

# **1 ENVIRONMENTAL MANAGEMENT PLAN (PROJECT ENVIRONMENTAL SPECIFICATION)**

## **1.1 TRANSNET EMP DOCUMENTATION**

Transnet, with agreement from the Department of Environmental Affairs and Tourism, has created an Environmental Management Plan (EMP) that consists of three documents and is applied to all Transnet projects. The three EMP documents are:

- The Construction EMP (CEMP);
- The Standard Environmental Specification (SES); and
- The Project Environmental Specification (PES).

In brief, the CEMP outline the roles and responsibilities during the construction phase. The SES provides generic guidance and mitigation for potential impacts while the PES outlines potential impacts and their mitigation that are specific to the project. All three documents are used by the contractor to draw up detailed method statements outlining their approach to construction taking all the potential generic and specific impacts into account.

The potential operational phase impacts are addressed in the generic Transnet Environmental Management System (EMS) and as such no operational impacts will be addressed in this chapter.

## **1.2 SITE ESTABLISHMENT**

Refer to Section 4.1 of the SES (Appendix G)

### **1.2.1 Scope**

Refer to Section 4.1.2 of the SES (Appendix G)

## **1.3 WASTE MANAGEMENT OBJECTIVE**

Refer to Section 4.2 of the SES (Appendix G)

### **1.3.1 Scope**

Refer to Section 4.2.2 of the SES (Appendix G)

### **1.3.2 Approach**

Refer to Section 4.2.3 of the SES (Appendix G)

### **1.3.3 Waste Management**

Refer to Section 4.2.4 of the SES (Appendix G)

#### **1.4**            *VEHICLE AND EQUIPMENT REFUELLING OBJECTIVE*

Refer to Section 4.3 of the SES (Appendix G)

##### **1.4.1**        *Scope*

Refer to Section 4.3.2 of the SES (Appendix G)

##### **1.4.2**        *Refuelling*

Refer to Section 4.3.3 of the SES (Appendix G)

#### **1.5**            *DUST MANAGEMENT*

Refer to Section 4.5 of the SES (Appendix G)

##### **1.5.1**        *Objective*

Refer to Section 4.5.1 of the SES (Appendix G)

##### **1.5.2**        *Scope*

Refer to Section 4.5.2 of the SES (Appendix G)

##### **1.5.3**        *Dust management*

Refer to Section 4.5.3 of the SES (Appendix G)

Material in transit should be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage onto the roads and the creation of dust clouds. If necessary, the load bin of the vehicle shall be covered with a tarpaulin to prevent dust.

Dust is to be controlled on the unpaved access roads and site roads using sprayed water. Contractors are responsible for managing dust generated as a result of their activities. The Contractors will be responsible for dust control of the entire construction site area.

Some dust control measures which are normally applied during construction are presented in this section for inclusion for inclusion by the Contractor in the Dust Control Method Statement.

These dust-mitigating procedures include the following:

- Limit vehicle speeds on unpaved roads to 20 km/h
- Was paved surfaces within the construction area twice a week
- Minimise haulage distances
- Apply water to gravel roads with a spraying truck when required
- Environmentally friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas

- Dust suppression measures will also apply to inactive construction areas. (An inactive construction site is one on which construction will not occur for a month or more).
- Construction material being transported by trucks must be suitably moistened or covered to prevent dust generation
- Strip and stone topsoil in separate stockpiles with mounds not exceeding 2m in the height to, among other things, prevent wind blown dust
- Minimise disturbance of natural vegetation during right-of-way construction (e.g. transmission lines and erection of fences) to reduce potential erosion, runoff, and air-borne dust
- Implement a system of reporting excessive dust conditions by construction personnel (as through Environmental Awareness Training)

Water for dust control shall be taken only from approved sources.

