mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

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65 Phakamile Mbija Street, First Floor. Permanent Building, Kimberley 8301

From: Directorate: Mineral Regulation: Northern Cape **Date:** 04 August 2012
Enquiries: Mr H.D Mashau Email:Humbulani.Mashau@dmr.gov.za

Ref: NC 30/5/1/3/3/2/1/5025Bp MP

Case ID: 3619

The Director
South African Heritage Resources Agency
PO Box 4637
CAPE TOWN
8000

Attention: Nonofho Ndobochani

CONSULTATION IN TERMS OF SECTION 40 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT 2002, (ACT 28 OF 2002) FOR THE APPROVAL OF AN ENVIRONMENTAL MANAGEMENT PLAN FOR MINING PERMIT OF AGGREGATE STONE ON ALONG THE RAILWAY LINE IN POSTMANSBURG, SITUATED IN THE MAGISTERIAL DISTRICT OF KURUMAN.

APPLICANT: TRANSNET (SOC) LTD.

Attached herewith, please find a copy of an EMP received from the above-mentioned applicant, for your comments.

It would be appreciated if you could forward any comments or requirements your Department may have to this office and to the applicant before **17 October 2013** as required by the Act.

Consultation in this regard has also been initiated with other relevant State Departments. In an attempt to expedite the consultation process please contact **Mr. Humbulani Mashau** of this office to make arrangements for a site inspection or for any other enquiries with regard to this application.

Your co-operation will be appreciated.

.....
ACTING REGIONAL MANAGER: MINERAL REGULATION
NORTHERN CAPE REGION

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5025BP

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: Transnet (SOC) Ltd

REFERENCE NUMBER:

ENVIRONMENTAL MANAGEMENT PLAN

SUBMITTED
IN TERMS OF SECTION 39 AND OF REGULATION 52 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002,
(ACT NO. 28 OF 2002) (the Act)

STANDARD DIRECTIVE

Applicants for prospecting rights or mining permits, are herewith, in terms of the provisions of Section 29 (a) and in terms of section 39 (5) of the Mineral and Petroleum Resources Development Act, directed to submit an Environmental Management Plan strictly in accordance with the subject headings herein, and to compile the content according to all the sub items to the said subject headings referred to in the guideline published on the Departments website, within 60 days of notification by the Regional Manager of the acceptance of such application. This document comprises the standard format provided by the Department in terms of Regulation 52 (2), and the standard environmental management plan which was in use prior to the year 2011, will no longer be accepted.

IDENTIFICATION OF THE APPLICATION IN RESPECT OF WHICH THE ENVIRONMENTAL MANAGEMENT PLAN IS SUBMITTED.

ITEM	COMPANY CONTACT DETAILS
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ITEM	CONSULTANT CONTACT DETAILS (If applicable)
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Transnet (SOC) Ltd (hereafter referred to as 'Transnet') is a Parastatal organisation and is deemed an "Organ of State" as stipulated in Government Notice R762 (25 June 2004) (See Appendix A). Based on this and discussions with the Department of Mineral Resources (DMR) in Kimberley, Transnet is therefore exempted from certain provisions of the Act (Sections 16, 20, 22 and 27) and will have to follow an abbreviated authorisation process for new/dormant borrow pits. This abbreviated process involves the completion of an Environmental Management Plan (EMP) (this document) for the Postmasburg 2 borrow pit. The Postmasburg 2 borrow pit is a new borrow pit proposed to be located adjacent to the railway line which runs through the town of Postmasburg. This town is under the jurisdiction of the Tsantsabane local municipality (See Appendix 2 for the landowner consent forms). Transnet are currently undertaking an amendment process, a basic assessment process and an environmental process in terms of the National Environmental Management Act (NEMA) (Act 107 of 1998), as amended for the Proposed Upgrade of the Transnet Railway Line between Hotazel and the Port of Ngqura. The process of relevance to the Postmasburg 2 borrow pit is the Basic Assessment Process. The draft report has been appended to this EMP (Appendix B).

1 REGULATION 52 (2): Description of the environment likely to be affected by the proposed prospecting or mining operation

1.1 The environment on site relative to the environment in the surrounding area

The Postmasburg 2 borrow pit is proposed to be located adjacent to the railway line which runs through the town of Postmasburg. This section of the line forms part of the railway line which runs from Hotazel in the Northern Cape to the Port of Ngqura in the Eastern Cape (Figure 1). Since the affected land portion is situated in the town of Postmasburg, the Tsantsabane local municipality have jurisdiction over this area. A summary of the description of the environment in terms of the biophysical, social and cultural heritage aspects has been given below for this section of the railway line. More detail can be obtained from the basic assessment report (Appendix B) as well as the specialists reports (Appendix D) and the Postmasburg 2 borrow pit site visit report (Appendix 1).

