. • Unused cement bags must be stored appropriately to not mix with rain / runoff. • The visible remains of the batch plant and concrete, either solid, or from washings must be physically removed immediately and disposed of appropriately at a registered landfill site if not re used.				

9.29. Site Clean-Up and Rehabilitation

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Erosion • Wrong seeding	• Minimise damage to topsoil and environment at tower positions • Successful rehabilitation of all damaged areas • Prevention of erosion. • To ensure that the site is fully rehabilitated to its original state. • To ensure that the site is clean and neat.	• NEMBA • NEMA • Eskom Policies	• The Contractor must ensure that all temporary structures, materials, waste and facilities used for construction activities are removed upon completion of the project. • Fully rehabilitate (e.g. clear and clean area, rake, pack branches etc.) all disturbed areas and protect them from erosion. • All replaced equipment and excess gravel, stone, concrete, bricks, temporary fencing and the like shall be removed from the site upon completion of the work. • No discarded materials of any nature shall be buried on the site or on any other land within the site. • Re-seeding must be done on disturbed areas as directed by the CEO and CEO. • Contoured and slopes in excess of 12% must be terraced. • The Contractor must dispose of all excess material on site in an	• No loss of topsoil due to construction activities • No loss of topsoil due to construction activities • All disturbed areas successfully rehabilitated within three months of completion of the contract • No visible erosion scars three months after completion of the contract • No open fires shall be	• Rehabilitation Plan • Observation	ECO CEO Contractor	On completion of construction Random surveys by landowner

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	• Minimize claims and litigation from landowners		appropriate manner and at a designated place.	allowed on site under any circumstance • No evidence of rubble or litter left on site. • Successful completion of the contract with all landowners signing the release form six months after completion of the project.			

10. MONITORING OF EMPR COMPLIANCE

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To implement an on-going monitoring and performance audit programme	• The correct and successful implementation of impact mitigation measures in order to reduce adverse impacts on environmental conditions needs to be ensured by a proper monitoring program. • Monitoring of the general implementation of/adherence to the EMPr must be the responsibility of the ECO. • Reporting on adherence/compliance to stipulations as communicated to contractors, must take place during scheduled site meetings. • Regular site Meetings by the project team must take place. • Continuous induction of staff and visitors on the EMPr conditions and requirements must be ensured. • Put in place non-conformance, prevention and corrective procedures.	• Observation • Audit Reports	• ECO & • Contractor • CEO	On-going during the site establishment, construction and operational phase

11. DOCUMENT CONTROL

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure compliance with the requirements of the regulatory authority • To assign roles and responsibilities to ensure compliance • To implement and comply with the requirements of the EMPr.	• A copy of the EMPr and the EA must always be made available on site. • The EMPr as well as the EA must be used for referral as the project progresses. • The EA must be presented to the authorities at any random time that they might visit the site. • Monitoring and Audit Reports must be submitted to DFFE as and when required.	• Availability of an EMPR copy on site	• ECO & • Contractor • CEO	On-going during the construction phase.

11.1.1. OPERATION MANAGEMENT PROGRAMME

This section provides the description of the possible impacts and its mitigation measures associated with the operational phase.

Possible Impact	Objectives	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Waste generation during the operation phase will have a negative impact on the environment, if not	• To prevent ecological damage. • Minimise damage to the identified watercourses. • Reduce the deaths of birds caused by collision	NEMA NWA NEMWA NEMBA OHSA	**Waste Management** • Disposal of waste must be in accordance with relevant legislative requirements. **Health and Safety** • Safety and security issues must be addressed as a priority in accordance with Transnet's policies.	No complaints from the landowners.	• Complaints register • Observation	• Environmental Manager • SHEQ Officer	Weekly

Possible Impact	Objectives	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
controlled adequately .	and electrocution. • To prevent littering on site by storing waste appropriately. • Prevent loss of life of people and livestock due to electrocution.						

12. SUMMARY OF LANDOWNER DETAILS AND CONDITIONS

All contact with the Landowners must always be courteous. The rights of the Landowners must always be respected, and all staff must be sensitised to the effect on the works undertaken on private property. Transnet must ensure that all agreements reached with the Landowner are fulfilled, and that such areas be rehabilitated once construction is completed.

