



**ENVIRONMENTAL MANAGEMENT PLAN  
FOR THE CONSTRUCTION AND  
OPERATION OF A NEW CROSSING LOOP  
(7A) ON THE IRON ORE LINE BETWEEN  
KANAKIES AND DE KOP.**



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**ENVIRONMENTAL ASSESSMENT FOR THE  
CONSTRUCTION OF A NEW CROSSING LOOP (7A)  
ON THE IRON ORE LINE BETWEEN KANAKIES AND  
DE KOP.**

**ENVIRONMENTAL MANAGEMENT PLAN IN  
SUPPORT OF AN EXEMPTION APPLICATION IN  
TERMS OF CHAPTER 5 OF THE REGULATIONS OF  
THE NATIONAL ENVIRONMENTAL MANAGEMENT  
ACT, ACT 107 OF 1998) : JULY 2006**

REPORT No. : SHE 1021  
CAPE TOWN  
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**ENVIRONMENTAL MANAGEMENT PLAN:**

**CONSTRUCTION AND OPERATIONAL WORK FOR  
THE CONSTRUCTION AND OPERATION OF LOOP  
7A BETWEEN KANAKIES AND DE KOP ON THE  
SISHEN – SALDANHA IRON ORE LINE**

**Compiled by:** SHE Cape Environmental CC

**For** TRANSNET PROJECTS  
SPOORNET

**Date:** May 2007


ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

## TABLE OF CONTENTS

1. Scope of the Environmental Management Plan_____	P.5
2. Objectives_____	P.5
3. General conditions_____	P.5
4. Management accountability and control_____	P.7
5. Site Activities and Locations_____	P.11
6. Accommodation and site camps_____	P.13
7. Environmentally sensitive areas_____	P.14
8. Roads and vehicle use_____	P.15
9. Borrow pits and spoil heaps_____	P.16
10. Earthworks – general_____	P.18
11. Concrete work – general_____	P.18
12. Workshops and vehicles general_____	P.19
13. Materials storage_____	P.20
14. Fuel storage_____	P.20
15. Imported construction material and invasive plants _____	P.21
16. Construction site_____	P.21
17. Construction guidelines and restrictions_____	P.22
18. Tortoise Management_____	P.23
19. Site controls in aquatic environments, culvert extensions_____	P.24
20. Rehabilitation and maintenance_____	P.26
21. Training and awareness_____	P.27
22. Communication with communities, landowners_____	P.27
23. Audit and monitoring_____	P.28
24. Environmental contact persons_____	P.28

### APPENDICES:

- Appendix A - Loop Diagram
- Appendix B - Draft Audit Schedule

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

## 1. SCOPE OF THE ENVIRONMENTAL MANAGEMENT PLAN

This specification, compiled as a project – specific Environmental Management Plan (EMP), prescribes and directs the management of all environmental aspects, physical, natural and / or social, associated with and arising from construction work undertaken for the proposed construction of Loop 7A on the Sishen – Saldanha Ore Line (**the project**), as well as relevant aspects of the on-going operational phase.

While this is a site specific document, this EMP may be applied in conjunction with the approved Phase 1 EMP for the upgrading of the Ore Line to 41mtpa where similarities and system duplications exist. Such programmes include an approved Environmental Audit and Rail Safety management systems and except for a draft Audit Schedule, such documentation is not repeated.

This Environmental Management Plan must be read as a whole and complete document and is numbered accordingly. For convenience of application it may be divided in two sections, dealing generally with management, structure and accountability in sections 1 to 4, and technical issues and Environmental Specifications from section 5 to 23 respectively.


## 2. OBJECTIVES

The objectives of the Management Plan are to:

- Outline guidelines for construction and operational management for the sound management of environmental issues pertaining to the execution of all construction work associated with the project.
- Provide detailed specifications for the management and mitigation of activities that have the potential to impact negatively on the environment.
- Provide a standard for management of environmental issues pertaining to the execution of civil and electrical construction work with specific reference to issues raised through the Environmental studies undertaken for the project as well as the requirements of the authorisation and Record of Decision granted.
- Reduce the environmental impact of civil and electrical work through the proactive employment of sound and effective working practices.

## 3. GENERAL CONDITIONS

- 3.1. This EMP shall be binding on all the parties involved in the construction and operational phases and shall be enforceable at all levels of contract and operational management within the project.
- 3.2. The EMP shall be deemed a binding commitment by the parties to act within the intent and spirit of sound environmental management and to cooperate and enforce the specifications contained therein, as and where necessary
- 3.3. The EMP recognises and enables the force of law attached to environmental aspects of the project, as contained in the Authorisation and Record of Decision for the project and shall be implemented accordingly.
- 3.4. Work shall at all times be approached with due concern for the natural and social environment. Management and site procedures shall be directed


ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

towards minimising environmental impact and / or damage in all aspects of the work.

- 3.5. Archaeological remains, artificial features and structures older than 60 years are protected by the Natural Heritage Resources Act, Act 25 of 1999. Should any archaeological artefact (e.g. ostrich eggs, shell flasks), unmarked human burials or heritage resources be exposed during excavation for the purpose of laying foundations or site clearing and levelling, construction in the vicinity of the finding must be stopped. An archaeologist must be called to the site for inspection and the South African Heritage Agency advised accordingly. Under no circumstance may any artefacts be destroyed or removed from the site.
- 3.6. Where (if) bedrock is to be affected a Palaeontological Desk Top study must be undertaken to assess whether or not the development will impact upon palaeontological resources, or at least a letter of exemption from an accredited Palaeontologist is needed to indicate that this is unnecessary
- 3.7. The gaining of water for construction purposes must at all times comply with the permitting and licence requirements of the Department of Water Affairs (DWA), where applicable. Abstraction of water from a stream or river requires specific approval.
- 3.8. Blasting work that may be required on site shall be carried out entirely within the provisions of the Explosives Act, Act 26 of 1956 and all other relevant engineering and safety standards.
- 3.9. Execution of work falling within the ambit of this EMP and Environmental Specifications shall be carried out in accordance with Method Statements, where required by the Resident Engineer (RE) and / or Environmental Control Officer (ECO). A method statement is a written submission by the Contractor to the RE setting out the plant, materials, labour, timing and method the Contractor proposes using to carry out an activity, in such detail that the Resident Engineer and ECO are able to assess whether the Contractor's proposal is in accordance with the EMP and its specification and will produce results in accordance with the intent of the specifications.
- 3.10. The RE or a designated Engineer / Manager may, at his / her sole discretion, stop any work, activity or process not in accordance with this directive.
- 3.11. Specifications contained herein are divided into various sections. A restriction or condition contained in one section shall apply *mutatis mutandis* to other sections.

This EMP and Environmental Specifications are applicable *mutatis mutandis* to the Works in its entirety. The EMP shall be expanded, customised and added to as may be necessary to meet any specific condition that may be encountered on the site as a whole

- 3.9. Once having been accepted by DEAT this EMP shall be seen as a dynamic document. However, any substantial changes shall be submitted to DEAT for acceptance before any such changes may be effected.

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

3.10 This EMP shall be guided and informed by the general Rail Safety Programme in place for the Iron Ore Line as compiled and managed by Spoornet Operations personnel falling under the Regional Operating Executive - Western Cape. All site activities shall be conducted in accordance with the Safety objectives and procedures set out in the relevant Spoornet Integrated Safety Management System (2004) (SMS). This full document must be made available to project staff. Portions of the relevant sections of the SMS are also available in the EMP for the Phase 2 upgrade of the Ore Line, which document is also applicable to Loop 7A.

3.11 Project and Site Management personnel shall furthermore establish appropriate management structures, liaison and communication forums to integrate all construction activities into existing safety programmes. Accountability, joint functions and specific responsibilities must be clearly defined in formal documentation.