The Biophysical Environment

Geology, Topography and Palaeontology (Refer to Appendix 1 and Appendix D4 for additional detail)

The borrow pit site is located adjacent to the railway servitude. The area in and around the site has an elevation of 1215 mamsl, with a gently rolling to flat landscape terrain dipping to the south-west. The site is underlain by Early Precambrian (2.6-2.5 billion year old) marine carbonate rocks of the Campbell Rand Subgroup (Ghaap Group, Transvaal Supergroup) that are known for their prolific fossil record of stromatolites, i.e. laminated microbial reefs constructed by cyanobacteria, in some cases associated with well-preserved microfossils.

The site is bounded to the north by the railway line and to the south by a dirt/gravel access road. Access to the site is from the south east by the access road, or to the north via a railway servitude road.

Surface and Groundwater (Refer to Appendix 1 and Appendix D7 for additional detail)

This section of the site is located within the Southern Kalahari Ecoregion and Quaternary Catchment D73A, which is regarded as an entirely endorheic (inward draining) catchment that does not truly form part of the Lower Vaal or Lower Orange Water Management Areas

(Middleton & Bailey 2008). The Postmasburg section drains towards the Groenwaterspruit.

Three drainage line crossing have been identified and demarcated within the Postmasburg section, while a forth drainage line originates approximately 30 m downstream of the section in its western half (map labels 25-28), (Figure 2). The eastern-most drainage line is more impacted compared to the rest due to several dirt road and railway line crossings, dumping and alien plant species (*Prosopis cf. glandulosa* and *Melia azedarach*) within the system. Impacts in the other drainage lines include railway line and road crossings, as well as ballast material that was frequently recorded in drainage lines. *Acacia mellifera*, was a dominant woody species in the less impacted systems and generally occurred in higher densities within the drainage lines compared to the surrounding areas.

The eastern-most drainage line (map label 25) has a Present Ecological State (PES) that is estimated at being E (Seriously Modified), while the remaining two drainage line crossings (map labels 26 & 27) have PES estimated at being C/D (Moderately to Largely Transformed). The PES of the western-most drainage line that is not intersected by the loop (map label 28) is estimated to be C (Moderately Modified) due to fewer impacts. According to Middleton & Bailey (2008) the PES of Quaternary Catchment D73A and the Groenwaterspruit are regarded as B (Largely Natural).

Flora (Refer to Appendix D2 for additional detail)

The Postmasburg site lies to the west of the Postmasburg station and the town itself. The loop lies entirely within the Kuruman Thornveld vegetation type, which occupies 5794 km^2 of the Northern Cape and is classified as Least Threatened. The vegetation type has not been heavily impacted by transformation and 98.10% of the original extent is still intact. The vegetation around the station was very disturbed and several alien tree species, such as *Syringa Melia azedarach*, *Pepper Tree Schinus molle*, *Mesquite Prosopis glandulosa* and *Eucalyptus camalduensis*, were present as well as several alien forbs, such as *Conyza bonariensi*, *Bidens pilosa* and *Argemone ochroleuca subsp. ochroleuca*. Further away from the station area in less disturbed areas the vegetation consisted of dense scrub dominated by species such as *Acacia mellifera*, *Tarchonanthus camphoratus*, *Zizyphus mucronata*, *Searsia tridactyla* and *Searsia burchelii*. The understorey was sparse as a result of heavy grazing as well as the dense scrub layer. Shrubs and grasses present include *Cenchrus cilliaris*, *Heteropogon contortus*, *Aristida adscenionis*, *Selago densiflorus*,

Eriocephalus microcephalus, *Melolobium candicans*, *Rhigozum trichotomum*, *Exomis microphylla*, and *Lycium cinereum*. The vegetation can be considered to be a in reasonably poor condition as a result of bush encroachment which has significantly reduced the productive capacity of the vegetation. No species of conservation concern were observed within the development footprint.

Large parts of the vegetation along the railway line have been disturbed in the past.

Fauna

No fauna species were identified within the borrow pit area during the field visit (See report in Appendix 1). It can be expected that small mammals including various rodent species, herpetofaunal species and macro invertebrates utilise the borrow pit site.

Noise (Refer to Appendix D5 for additional detail)

The Postmasburg 2 borrow pit is located immediately north of the town of Postmasburg and approximately 600 m north from the R385. The area around the borrow pit is considered urban residential and a school is located in close proximity to the borrow pit. The noise environment is that of a typical urban district with main roads and is dominated by vehicular traffic and human activities. The closest receptors to noise are the communities of Newtown and Boitshoko. No schools or settlements were identified at the proposed borrow pit area.