13. GENERIC CONDITIONS

To ensure compliance with Transnet's environmental policy as well as environmental legislation requirements, the following generic conditions are applicable:

13.1. SITE DOCUMENTATION/MONITORING

The standard Transnet site documentation must be used to keep records on site. All documents must be kept on site and be available for monitoring and auditing purposes. Site inspections by an Environmental Audit Team may require access to this documentation for auditing purposes. The documentation must be signed by all parties to ensure that such documents are legitimate. Regular monitoring of all site works by the Environmental Control Officer is imperative to ensure that all problems encountered are solved punctually and amicably. When the Environmental Control Officer is not available, the Contract Manager/Site Supervisor must keep abreast of all works to ensure no problems arise.

Two-weekly reports must be submitted by the ECO to the appointed Transnet Environmental Advisor with all information relating to environmental matters. The following Key Performance Indicators must be reported on a two-weekly basis:

- Complaints received from Landowners and actions taken.
- Environmental incidents, such as oil spills, concrete spills, etc. and actions taken (litigation excluded).
- Incidents possibly leading to litigation and legal contraventions.
- Environmental damage that needs rehabilitation measures to be taken.

The following documentation must be kept on site:

- Access negotiations and physical access plan.
- Complaints register.

- Site daily dairy.
- Records of all remediation / rehabilitation activities.
- Copies of two-weekly reports to the Transmission Engineering Environmental Advisor.
- Copy of the EMPr.

13.2. AUDITS

All audits must be undertaken in accordance with the requirement of Appendix 7 of the EIA Regulations of December 2014 as amended. During the construction period at least, quarterly Environmental Audits must be conducted by the ECO to determine compliance with the recommendations of the EMPr and conditions of the EA.

The appointed ECO, as well as the Contractors on site, are responsible for ensuring compliance with the EMPr. It is recommended that quarterly EMPr compliance reports (audits) are compiled by the ECO and submitted to CEO for correction of non-compliance issues. It is the responsibility of the ECO to report any non-compliance, which is not correctly rectified to the DFFE. Further an audit must be conducted by a qualified botanical or rehabilitation specialist once construction has been completed.

13.3. ACCESS TO DOCUMENTS

Interested and Affected Parties (Landowners) have a righty to monitor specific aspects of the EMPr in conjunction with the ECO and Contractor in a reasonable and informal manner, without unreasonably disrupting construction activities. Therefore, they must be allowed access to the EMPr document should they to review them.

14. SOCIO-CULTURAL ISSUES

- A plan of action must be drawn up in the case of an emergency (veld fire, damaged power line, vegetation problems etc.). Transnet contact names and telephone numbers must be available on site;
- Property owners or occupiers must always be treated with respect and courtesy;
- The culture and lifestyles of the communities living near the powerline and the substation must be respected;
- Removal of agricultural products is prohibited. Receipts must be obtained for any merchandise purchased or received from landowners;

- Vehicles must be driven carefully in hazardous road conditions (sharp bends, narrow roads, bad weather, children playing on or near the road, domestic animals on or near the road etc.). Vehicle movement must be kept to a minimum during rain to avoid damage to the access road;
- Environmental clauses (as referred to in this EMPr) must be included into contract documents for all contractors;
- Archaeological sites and sites of historical interest along the powerline must be treated with respect and protected.
- No firewood is to be collected except with the written consent of the landowner; and
- A register must be maintained of all complaints or queries received as well as action taken.

15. FAILURE TO COMPLY WITH THE ENVIRONMENTAL CONSIDERATIONS

The ECO will, acting reasonably, have the authority to order the Contractor to suspend part or all the works if the causes unacceptable damage to the environment by not adhering to the specifications set out below. The suspension must be enforced until such time as the offending parties' actions, procedures and/or equipment are corrected, and adequate mitigation measures implemented.

16. AMENDMENT OF EMPR

Any issue that may arise during the construction or operational phase of the development and that is not provided for in this EMPr may be addressed as an addendum to this EMPr. An addendum will be submitted to the client for approval prior to the implementation of the provisions contained and communicated to the Authorities.