#### 4. MANAGEMENT ACCOUNTABILITY AND ENVIRONMENTAL CONTROL

##### 4.1. General Accountability

Management accountability for the various environmental aspects of the project are set out in table 4.1.1 (Pro – forma information at this stage – to be ratified on commencement of the project)

**Table 4.1.1 : Management Accountability**

DOCUMENT	ACCOUNTABILITY	DESIGNATION / DEPARTMENT	OFFICIAL
Authorisation / Record of Decision	Corporate compliance	Environmental Manager, Spoornet	B. S. Leballo
Audit Schedule	Legal compliance	External auditor	SEF
Authorisation / Record of Decision	Project management compliance	Transnet Projects	N Welsch
Authorisation / Record of Decision	Operational compliance	Regional Operating Executive	D Nasoro
Authorisation / Record of Decision	Design & construction management compliance	Transnet Capital Projects	D. Reddy
Authorisation / Record of Decision	Implementation, in conjunction with EMP	Environmental Control Officer	V Matabane
EMP	Corporate compliance	Environmental Manager, Spoornet	B. S. Leballo
EMP	Site and EMP compliance	Compliance, SHERQC Construction Transnet Projects	E. Phundulu W Ndou A Julyan T Darley
EMP	Project management implementation	Infrastructure Engineering	N. Funke
EMP	Project and site: implementation and enforcement	Environmental Control Officer	E. Phundulu W Ndou A Julyan
EMP	Operational implementation	Regional Operating Executive Ore Line	D Nasoro
EMP	Construction implementation	Transnet Projects	N. Welsch

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:


## 4.2 Resident Engineer (RE) / Site Manager

### 4.2.1 The RE will be required to:

- a. Be familiar with the contents of the EMP;
- b. Monitor the Contractor's compliance with the Environmental Specifications on a daily basis, through the Site Diary, and enforce compliance;
- c. Communicate to the Contractor, verbally and in writing, the advice of the ECO and the contents of the ECO reports;
- d. Request for, review and approve any Method Statements prepared by the Contractor in consultation with the ECO;
- e. Review and approve drawings produced by the Contractor in connection with, for example, the construction site layout, access / haul roads and so on;
- f. Designate and manage the working areas as per the approved construction site layout, including sensitive environments and 'no-go' areas;
- g. Advise on materials that may be used to designate working areas and materials to be used for the works as and when necessary;
- h. Issue site instructions giving effect to the ECO requirements where applicable;
- i. Communicate to the ECO, verbally and in writing, at least 10 working days in advance regarding any proposed actions which may have negative impacts on the environment, with specific reference to blasting;
- j. Undertake damage assessments where incidents, accidents and serious infringements have occurred on or a relevant distance off site;
- k. Review and approve all areas that have been rehabilitated by the Contractor;
- l. Review complaints received and issue instructions as necessary;
- m. Accompany the ECO during site inspections and/or inform the ECO in writing, of any infringements of the EMP and to issue instructions to the Contractor on the advice of the ECO;
- n. Implement Temporary Work Stoppages where serious environmental infringements and non-compliances have occurred;
- o. Maintain a record of complaints from the public and communicate these to the Contractor and the ECO; and
- p. Facilitate proactive communication between all role-players in the interests of effective environmental management.

## 4.3 Environmental Control Officer

- 4.3.1 The implementation of the legally binding Authorisation and Record of Decision as issued by the National Department of Environment and Tourism as well as this EMP shall rest with the Environmental Control Officer (ECO) designated for the Project.

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

4.3.2 The designated ECO is Mr. Vincent Matabane, or a deputy who has been specifically delegated and appointed in writing to function in this capacity.

4.3.3 The duties of the ECO shall include the following:

- a. Enforcement and implementation of the conditions stipulated in the Authorisation and Record of Decision issued by DEAT and any other competent regulatory body having authority over the project or the activities concerned.
- b. Implementation and enforcement of the conditions of the Spornet Environmental Policy, Procedures and relevant Standards, as applicable and revised from time to time.
- c. Implementation and enforcement of the conditions of this EMP and the Environmental Specifications included herein, throughout the construction phase of the project.
- d. Taking all actions necessary to ensure compliance with the above policies, procedures and standards, in line with the objectives set for this EMP, as per section 2 above.
- e. The development and presentation of formal programmes for training and education of construction staff in:
  - i. sound environmental management practices,
  - ii. the management of specific issues generally applicable to the project,
  - iii. specific procedures related to aspects of construction activity with the potential for direct interaction with the environment
  - iv. Specific procedures for the management of the impact on flora and fauna occurring on the site,
  - v. Integrated waste management principles, litter and waste control


4.3.4 Determination and enforcement of environmental “no-go” areas in consultation with site management staff and related to haul and access roads on and off-site, borrow pits and access thereto as well as site storage and accommodation areas.

4.3.5 Specific rehabilitation and revegetation management plans shall be submitted by the Contractor and approved (without prejudice or accountability being attached to such approval) by the ECO. Monitoring the management and progress on rehabilitation plans according to agreed rehabilitation objectives instituted on site shall rest with the ECO.

4.3.6 The ECO shall have access to the site and all activities occurring thereon, with due regard for all safety requirements. The ECO shall furthermore have unfettered authority to order restriction or control measures over any activity which is contradictory to the EMP and / or the Record of Decision, through the appropriate site management structures.

#### 4.4 **Role and Duties of the Contractor**

4.4.1 Role of the Contractor.

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:


With specific reference to the EMP, the role of the Contractor will be to:

- a. Implement, manage and maintain the construction elements of the EMP for the duration of his/her contract;
- b. Designate, appoint and/or assign tasks to personnel who will be responsible for managing all or parts of the construction EMP;
- c. Assign appropriate authority, accountability and responsibility for these personnel to carry out their duties;
- d. Ensure that all sub-contractors and other workers appointed by the Contractor are aware of their environmental responsibilities while on site or during the provision of their services off site;
- e. Ensure that all sub-contractors and other workers appointed by the Contractor are complying with, and implementing the construction EMP during the duration of their specific contracts; and
- f. Provide appropriate resources – budgets, equipment, personnel and training – for the effective control and management of the environmental risks associated with the construction of the project.

#### 4.4.2 Duties and responsibilities

The Contractor shall have the following responsibilities:

- a. Be familiar with the contents of the EMP and the specifications contained herein;
- b. Comply with the Environmental Specifications contained in the EMP and subsequent revisions;
- c. Confirm legislative requirements for the construction works, and to ensure that appropriate permissions and permits have been obtained before commencing activities;
- d. Prepare Method Statements, programme of activities and drawings/plans for submission to the RE (and ECO); when requested
- e. Undertake daily site inspections to monitor environmental performance and conformance with the Environmental Specifications;
- f. Notify the ECO and RE immediately in the event of any accident or infringements of the Environmental Specifications and ensure appropriate remedial action is taken;
- g. Notify the ECO and at least 10 working days in advance of any activity he has reason to believe may have significant adverse environmental impacts, with specific reference to blasting, so that mitigatory measures may be implemented timeously;
- h. Ensure environmental awareness among his employees, sub-contractors and workforce so that they are fully aware of, and understand the Environmental Specifications and the need for them;

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

- i. Maintain a register of environmental training for site staff and sub-contractor's staff for the duration of the contract;
- j. Undertake rehabilitation of all areas affected by construction activities to restore them to their original states, as determined by the RE and the ECO;
- k. Rehabilitating services, utilities, private/public property and other areas adversely affected by construction activities outside of demarcated areas.
- l. Communicate and liaise with the RE / Site Manager and the ECO to ensure effective, proactive environmental management with the overall objective of preventing or reducing negative environmental impacts while enhancing positive environmental impacts.

#### 4.4.3 Contractor's EMP

The Contractor will also set up his / her own management system to ensure and monitor the application of the EMP and associated Environmental Specifications. This system shall, at a minimum, provide for:


- a. The preparation of Method Statements as required ;
- b. The effective and accountable management of construction activities relative to the Environmental Specifications;
- c. Prominent attention to management of blasting activities;
- d. Reporting on a regular basis and as required on environmental issues;
- e. Recording, in writing, all communication / correspondence with all pertinent stakeholders and other parties on environmental issues; and
- f. Regular, constructive and proactive liaison with the ECO.