## **1.6**            *STORM WATER AND DEWATERING*

Refer to Section 4.6 of the SES (Appendix G)

### **1.6.1**           *Objective*

Refer to Section 4.6.1 of the SES (Appendix G)

### **1.6.2**           *Scope*

Refer to Section 4.6.2 of the SES (Appendix G)

### **1.6.3**           *Storm water and dewatering*

Refer to Section 4.6.3 of the SES (Appendix G)

### **1.6.4**           *Surface run-off*

Refer to Section 4.6.3 of the SES (Appendix G)

## **1.7**            *REHABILITATION*

Refer to Section 4.7 of the SES (Appendix G)

### **1.7.1**           *Objective*

Refer to Section 4.7.1 of the SES (Appendix G)

### **1.7.2**           *Scope*

Refer to Section 4.7.2 of the SES (Appendix G)

### 1.7.3 *Rehabilitation*

Refer to Section 4.7.3 of the SES (Appendix G)

## 1.8 *NOISE MANAGEMENT*

Refer to Section 4.8 of the SES (Appendix G)

### 1.8.1 *Objective*

Refer to Section 4.8.1 of the SES (Appendix G)

### 1.8.2 *Scope*

Refer to Section 4.8.2 of the SES (Appendix G)

### 1.8.3 *Noise Management*

Refer to Section 4.8.3 of the SES (Appendix G)

- Keep all equipment in good working order
- Operate equipment within its specifications and capacity and don't overload machines
- Apply regular maintenance, particularly with regards to lubrication
- Operate equipment with appropriate noise abatement accessories, such as sound hoods

Noise control measures for incorporation by the Contractor in its noise control plan shall include the following:

- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, *SANS 10103:2004*, so that it will not produce excessive or undesirable noise when released
- All the Contractor's equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice, *SANS 10103:2004*, for construction plant noise generation.
- All the Contractor's vehicles shall be fitted with effective exhaust silencers and shall comply with the Road Traffic Act, (Act 29 of 1989) when any such vehicle is operated on public roads.
- If on-site noise control is not effective, protect the victims of noise (e.g. ear-plugs) by ensuring that the ensuring that all noise-related occupational health provisions are met. (Occupational Health and Safety Act, (Act 85 of 1993).

## **1.9**            *PROTECTION OF HERITAGE RESOURCES*

Refer to Section 4.9 of the SES (Appendix G)

### **1.9.1**            *Objective*

Refer to Section 4.9.1 of the SES (Appendix G)

### **1.9.2**            *Scope*

Refer to Section 4.9.2 of the SES (Appendix G)

## **1.10**            *ARCHAEOLOGICAL SITES*

Refer to Section 4.9.3 of the SES (Appendix G)

### **1.10.1**            *Graves and Middens*

Refer to Section 4.9.4 of the SES (Appendix G)

### **1.10.2**            *Site specific measures*

The objective of mitigation is to minimise the impacts on archaeological, paleontological or cultural resources within the project area. Mitigation measures include:

#### **General measures:**

- A chance-find procedure will be implemented so that in the event of graves or stone age artefacts/fossils being uncovered, the ECO/Site Engineer will take the appropriate action, which includes:
  - Stopping work in the immediate vicinity and if possible, fencing off the area with tape to prevent further access;
  - Reporting the discovery to the provincial department of the South African Heritage Resources Agency;
  - Appointing a local archaeological/paleontological expert to inspect the discovery;
  - Implementing further mitigation measures proposed by the expert; and
  - Allowing work to resume only once clearance is given in writing by the expert.
  
- In the case of a chance-find of a grave, the National Monuments Council will be contacted and arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with the National Monuments Council, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred.

- 1.11**            ***FIRE PREVENTION***
- Refer to Section 4.10 of the SES (Appendix G)
- 1.11.1**        ***Objective***
- Refer to Section 4.10.1 of the SES (Appendix G)
- 1.11.2**        ***Scope***
- Refer to Section 4.10.2 of the SES (Appendix G)
- 1.11.3**        ***Fire control***
- Refer to Section 4.10.3 of the SES (Appendix G)
- 1.12**            ***SUPPLY OF WATER FOR HUMAN USE***
- Refer to Section 4.11 of the SES (Appendix G)
- 1.12.1**        ***Objective***
- Refer to Section 4.11.1 of the SES (Appendix G)
- 1.12.2**        ***Scope***
- Refer to Section 4.11.2 of the SES (Appendix G)
- 1.12.3**        ***Collection of water from natural resources***
- Refer to Section 4.11.3 of the SES (Appendix G)
- 1.12.4**        ***Provision of drinking water***
- Refer to Section 4.11.4 of the SES (Appendix G)
- 1.13**            ***PROTECTION OF LIVESTOCK OR GAME AND THE COLLECTION OF FIREWOOD***
- Refer to Section 4.12 of the SES (Appendix G)
- 1.13.1**        ***Objective***
- Refer to Section 4.12.1 of the SES (Appendix G)
- 1.13.2**        ***Scope***
- Refer to Section 4.12.2 of the SES (Appendix G)