## 5. SITE ACTIVITIES AND LOCATIONS


This EMP is applicable to all the components of the project activities specified in the various studies and amendments informing the environmental authorisation and the Record of Decision. Material changes to these parameters must be communicated to DEAT for approval

The overall scope of the project includes:

- 5.1. The construction of loop 7A within the general length of line between 316km to the south and 324km to the north, or outside these limits if necessary
  - a. The various management actions involved in the construction of a loop are described under the relevant construction activity, i.e. earthworks, concrete work, borrow and spoil works and site camps, as well as generic management actions related to the protection of the environment, e.g. sensitive vegetation, waste management and rehabilitation.
  - b. Where required, the overall conditions of the EMP must be customised into site specific management plans, as stipulated in section 7 below.
- 5.2. Construction of Traction sub – stations, electrical control buildings.

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

- a. Such buildings or structures shall be sited as close as possible to the rail infrastructure, preferably at the highly disturbed southern end of the loop.
  - b. The gaining of material for construction of the terrace, access to the site and all other construction activities, such as the pouring of concrete foundations, shall all be in accordance with the various conditions in this EMP.
  - c. All equipment areas shall be properly fenced, secured and be provided with appropriate safety signage
- 5.3. Construction of 21m microwave tower and signal relay rooms or kiosks,
- a. The construction of a new 21m high microwave tower shall be permitted only within the present rail reserve and preferably together with other service support infrastructure as is the case at similar loop installations.
  - b. Terrestrial disturbance associated with the site and access roads shall be kept to the minimum.
  - c. All equipment areas shall be properly fenced, secured and be provided with appropriate safety signage.
  - d. Buildings provided should be aesthetically neutral and not add unnecessarily to visual intrusion in the area of the loop.
- 5.4. Re-alignment of the maintenance road.
- a. The construction of the additional track within the loop area will lead to realignment of the maintenance road and severe constrictions on access and passage of vehicles through the site during the construction period.
  - b. The service road between 305km and 322km should be closed to normal Spoornet traffic and other road users during the construction of the loop. All unnecessary traffic should be diverted to the district road parallel to the site and joining the line at the road bridges at the above mentioned points.
  - c. Any temporary access off – site access roads approved by mutual consent with the land owners concerned shall make use of existing farm roads / tracks where possible and shall be approved by the ECO, notwithstanding the prior consent of the land owner concerned having been gained.
  - d. The site as a whole will be dangerous for the movement of road traffic for the duration of the earthworks and road construction period. Safety barriers, signage and strict traffic control measures shall be devised and implemented as per standard engineering practice.
- 5.5. Temporary closure or road over rail bridge at 322km
- a. The road over rail bridge at 322km will need to be doubled and extended and will therefore be closed, subject to the approval of the Manager – Roads, Northern Cape Provincial Roads Department, Kimberley.
  - b. The findings and recommendations contained in the Environmental Assessment and ROD shall be strictly applied, especially in respect of prior communication with the Authorities, communities and landowners


ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

possibly affected by any closure or deviation of the district road while the bridge is being extended.

- c. Farmers making use of the bridge for the movement of stock from summer to winter pastures must be pertinently advised of the closure of the bridge and alternative arrangements made for such movement, should this be necessary.
- d. The approval of the landowner involved in alternative options for the movement of stock while the road bridge is temporarily closed must be obtained prior to such movements taking place.
- e. Road signage and traffic control measures provided during extension of the bridge and possible deviation of the district road shall be in accordance with the relevant road traffic legislation and standards.

## **6. ACCOMMODATION AND SITE CAMPS**

- 6.1. No accommodation, temporary or otherwise, is allowed at facilities other than those approved in accordance with the relevant Transnet specifications. Staff shall be accommodated off-site, wherever this is possible.
- 6.2. Site camps shall be located generally as designated in the Loop Layout Diagram – Appendix A. The exact location per site shall be to the approval of the ECO and shall at all times be located in disturbed areas, preferably using old or existing sites and in close to existing facilities wherever possible.. No site camp may be situated on any area demarcated as sensitive or restricted or a No – go area.
- 6.3. Site camps shall be properly fenced and adequately demarcated.
- 6.4. No domestic animals are allowed on the site.
- 6.5. No uncontrolled cooking facilities are permitted, in the field or working area.
- 6.6. No open fires are permitted in the field, except under strictly controlled conditions and subject to the statutory requirements of local ordinances and the National Veld and Forest Fire Act, 1998, (No. 101 of 1998).
- 6.7. No littering or dumping of solid waste of any description is permitted on the site. All litter, especially plastics, as well as other material capable of being dispersed through the surrounding veld and constituting a hazard to adjacent farming activities shall be regularly collected, at least on a daily basis, and properly stored prior to disposal to an approved site.
- 6.8. Construction waste shall be recycled wherever possible, in accordance with the principles to be included in the waste management plan
- 6.9. Site management procedures shall include a written waste management plan prescribing the safe and hygienic collection, temporary storage and off site disposal of all domestic waste.
- 6.10. Site and contract management procedures included in the waste management plan shall also investigate and address waste avoidance and waste


ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

minimisation during construction.

- 6.11. Provision must be made for adequate chemical sanitation facilities and no french drains will be permitted on site.
- 6.12. All facilities shall be regularly inspected by designated site management staff for compliance with the provisions of the Transnet standard E4.B and this EMP

## 7. ENVIRONMENTALLY SENSITIVE AREAS

- 7.1. The Engineer / Project Manager shall ensure that all areas identified as sensitive by the Environmental Assessment and / or the Environmental Manager are properly captured and depicted on a site – specific locality plan, prior to commencement of work or the establishment of site camps.
- 7.2. Such designated areas shall be designated “no go” areas and access to, or work in such areas, shall be prohibited and carefully controlled. “No go” and Sensitive Areas shall be clearly designated and demarcated as such by appropriate signage or markers (not danger tape), provided by the Contractor and at the direction of the ECO.
- 7.3. The site plan for loop 7A shall, irrespective of the presence or not of environmentally sensitive “no go” areas, designate and demarcate the various working areas on site, including among others: accommodation, offices, workshops, storage areas, vehicle park, haul and site access roads and fuel storage areas on an appropriate site plan.
- 7.4. The location of the loop extension area, electrical sub-station extension and control buildings, the microwave tower and system support buildings as well as signalling and standby generator equipment shall also be indicated on site plans.
- 7.5. The confines of the site, especially haul and access routes shall be clearly demarcated and signposted on site by the civil contractor at the direction of the ECO, so as to control the amount and extent of vehicle movement or any activity likely to result in unnecessary disturbance of the existing physical environment within the loop.
- 7.6. Preliminary site plans depicting preferred site construction camps (CC), permanent way material storage areas (PS), No – Go, Sensitive (SA) and Protected (PA) Areas, known borrow pits (BP) and environmental constraints applicable to each loop are attached as Appendix A. This preliminary plan will be incorporated in contract documentation and shall be refined, updated and implemented prior to commencement of work at any location on the site as a whole.
- 7.7. The Krom And Abequas Rivers west and south of the site are designated as specific sensitive, protected and no – go areas. Access to these areas, the traversing thereof from any direction and for any purpose whatsoever without specific approval is prohibited.
- 7.8. No water may be abstracted from these rivers without specific approval and no

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

soil, gravel or other material may be excavated (borrowed) or spoiled or dumped therefrom or therein.

## 8. ROADS AND VEHICLE USE

8.1. Access to the site shall be by means of approved access roads only. No unauthorised access or haul roads are permitted.

8.2. Adjoining sections of the Spoornet maintenance road north and south of Loop 7A contain hazardous constrictions or conditions. Caution must be exercised throughout the length of the maintenance road, but extra care must be exercised in the following areas:

- Kilometre 305 to 420 : between loop 6 (Kanakies) to loop 10 (Halfweg)

While hazards and constraints are well signposted and controlled by stop signs, vigilance is required especially from heavy vehicle traffic.

The present road traffic signage, markers and protection barriers along the maintenance road between 305km and 420km and especially between 305km and 322km must be reviewed and supplemented, where possible, to provide extra safety margins at blind rises, sharp curves, descents and unprotected side slopes at cuttings.

8.3. Hazardous road conditions must be communicated to Contractors and material delivery drivers, especially when new to the site and its surroundings.

8.4. Driver awareness and safety management programmes must be devised, implemented and recorded, for audit and monitoring purposes.

8.5. The Contractor must place appropriate warning signs at the entrances / exits to the, as well as at all level crossings. The last mentioned signs shall be in addition to the normal signage present at “private” level crossings and shall indicate to road users the nature of the activity occurring in the immediate site vicinity as well as the presence of train traffic.

8.6. Vehicle use on site shall be restricted to the minimum required and only in accordance with the site plan prepared for the purpose of preventing unnecessary damage to non - working areas.


8.7. Vehicles shall not move on riverbanks or side slopes prone to erosion or sensitive to disturbance without specific approved management measures..

8.8. Approved haul or access roads shall be planned and constructed to follow the natural contours, as far as possible.

## 9. BORROW PITS AND SPOIL HEAPS.


9.1. All borrow pits used for gaining earthworks construction materials shall be subject to the assessment, approval, operation and rehabilitation procedures prescribed by the Department of Minerals and Energy in terms of the Petroleum Resources Development Act, Act 28 of 2002.

9.2. An application with reference NC 30/5/1/3/3/2/1/654 EC has already been submitted and the conditions attached to this approval, once received, shall be

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

adhered to.


- 9.3. Notwithstanding that the Department of Minerals and Energy is the lead agent in the establishment of borrow pits, the relevant Provincial Department of Environment shall also be notified and be involved in the approval and management process.
- 9.4. Every effort must be made to apply the following hierarchy to the gaining of earthworks fill material and the selection of sources / selection and use of borrow pits for the project:
- a) Use existing commercially available quarries, where feasible
  - b) Use alternative sources, e.g. mining waste as fill material, where feasible
  - c) Use existing borrows on Transnet property, where available
  - d) Re-open old borrow pits on Transnet property
  - e) Re-open old borrow pits on adjoining (private) property
  - f) Open new borrow pits on Transnet property
  - g) Open new borrow pits on adjoining (private) property
- 9.5. Borrow pits will not be permitted in designated site – specific “no go” areas, notwithstanding that the area may meet Department of Minerals criteria for site selection.
- 9.6. Borrow pit site selection criteria must take the extremely low rehabilitation potential of the general site area into account and be sited and constructed in such a manner that long – term natural rehabilitation is encouraged.
- 9.7. Further to the specialist Plant Ecologist report (N. Helme – 2006) new borrow pits should be sited in the slightly less sensitive area north of 320km, to 324km.
- 9.8. The construction, management and rehabilitation of borrow pits shall be in terms of the site specific EMP devised and approved by DME for each borrow pit, but shall include the minimum conditions:
- a. the borrow area shall be clearly demarcated and fenced off, where required by the landowner, or for safety purposes.
  - b. Access and haul road shall be as approved by the ECO and shall not traverse any area demarcated as sensitive by the ECO.
  - c. Borrow or spoil areas and their access and haulage roads must be subject to a search and rescue action to protect and preserve sensitive and indigenous vegetation for later rehabilitation purposes.
    - Vegetation identified as being required for rehabilitation purposes shall be preserved in an area / nursery designated for this purpose.
    - Vegetation deemed sensitive but not suitable for re-vegetation shall be handled as directed by the relevant Department of Nature Conservation or Environmental Affairs.

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

- d. Similarly, borrow or spoil areas must be subject to a search and rescue action to identify and preserve any fauna occurring naturally and confined to the site. The search shall identify habitats, nests or burrows of local fauna or reptiles and, where any animals remain resident on the site, these shall be removed and placed in similar conditions in areas not affected by construction work. Particular attention must be paid to reptiles such as tortoises, small game, burrows, nesting birds (including sociable weavers) and snakes.
  - e. The search and rescue action of flora and fauna shall be conducted by a person competent in this field, under the management of the ECO and in conjunction with the relevant Department of Nature Conservation.
  - f. The upper 100mm (minimum thickness) of in situ soil material shall be regarded as topsoil. Topsoil shall, in all instances, be carefully removed from the area to be disturbed and stockpiled so as to be replaced and / or used for natural revegetation purposes after construction. Topsoil shall be stockpiled in areas not exposed to construction traffic, be placed in low, uncompacted heaps and be protected against erosion.
  - g. Side slopes of borrow and spoil areas shall be as depicted on the applicable approved contour plan but shall in all instances be as flat as possible, but not steeper than 1:5 gradient wherever practical. Side slopes of spoil heaps shall be graded from large to smaller rock and finished with fine material / topsoil so as to create the best possible conditions for natural revegetation.
- 9.9. Further to 8.5, every effort must be made to preserve and protect the upper / surface soil layers for rehabilitation purposes at a later stage.
- 9.10. Spoil areas must be carefully selected and indicated on the site plan.
- 9.11. Every effort must be made to restore and backfill old borrow areas with spoil / surplus material, rather than creating new spoil sites.
- 9.12. Spoil heaps may not be constructed and left in an unsightly state or in a position that adds unnecessarily to the aesthetic disturbance of the landscape and loop area.
- 9.13. Spoil areas shall be shaped to an even and rounded contour and provided with cut off or contours berms or other measures to prevent erosion and uncontrolled run – off.
- 9.14. Spoil heaps shall be sited and constructed in such a manner that the natural drainage patterns are not disturbed, or, where this is not possible, such drainage patterns are properly amended and / or reinstated.

## 10. EARTHWORKS - GENERAL

- 10.1. The entire search and rescue procedure, rehabilitation and monitoring requirements detailed for borrow pits per section 8 above as well as 19 below shall apply *mutatis mutandis* to general contract works, earthworks, concrete work, construction of electrical sub – stations, signal, electrical and

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:


communications buildings, standby equipment as well as the microwave tower and equipment terraces and any other activity entailing the disturbance of natural or rehabilitated disturbed areas

- 10.2. With a view to encouraging natural rehabilitation under difficult climatic conditions, all topsoil / upper soil material shall be carefully preserved in all instances. Upper soil material from the base of loop extension areas, as well as where new earthworks will be benched into the existing formation shall be collected and stockpiled for later use.
- 10.3. Topsoil material in stockpile shall be placed so that it cannot be further compacted by vehicles or equipment movement on site.
- 10.4. Vegetative work required on site shall be at the direction of the Engineer and in terms of the relevant Transnet S 417 specification.

## **11. CONCRETE WORK – GENERAL**

- 11.1. The area of disturbance associated with the extension of concrete pipe or box culverts / underpasses where required in the loop construction areas shall in all cases be kept to the minimum required for building purposes.
- 11.2. No loose spoil or other material may be left in, or in any other way, obstruct the free flow of water after completion of culvert extension work.
- 11.3. Where concrete is batched on site, either centrally or at a particular structure, all mixing shall take place in a constrained area such that there is no runoff of contaminated water from the batching / mixing area into the environment. Such effluent shall be collected, sediment or solids settled and water recycled where possible. Cement sludge shall be properly disposed of, shaped, covered and rehabilitated in an area where no long term pollution from runoff can occur
- 11.4. General constraints regarding concrete / cement include:
  - a. Concrete shall not be mixed directly on the ground.
  - b. The concrete batching works shall be kept neat and clean at all times.
  - c. Unused cement bags are to be stored so as not to be affected by rain or runoff events.
  - d. Used bags shall be stored and disposed of in a manner, which prevents pollution of the surrounding environment (e.g. via wind blown dust and paper) and shall be recycled where possible..
  - e. Waste concrete and cement sludge shall be scraped off the site of the batching plant and removed to an approved disposal site.
  - f. All visible remains of excess concrete shall be physically removed on completion of plaster or concrete work and disposed at an approved disposal site. Washing the remains into the ground is not acceptable.
  - g. All excess aggregate and sand shall also be removed.