**1.13.3**      *Poaching of livestock or game*

Refer to Section 4.12.3 of the SES (Appendix G)

**1.13.4**      *Killing of animals*

Refer to Section 4.12.4 of the SES (Appendix G)

**1.13.5**      *Collection of firewood*

Refer to Section 4.12.5 of the SES (Appendix G)

**1.14**        *ENVIRONMENTAL AWARENESS TRAINING*

Refer to Section 4.13 of the SES (Appendix G)

**1.15**        *HANDLING AND BATCHING OF CONCRETE*

**1.15.1**      *Objective*

Refer to Section 4.14.1 of the SES (Appendix G)

**1.15.2**      *Scope*

Refer to Section 4.14.2 of the SES (Appendix G)

**1.15.3**      *Handling and batching of concrete*

Refer to Section 4.14.3 of the SES (Appendix G)

**1.16**        *PREVENTION OF VEGETATION LOSS OR DISTURBANCE*

**1.16.1**      *Scope*

Prevent the loss of or disturbance to vegetation communities, conservation worthy plant species and riparian vegetation due to construction related activities including site clearance and the establishment of construction camps.

**1.16.2**      *Management*

Minimise the loss of or disturbance to vegetation communities and riparian vegetation due to construction related activities including site clearance and the establishment of construction camps. Specific measures include:

The objective of mitigation is to minimise the impacts on vegetation communities, faunal habitats and species diversity. Specific measures include:

- An alien invasive and weedy species removal programme will be implemented throughout the construction phase and the railway servitude will be regularly inspected for the re-establishment of invader species and the follow-up removal thereof;

- All declared invader and weed species occurring at project sites and within the rail reserve will be eradicated;
- All plant material that is cleared should be removed from the site, to a designated storage area (in the case of replanting) or waste site so that seeds cannot disperse; and
- Cleared areas will be succeeded by proper soil stabilisation procedures and rehabilitation to prevent soil erosion.

The objective of mitigation is to minimise the construction impacts on the vegetation communities at each site. Specific measures include:

- Establish the footprint of laydown areas as far as possible on existing disturbed areas;
- The extent of the laydown/construction area will be fenced-off and all materials and equipment will be restricted to this work area;
- The extent of the construction site will be demarcated on the site layout plans, and no construction personnel or vehicles will be allowed to encroach beyond the demarcated area without prior authorisation to do so.
- A qualified local botanist will be appointed to supervise the identification, marking and transferring of plant taxa, where required. This is only expected to occur at sites flagged as having vegetation of moderate to high ecological importance, or where sensitive/protected vegetation species and communities are known to occur ;
- Where any Red Listed, protected or important medicinal plant species are identified by the local botanist, they will be marked, and if threatened by destruction, they will be removed (with the relevant permits) and temporarily placed within an on-site nursery for re-establishment after the construction phase;
- Regular checks will be carried out by the Environmental Control Officer (ECO) or Site Engineer to identify areas where erosion is occurring as a result of the vegetation removal. Appropriate remedial action, including the rehabilitation of the eroded areas, and where necessary, the relocation of the paths/sources causing the erosion, will be undertaken;
- Contractors, labourers and visitors will be familiarised with the regulations and good practice regarding general housekeeping and the ecological process, biodiversity value and function of the area, during awareness building and capacity building/ training exercises/ induction programmes or their first visit to the site (in the form of a pamphlet or training session).



Topsoil removed (during levelling of areas where loops are to be constructed in levelling of laydown areas and yards or topsoil removal at access roads) should be kept separate and used for vegetation rehabilitation purposes.

The objective of mitigation is to minimise the impacts on faunal diversity and species richness within and adjacent to the study sites.

Specific measures include:

- The extent of the laydown/construction area will be fenced-off and all materials and equipment will be restricted to this work area;
- The extent of the construction site will be demarcated on the site layout plans, and no construction personnel or vehicles will leave the demarcated area without authorisation to do so;
- Construction vehicles should be restricted to driving during daylight hours only. This will reduce the likelihood of 'road kills';
- As a minimum, the legal speed limit on public roads will be enforced on all drivers. However, the speed on temporary or private dirt roads will be restricted to 40 km/hr;
- Hunting, the unnecessary destruction of burrow systems or nesting sites and interactions with wildlife will be prohibited;
- Littering at work sites and in adjacent areas will be prohibited. Suitable facilities will be provided for waste management; and
- Contractors, labourers and visitors will be educated on the regulations and good practice regarding general housekeeping and the ecological process, biodiversity value and function of the area, during induction or their first visit to the site (in the form of a pamphlet or training session).