## **12. WORKSHOPS AND VEHICLES – GENERAL**

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:


- 12.1. Temporary workshops provided on site shall be properly constructed and equipped so as to contain and prevent any form of contamination or pollution of soil and water that may arise from vehicle maintenance, servicing, parking and fuelling activities.
- 12.2. All working / service areas where oil, grease or fuel is liberated, wash bays and fuel storage areas shall be provided with a bunded, impervious surface that will contain (collect) effluent and prevent the ingress of any pollutants into the soil. Effluent collected from sumps in such containment areas shall be disposed of to a recognised waste disposal / oil recycling company and shall not be disposed of as waste on site.
- 12.3. All hydrocarbon – polluted parts such as oil filters shall be stored in closed containers and also disposed of as oily waste to an appropriately licensed disposal site.
- 12.4. All solvents, paint or other chemical containers shall not be disposed of as general or domestic waste, but must be collected on site and disposed of to a licensed hazardous waste site.
- 12.5. All oil, grease or solvent containers must be stored in accordance with the appropriate safety requirements but also under roof, on an impervious floor and within a bunded area.
- 12.6. All oil or fuel spills shall be treated with appropriate absorbents and each site shall have a suitable spill response kit available to treat uncontrolled spillages.

### **13. MATERIALS STORAGE**

- 13.1. Material and equipment storage areas must also be designated on the site locality plan and shall, wherever possible, be sited on previously constructed, disturbed and transformed areas not requiring any further soil disturbance or destruction of vegetation.
- 13.2. Any material capable of causing pollution discharge to the environment through water or air shall be stored in proper containers or covered facilities.
- 13.3. Storage of hazardous or flammable materials, including explosives if applicable, shall be strictly in accordance with the appropriate risk and fire prevention standards.
- 13.4. If potentially hazardous substances, including explosives) are to be stored on site, the Contractor shall provide a Method Statement detailing the substances or materials to be used together with the procedures for the storage, handling and disposal of the materials in a manner which will reduce the risk of pollution that may occur from day to day storage, handling, use and/or from accidental release of any hazardous substances used.

### **14. FUEL STORAGE**

- 14.1. Temporary fuel storage facilities erected on site shall comply fully with the relevant specifications for storage and handling of petroleum products.
- 14.2. Temporary fuel storage tanks and the fuel dispensing area shall be placed on


ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

a concrete slab or similar and approved impervious material must be provided with bund walls of the prescribed height and have proper collection sumps for containment and removal of any spillage or effluent from within the containment area.

- 14.3. Temporary fuel sites shall be monitored and inspected on a daily basis to detect non-compliant conditions, defective or leaking equipment and to institute timeous corrective action.
- 14.4. Any temporary fuel storage area shall have a complete hydrocarbon spill response / clean – up kit and absorbents available to immediately treat and rehabilitate any spillage or contamination of the environment.
- 14.5. All products stored in 200 litre drums shall be dispensed from these drums using appropriate equipment – i.e. the products shall not be dispensed by tipping the drums.  
Collection containers (e.g. drip trays) shall be placed under all dispensing mechanisms for hydrocarbons or hazardous liquid substances to ensure that contamination from any leaks is reduced.
- 14.6. Regular checks shall be conducted by the Contractor on the dispensing mechanisms for all above ground storage tanks to ensure faulty equipment is identified and replaced timeously.
- 14.7. New or old oil, if not stored elsewhere, shall also be stored on a concrete or approved impervious surface, surrounded by a bund wall capable of containing any discharge or spillage that may occur.
- 14.8. Temporary fuel sites shall be fully rehabilitated after completion of the work at a loop. Apart from removal of all buildings and tanks, the surrounding area shall be tested for the presence of hydrocarbon pollution, and such pollution shall be rehabilitated to TPH levels not greater than the relevant Spoornet standard Ref: S.RB 12/5/19/1/1/17 dated: 3 March 2005.

## **15. IMPORTED CONSTRUCTION MATERIAL AND INVASIVE PLANTS**

- 15.1. With specific reference to the Krom and Abequas Rivers and their tributaries, no areas within any river channel or drainage line outside the immediate construction area may be denuded of sand, rock or vegetation cover.
- 15.2. Unnecessary movement of soil material from differing vegetation zones / communities must be avoided.
- 15.3. No borrow or soil material is to be obtained from sources displaying growth or the presence of invasive vegetation, noxious weeds or invasive fauna.
- 15.4. No movement of river or stream water between different water sources is permitted.
- 15.5. No plant material or vegetative matter may be transported to, on or from the site, without the approval of a competent environmental officer.
- 15.6. Disturbance of re-established vegetation shall be avoided as far as is

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

practicable.


- 15.7. Weed growth, as distinct from pioneer species, must be managed as part of the rehabilitation process to prevent excessive spreading of seeds or growth to the surrounding environment.
- 15.8. Only indigenous plant species and of a non – invasive nature may be used in any rehabilitation of a riverine or wetland environment.

## **16. CONSTRUCTION SITE**

- 16.1. No fauna, wild animals or creatures may be deliberately killed, trapped or injured in any way. The placing of snares, destruction of fences or access to adjoining properties for purposes of poaching or hunting is regarded as a criminal offence and shall be handled and treated as such.
- 16.2. No unauthorised activity is permitted off the construction right of way prevailing at any particular area.
- 16.3. No activity of any nature is permitted in areas specifically demarcated as restricted or protected. This includes wetlands, riverine areas, state and private game reserves as well as adjoining private land.
- 16.4. Site clearing entailing the destruction of vegetation or significant disturbance of the soil shall be to the approval of the Engineer / Environmental Officer, as per the relevant site plan.
- 16.5. All wastes generated on site must be properly separated, contained and disposed of. Recycling, waste avoidance and minimisation shall be carried out as far as is practicable.
- 16.6. No surplus materials, other than properly designed and rehabilitated spoil heaps having the approval of the regulatory bodies concerned, may be left on site after completion of the work at each construction site.

## **17. CONSTRUCTION SPECIFICATIONS, GUIDELINES AND RESTRICTIONS**


- 17.1. In addition to what is stated elsewhere in this specification, the pruning, removal or disturbance of natural vegetation shall be approached with the utmost care and shall be done only with the explicit approval of a competent environmental official.
- 17.2. The Contractor shall not alter, divert, restrict or in any way influence the surface drainage patterns present prior to construction, without approval.
- 17.3. No blasting is permitted on the construction site without specific involvement of the Environmental Manager / ECO.
  - a. The Contractor shall provide a blasting plan prior to any commencement of blasting work at the Loop 7A general site. This programme shall be updated and adjusted weekly not less than 7 days in advance of blasting activities as the work progresses.
  - b. The Contractor shall arrange and the RE shall ensure that this programme is formally communicated to at least all landowners identified per item

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:


## 22.2.

- c. The Contractor shall ensure that in the implementation of standard safety precautions required in the Explosives Act and within best practice regarding blasting that farming activities, farm workers, livestock and adjoining properties are protected at all times and that any consequential damage, nuisance and hazard to the environment is avoided or optimally managed and mitigated.
- 17.4. In areas having a gradient steeper than that which vehicles normally used on the site can traverse (e.g. side slopes of cuttings), the contractor shall employ alternative methods for the movement of material and equipment while limiting environmental damage in the process.
  - 17.5. Terrestrial habitats of fauna, birdlife, reptiles and any other wild creatures shall be preserved as far as possible. No habitat or nest of any sensitive or protected species may be disturbed without a permit from the Department of Nature Conservation. This restriction includes the nests of sociable weavers present on infrastructure such as microwave masts, transmission lines or telephone poles within the rail reserve in the general area.
  - 17.6. The presence of such habitats, where encountered, shall be reported to the Engineer who will decide on further action in consultation with the Environmental Officer and Northern Cape Department of Nature Conservation.
  - 17.7. No ropes, cables or guy ropes may be fastened to trees or shrubs without prior approval.
  - 17.8. Natural landmarks or rock formations shall be protected and preserved and shall not be defaced with survey or any other markings.
  - 17.9. The final level of the site after construction, excavation and restoration has been completed, shall conform as far as possible to the contours and ground slope prevailing prior to work commencing, with full provision for the restoration of proper surface drainage.
  - 17.10. The Contractor shall provide all erosion control measures necessary during execution of the work and for rehabilitation of disturbed areas after completion of the work.
  - 17.11. Adequate dust control measures shall be instituted and maintained on a continuous basis, with particular emphasis on temporary access and haulage roads where provided, as well as roads used for other (non – construction) traffic within the site.
  - 17.12. Construction work and disturbance of any area shall be carried out with the rehabilitation of that area, maintenance of rehabilitated areas and the control over the growth or spreading of invasive vegetation in mind at all times. Specifications contained in any section of the EMP relating to topsoil, revegetation procedures, rehabilitation or the control of invasive vegetation are applicable to any aspect of the project construction works.

## 18. TORTOISE MANAGEMENT


ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

- 18.1. The general site locality is characterised by the presence of six tortoise species, of which three species are endemic to an area of the Succulent Karoo and enjoy “Threatened” conservation status. Site, construction and operational practices shall therefore be directed at safeguarding tortoise species and their habitat as far as possible.
- 18.2. Management actions, including but not restricted to the following, should be incorporated in the design stage and implemented in the construction stage at Loop 7A:
- a. Provide tortoise escape routes by removing or lowering the ballast to a depth not greater than the base of the sleepers between a single set of two sleepers:
    - i) at least one set on either side and within 15m of every level crossing encountered within the loop construction area,
    - ii) one set per kilometre where no level crossings are present, or,
    - iii) at prick of cut / (cutting / embankment interface) of deep cuttings and high embankments.
  - b. The collection or movement of tortoises for any purpose other than immediate protection from construction risk is specifically prohibited and punishable in terms of Nature Conservation Ordinances by a fine or even a jail sentence in the event of illegal trading. Construction staff must be advised accordingly in training programmes and site management notices.
  - c. All site training and orientation material must include a description and pictures of the tortoises likely to be encountered on site and guidelines for the actions to be taken in such cases (if any)
  - d. Particular care must be taken not to run over, trample or kill tortoises, particularly through vehicles or construction equipment working in vegetated areas, especially in view of the small size and inconspicuous appearance of tortoises likely to be encountered.
  - e. No unnecessary vehicle movement or clearing of vegetations outside of agreed and designated areas are permitted, among others also as preventative measures for the protection of tortoises.
  - f. Prior to construction work taking place, the area must be inspected and all tortoises removed to an immediately adjoining area which will not be affected by working activities. This inspection must be carried at the commencement or daily recommencement of work on all vegetated worksites where equipment and vehicles will be in operation,.
  - g. A particularly thorough inspection shall be carried out for tortoises beneath shrubs and bushes on areas to be completely denuded or cleared of vegetation, such as borrow pits, the base of loop extensions and new spoil areas.
  - h. The ECO will provide documentation and guidelines for elementary daily monitoring of the tortoise population occurring on the site, during the construction period.

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

## **19. SITE CONTROLS – RIVERINE / AQUATIC ENVIRONMENTS (WHERE APPLICABLE) AND CULVERT EXTENSIONS.**


- 19.1. The extent of the construction site at river or stream crossings shall be kept to the minimum possible and clearly demarcated. Construction activities shall be restricted to the confines of the area so defined.
- 19.2. No construction activity affecting any drainage line or watercourse outside the rail reserve is permitted without the written authorisation of the ECO, in collaboration with the designated Site Manager.
- 19.3. The Authorisation for the project is based on no alteration of existing surface water bodies, streams or drainage lines being permitted and all construction activity must be based on this restriction. Culvert or bridge extensions, either box, pipe and concrete or metal shall therefore:
- a. follow the existing axis of the watercourse or drainage line at that point.
  - b. be seated at the same ground level as the existing structure and follow the present gradient, so as not to change present hydraulic flows to or cause hydraulic disturbance at outlet points.
  - c. be excavated such that the banks of watercourses / drainage lines shall not exceed the minimum required to be able to carry out construction work and shall in any event not be wider than the widest point of the existing structure being lengthened, where applicable.
  - d. ensure that the widening of banks of streams, water courses or drainage lines is kept to a minimum and shall follow and not divert the present water course.
  - e. restrict the removal or disturbance of aquatic or riverine vegetation to areas of direct construction only and such area shall be kept to the minimum possible.
  - f. be provided with appropriate anti – erosion measures to reduce and manage scour at the interface of the structure and streambed or erosion of the base or banks of the watercourse in question.
  - g. It is recommended in the environmental assessment and therefore subject to the ROD that scour protection and erosion control work be extended to the non-doubled side of drainage structures as well, in order to restore erosion free waterways or drainage lines as far as possible.
  - h. In the event of new culverts / structures being required, the construction and design guidelines as detailed above and elsewhere in this EMP shall apply and no diversion of an existing stream or water course is permitted, without approval.
- 19.4. No plant material, fish or fauna may be removed from the site under any circumstances.
- 19.5. Adequate sediment control measures shall be placed downstream of the crossing or working area. Sedimentation weirs, when provided, shall be cleaned of accumulated sediment prior to their removal from the river.

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

- 19.6. Control measures necessary to prevent the transportation or translocation of invasive aquatic life shall be instituted. Vehicles, plant and equipment capable of transporting invasive plants shall be decontaminated after working at any infected area.
- 19.7. Any form of pollution, littering or damage to natural riverine conditions shall be avoided.
- 19.8. Refuelling of plant, equipment and vehicles shall not be undertaken within the confined of the crossing, but at safe distance from the river. The use of soaps or pollutants of any nature is not permitted at a river crossing or close to the Krom or Abequas Rivers.
- 19.9. All chemicals brought onto the site shall be in safe containers and used only as recommended by the manufacturers. Handling procedures for fuels and chemicals shall be prescribed so that spillage from routine operations is avoided and accidental spillage can be contained.
- 19.10. The Contractor shall have appropriate spill control measures available on site, particularly for the control of hydrocarbon spillage in a riverine environment.
- 19.11. Where there is no information on the quality of the water and indications are that the quality is poor, contact with the water shall be avoided.
- 19.12. Stream diversion activities, if occurring, or water abstraction from a public water source (stream) that requires approval in terms of the National Water Act (1998), Act 36 of 1998, shall not be conducted without prior approval and registration with the Department of Water Affairs and Forestry.

## **20. REHABILITATION AND MAINTENANCE**

- 20.1 All disturbed areas shall be repaired, revegetated and rehabilitated to the satisfaction of the Engineer. The Contractor shall use only grasses and vegetation occurring naturally in the area for this purpose. Only indigenous species endemic to the area shall be used
- 20.2 Vegetative rehabilitation of all disturbed areas, borrow pits, embankments, cuttings, spoil areas must take the arid nature of the existing environment into account and should generally be aimed at encouraging, stimulating and supplementing the process of sustainable natural revegetation.
- 20.3 Spoil heaps in particular shall be shaped, provided with an upper layer of fine material capable of supporting growth and left with side slopes not steeper than 1 : 3, or flatter if possible so as to encourage natural revegetation. Supplementary seeding with naturally occurring species should be implemented.
- 20.4 Contractors shall submit a rehabilitation plan for each site for approval of the ECO and site engineering staff, such plan being based on the principles in this EMP and relevant erosion control specifications.
- 20.5 The Contractor shall have a programme in place for the control and management of alien vegetation or listed Category 1 invasive plant species

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

deemed illegal in terms of the Conservation of Agricultural resources Act 43 of 1983 as amended 8 March 2001)

This programme shall include provision for monitoring and management of growth or re-growth of invasive vegetation for a period of at least two years after completion of construction. The construction area must be monitored at least twice per year two years after construction

- 20.6 The Contractor shall maintain all vegetative work provided as part of, or resulting from his activities until the end of the contract period or until vegetation is properly established, whichever period is the longer. The ECO shall monitor the revegetation programme submitted by the Contractor so as to determine the adequate recovery of all disturbed areas.

Particular attention must be paid to the control of erosion of new and disturbed areas, spoil heaps and borrow pits.

- 20.7 All temporary drifts or construction roads, which may influence the flow of a river, stream or drainage line (including non-perennial surface flows) shall be removed and or rehabilitated at the end of the contract to the satisfaction of the Engineer.

- 20.8 All temporary structures and facilities shall be properly and safely decommissioned and removed from site once all construction activity associated with such facilities has ceased. Closure, decommissioning and rehabilitation shall extend to removing any residual pollution or sources of pollution.

- 20.9 Topsoil shall be replaced on all disturbed areas, where possible and where material was stockpiled for this purpose.