The objective of mitigation is to minimise the impacts on protected invertebrate species.

It is recommended that the identified sites with evidence of protected species be surveyed prior to the commencement of the construction phase and specimens be donated to a local museum to further scientific research on these species.

Posters will be displayed at project sites known to include the habitat of protected species such as the Burrowing Scorpion and Baboon Spiders, so that workers can know to avoid them, not cause them harm, move them to a safe location or donate them to a local museum as specimens for scientific research purposes.

## 1.17

### SOCIAL ISSUES

#### 1.17.1

##### Scope

Transnet will establish a recruitment and procurement policy. The policy will set reasonable targets for the employment of local residents/suppliers (originating from the local municipalities) and promote the employment of women as a means of ensuring that gender equality is attained. Criteria will be set for prioritising, where possible, local (local municipal) residents/suppliers over regional or national people/suppliers.

- All contractors will be required to recruit and procure in terms of Transnet's recruitment and procurement policy.
- Transnet will work closely with relevant local authorities, community representatives and organisations to ensure that the use of local labour and procurement is maximised. This may include:
  - o sourcing and using available databases on skills/employment-seekers that local authorities may have.
  - o advertising job opportunities and criteria for skills and experience needed through local and national media.
  - o conducting an assessment of capacity within the Local Municipality and South Africa to supply goods and services over the operational lifetime of the project.
- No employment will take place at the entrance to the site. Only formal channels for employment will be used.
- Ensure that the appointed project contractors and suppliers have access to Health, Safety, Environmental and Quality training as required by the Project. This will help to ensure that they have future opportunities to provide goods and services to the sector.
- Transnet will implement a grievance procedure that is easily accessible to local communities, through which complaints related to contractor or employee behaviour can be lodged and responded to. Transnet will respond to all such complaints. Key steps of the grievance mechanism include:
  - o Circulation of contact details of 'grievance officer' or other key Transnet contact.
  - o Awareness raising among local communities (including all directly affected and neighbouring farmers) regarding the grievance procedure and how it works.
  - o Establishment of a grievance register to be updated by Transnet, including all responses and response times.

## 1.18 *VIBRATION*

### 1.18.1 *Scope*

Minimise the impacts of vibration nuisance on social and ecological (faunal and avifaunal) receptors as a result of construction activities.

### 1.18.2 *Management*

Minimise the impacts of vibration on social and ecological receptors. Specific measures include:

- Ensure proper maintenance of wheel and rail surfaces to optimise the life of the train and rails, and at the same time to reduce operational vibrations;
- At special trackwork such as turnouts and crossovers where significant increases in the vibration levels can occur, special devices that incorporate mechanisms to close the gaps between rails should be implemented to significantly reduce vibration levels;
- Trenches could be used to control ground-borne vibration in areas close to social receptors. A 5 m deep trench should be effective if the peak of the frequency content of the vibration is at around 30 Hz;
- Adjust night time schedules to minimise movements during the most sensitive hours, based on specific complaints received.

## 1.19 *TRAFFIC HAZARDS AND DISRUPTION*

### 1.19.1 *Scope*

Minimise the potential traffic hazards and disruption as a result of increased construction related traffic within the project area and surrounding arterials and access roads, including national and provincial roads.

### 1.19.2 *Management*

Minimise the potential traffic hazards and disruption. Specific measures include:

- The impacts of delivery trucks during construction can be reduced by transporting more construction materials via rail;
- The impacts on the existing traffic can be reduced by scheduling the arrivals and departures of construction vehicles;
- Educate both the construction crew and the local community on traffic safety and possible hazards arising from the construction activities;
- All warning, regulatory and prohibition signs recommended by the National Department of Transportation, *South African Roads Traffic Signs Manual (SARTSM)* should be implemented;

- All regulatory and warning signs recommended by the National Department of Transportation, *South African Roads Traffic Signs Manual (SARTSM)* should be adhered to; and
- All plans and specifications should provide details on how the traffic control operations are to be carried out.

**1.20**            *ASSOCIATED FORMS*

Refer to Section 5 of the SES (Appendix G)

**1.20.1**        *Records*

Refer to Section 6 of the SES (Appendix G)