## 21. TRAINING AND AWARENESS


- 21.1. All site staff shall be made formally aware of the contents of this EMP and its conditions.

- 21.2. Project management shall ensure that all contractors, sub – contractors or service providers of any nature are certified as being aware of, conversant with and sufficiently trained in the performance of their duties so as to be able to apply this EMP to all applicable aspects of their work and behaviour on site.

- 21.3. Training records must be regularly monitored and measures to ensure that new contractors or staff are trained or re-trained as necessary.

- 21.4. The ECO shall devise and conduct specific environmental training interventions of a general environmental or task / discipline - specific nature, in conjunction with the construction functions concerned. Such courses shall include:

- a. General environmental awareness, as part of normal induction training or stand – alone module for all levels of project staff
- b. Specific programme for machine and vehicle operators
- c. Specific programme for delegated Environmental Officers operating on an

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

individual site(s) basis.

- 21.5. Site staff must be made available for attendance and certification of competence in terms of such training material.
- 21.6. The currency and application of environmental training of site staff will be measured and reported per site audits conducted.

## 22. COMMUNICATION WITH COMMUNITIES / LANDOWNERS

- 22.1. Contractors and all Project staff shall treat the property and privacy of adjoining landowners and / or communities with the utmost respect. Any action that may be construed as causing nuisance or harm to the person or property of others shall be avoided. Non – compliance must be followed up and dealt with accordingly.
- 22.2. The Project and Construction Manager must establish formal contact with the landowners at Loop 7, where farms occur within a 1 – 2km radius. Such landowners must be provided with the contact numbers of relevant project and site management staff, with whom any complaint, concern or issue can be lodged for immediate attention.

Identified landowners / occupants include, but are not restricted to:

Mr. M Hoon. Brandkraal. P.O. Box119, Loeriesfontein 8185

Tel: 02762 1212 (Home)  
027 662 1123 (Work)

Ms. C. J. Horn. Eselsfontein. P. O. Box 20, Loeriesfontein 8185

Tel: 027 662 1161 Cell: 083 236 8244

Mr. H.S.C. Steenkamp (Farm Tenants – Nooitgedacht Boerdery) P O  
Box 34 Loeriesfontein

Tel: 027 662 1385


Versveld Family.– via Louw and Muller Attorneys (Loeriesfontein)

Mrs. C. Meyer, Abequasrivier.

- 22.3. Communications structures should include a central “hot line” where complaints can be logged and followed up, independently of immediate site management.
- 22.4. Special arrangements must be made regarding communication with landowners or parties affected by blasting on the Loop 7A site.
- 22.5. A complaints register recording the names and nature of complaints / communications must be maintained, for follow – up and audit purposes.

## 23. AUDIT AND MONITORING

- 23.1. The Environmental Management section of Spoornet will draw an appropriate audit protocol and format to audit, measure and monitor compliance with:
- The conditions of the Environmental Authorisation and Record of Decision
  - The Spoornet Environmental Policy

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

- This Project EMP


23.2 Checklist type internal audits shall be carried out at a frequency determined as above on a continuous, but not less than monthly basis. Any significant non – compliances must be reported to the accountable person per table 4.1.1 for improvement and corrective action. A pro – forma audit checklist is attached as Appendix B.

23.3 The Environmental Manager (Spoornet) shall be responsible for any reporting or monitoring or control information to the respective Departments of Environmental Affairs, National or Provincial, should such reporting be a requirement of the Authorisation granted for the project.

## 24 ENVIRONMENTAL CONTACT PERSONS

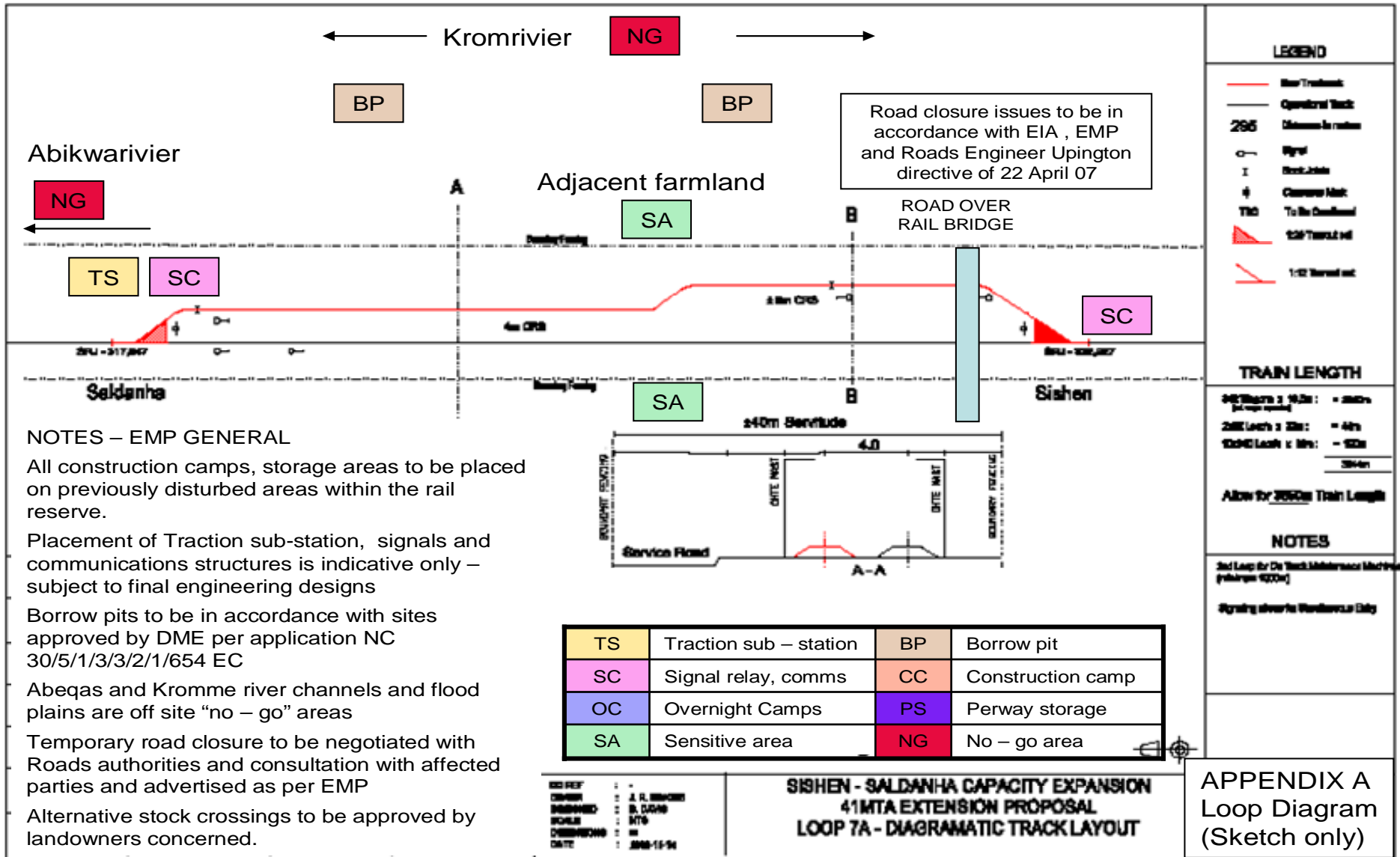
A list of the Spoornet Environmental Management personnel, who can be contacted for guidance in the application of this specification, or for any other environmental assistance, is as follows:

OFFICE	CONTACT	TEL NO.	FAX NO.	E - MAIL
Compliance Office	Brave Leballo	011 773-8886	011 773-4511	Bravel@spoor.net.co.za
Compliance Office	Vincent Matebane	011 773-8747	011 774-4511	Vincentmat@spoor.net.co.za
Compliance Cape	Phundulu Elekanyani	011 773- 6017	011 773 4511	ElekanyaniP@spoor.net.co.za
Compliance Office	Wilson Ndou	051 408-2939	011 773 4511	wilsonn@spoor.net.co.za
Spoornet Iron Ore Line	Andrew. Julyan	022 703 3568	022 703 3480	Andrewj@Spoornet.co.za

ENVIRONMENTAL MANAGEMENT PLAN: CONSTRUCTION AND OPERATIONS : SISHEN – SALDANHA IRON ORE LINE : NEW LOOP 7A			
Ref: S.RB. 12/5/17/10/2	Issue date: May 2007	Revision date:	Revision no.:

## APPENDIX A

### LOOP LAYOUT DIAGRAM



**NOTES – EMP GENERAL**

All construction camps, storage areas to be placed on previously disturbed areas within the rail reserve.

Placement of Traction sub-station, signals and communications structures is indicative only – subject to final engineering designs

Borrow pits to be in accordance with sites approved by DME per application NC 30/5/1/3/3/2/1/654 EC

Abeqas and Kromme river channels and flood plains are off site “no – go” areas

Temporary road closure to be negotiated with Roads authorities and consultation with affected parties and advertised as per EMP

Alternative stock crossings to be approved by landowners concerned.

TS	Traction sub – station	BP	Borrow pit
SC	Signal relay, comms	CC	Construction camp
OC	Overnight Camps	PS	Perway storage
SA	Sensitive area	NG	No – go area

NO REF :  
 DRAWN : J. R. ...  
 CHECKED : B. ...  
 SCALE : 1:10  
 DIMENSIONS :  
 DATE : 2008-10-24

**SISHEN - SALDANHA CAPACITY EXPANSION  
41MTA EXTENSION PROPOSAL  
LOOP 7A - DIAGRAMATIC TRACK LAYOUT**

**APPENDIX A  
Loop Diagram  
(Sketch only)**

**LEGEND**

- New Trackwork
- Operational Track
- 295 Distance in metres
- Signal
- Stock Joke
- Construction Mark
- TBD To Be Determined
- 1:12 Thermal soil
- 1:12 Thermal soil

**TRAIN LENGTH**

- 4000kg Load x 10:00 = 300m
- 2000kg Load x 20:00 = 40m
- 1000kg Load x 10:00 = 100m

Allow for 2000kg Train Length

**NOTES**

- 2nd Loop for De Stock Maintenance Machine (allows 400m)
- Signaling always Westwards Only

ENVIRONMENTAL MANAGEMENT PLAN:  
CONSTRUCTION AND OPERATIONS : SISHEN –  
SALDANHA IRON ORE LINE : NEW LOOP 7A



Ref: S.RB. 12/5/17/10/2

Issue date: May 2007

Revision date:

Revision no.:

## **APPENDIX B**

## **AUDIT SCHEDULE**

AUDIT LEVEL	PROJECT ACTIVITY	AUDIT CLASS	AUDIT BY	REPORT TO	FREQUENCY
Enterprise level	Policy – application Management system Management commitment Legal compliance - Group level Management – communication Audit feedback - follow up	System	External	Group	Project inception - annual thereafter
Project Management level	Policy : project – availability Policy : project – application Management system Legal compliance - project level Management – communication EMP : effective implementation Waste Management Plan: compliance Audit feedback - follow up Public / Regulatory feedback	Management	External	Spoornet CEO	Twice annually
Site Management	Policy – availability Policy – application Legal compliance - permits, RoD Records- EMP matters, audit, reports EMP compliance – overall	Compliance	1) External 2) Enviro Manager	1) Spoornet GM level 2) Project Manager	1) Twice annually 2) Quarterly
EMP compliance - site general	Site camps : health and safety Site camps : waste management Site camps : staff management Site camps : mess, ablution, facilities Site camps : sanitation Site general : demarcation / signage Site general : sensitive areas Site general : blasting arrangements Site general : search and rescue Site general : ecology - tortoise record Site general : roads and access Site general : EMP plan compliance Site general : vehicle movement Site general : traffic signage Site general : off site management Site general : litter, waste management Site general : records, permits, tests Site general : spill cleanup and rehab Site general : alien vegetation control	Compliance	1) ECO 2) Enviro Manager	1) Monthly 2) Quarterly	1) Project Manager 2) General Manager

<p>EMP compliance - Materials</p>	<p>Materials : general – storage Materials : general – handling Materials : general – disposal Materials : perway – storage Materials : electrification – storage Materials : hazardous – storage Materials : hazardous – handling Materials : hazardous – disposal Fuel storage, dispensing Oil storage, dispensing</p>	<p>Compliance</p>	<p>1) ECO 2) Enviro Manager</p>	<p>1) Monthly 2) Quarterly</p>	<p>1) Project Manager 2) General Manager</p>
<p>EMP compliance - Workshops</p>	<p>Workshops : structure, equipment Workshops : pollution, effluent Workshops : waste management Spill response, cleanup equipment Spills, leakages: cleanup rehabilitation Plant, vehicle storage areas Workshops - field camps, cooking Workshops : field camps, sanitation Construction plant – condition Construction vehicles – condition</p>	<p>Compliance</p>	<p>1) ECO 2) Enviro Manager</p>	<p>1) Monthly 2) Quarterly</p>	<p>1) Project Manager 2) General Manager</p>
<p>EMP compliance - earthworks</p>	<p>Earthworks : demarcation, signage Earthworks : dust management Earthworks : noise management Earthworks : spoil management Earthworks : material use – lime Earthworks : equipment / vehicle use Earthworks : alien vegetation control Earthworks : water - source &amp; use Earthworks : field camps, cooking Earthworks : field camps – sanitation</p>	<p>Compliance</p>	<p>1) ECO 2) Enviro Manager</p>	<p>1) Monthly 2) Quarterly</p>	<p>1) Project Manager 2) General Manager</p>
<p>EMP compliance - concrete</p>	<p>Concrete : site condition / pollution Concrete : batching plant Concrete : site storage, materials Concrete : equipment / vehicle use Concrete : water source and use Concrete : noise, dust management Concrete : effluent management Concrete : alien vegetation control Concrete : rehabilitation of site(s) Concrete : field camps, cooking Concrete : field camps – sanitation Concrete : solid waste management</p>	<p>Compliance</p>	<p>1) ECO 2) Enviro Manager</p>	<p>1) Monthly 2) Quarterly</p>	<p>1) Project Manager 2) General Manager</p>
<p>EMP</p>	<p>Borrows: access / haul roads</p>	<p>Compliance</p>	<p>1) ECO</p>	<p>1)</p>	<p>1) Project</p>

compliance - borrows	Borrows: working to authorisation Borrows: fencing, safety Borrows: equipment / vehicle use Borrows: dust & noise management Borrows: alien vegetation control Borrows: rehabilitation		2) Enviro Manage r	Monthly 2) Quarterly	Manager 2) General Manager
EMP compliance - spoil sites	Spoil sites : access / haul roads Spoil sites : working to EMP Spoil sites : fencing, safety Spoil sites : equipment / vehicle use Spoil sites : dust and noise Spoil sites : rehabilitation	Compliance	1) ECO 2) Enviro Manage r	1) Monthly 2) Quarterly	1) Project Manager 2) General Manager
EMP compliance - perway, OHTE	Perway : use of access / haul roads Perway : fencing, safety Perway : equipment / vehicle use Perway : dust & noise - on track Perway : on track plant - staging area Perway : on track plant - oil, waste Perway : field camps, cooking Perway : field camps – sanitation	Compliance	1) ECO 2) Enviro Manage r	1) Monthly 2) Quarterly	1) Project Manager 2) General Manager
EMP compliance - rehabilitation	Rehabilitation programme Rehabilitation progress - site works Rehabilitation progress - off site	Compliance	1) ECO 2) Enviro Manage r	1) Monthly 2) Quarterly	1) Project Manager 2) General Manager
EMP compliance - communication	Communication - site staff Communication – blasting Communication – landowners Communication – regulators	Compliance	1) ECO 2) Enviro Manage r	1) Monthly 2) Quarterly	1) Project Manager 2) General Manager
EMP compliance - training	Training - staff / attendance records Training - programmes – suitability Training - effective implementation Training - verification - critical grades Training - verification - sub contractors	Compliance	1) ECO 2) Enviro Manage r	1) Monthly 2) Quarterly	1) Project Manager 2) General Manager