Ambient Air Quality (Refer to Appendix D1 for additional detail)

The manganese freight line runs from the mines at Hotazel to the Port of Ngqura. It passes mostly through sparsely populated rural areas consisting of agricultural lands and natural vegetation. It also passes through a number of urban centres of varying sizes. Industrial activity in all of these is relatively limited consisting of small manufacturing concerns with limited emissions of pollutants to the atmosphere.

In un-electrified homes in residential areas along the route, wood and other fuels are burnt for cooking and space heating. In winter typically more fuel is burnt than in summer because of the colder temperatures. Pollutants associated with wood burning include CO, NO_X and particulates. Vegetation burning for agricultural purposes and other forms of land management are also sources of gaseous and particulate pollutants.

In the urbanised centres along the freight route, ambient air quality is expected to be generally good and possibly only impacted on by emissions from sources such as small industrial boilers and motor vehicles. In residential areas that the freight line runs close to, where wood and other biomass fuels are used for heating and cooking, air quality may to be poor. In the evenings and early mornings when fires are made, especially

in winter air quality in these areas will be most impacted. Elsewhere along the route ambient air quality is expected to be very good.

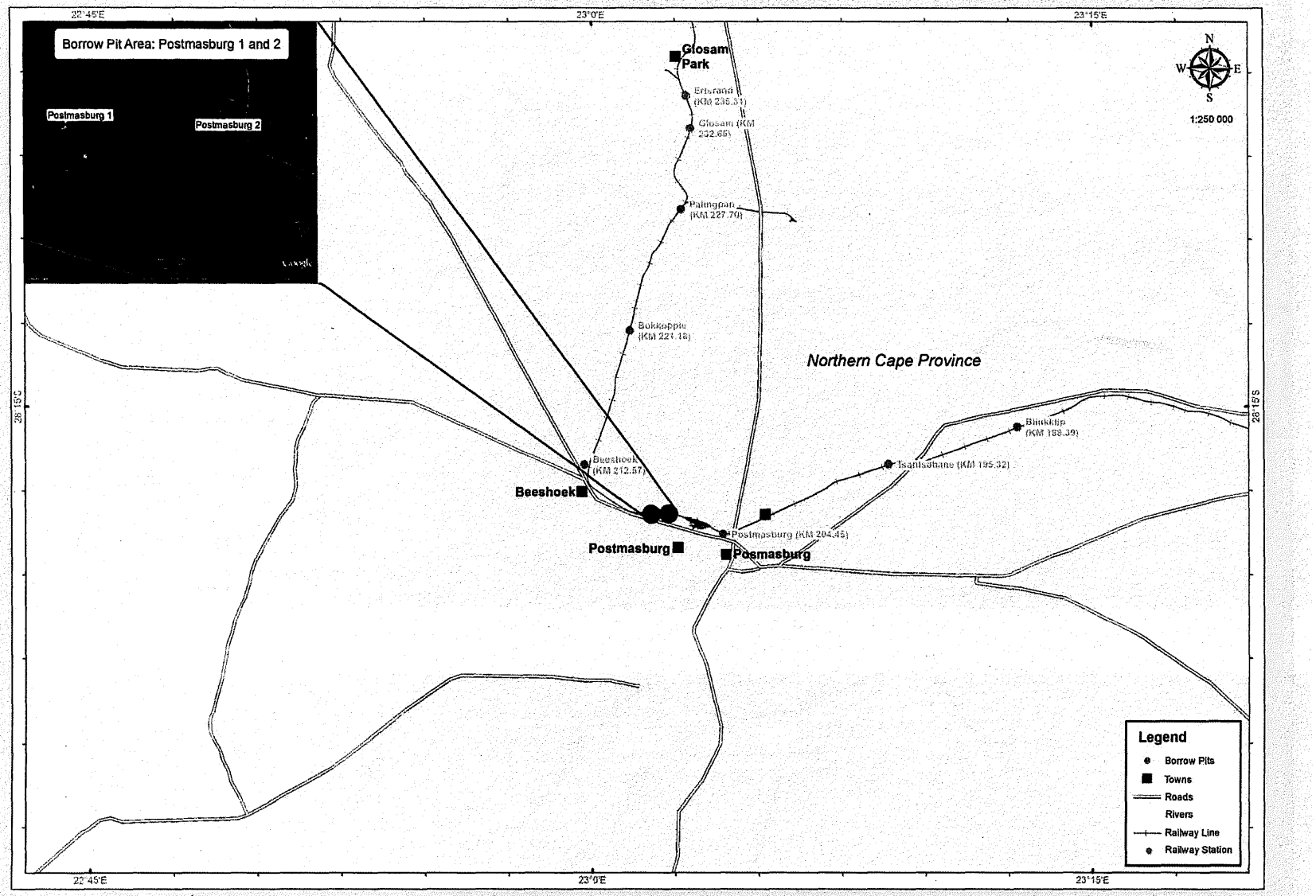


Figure 1: Locality map of the Postmasburg 2 borrow pit

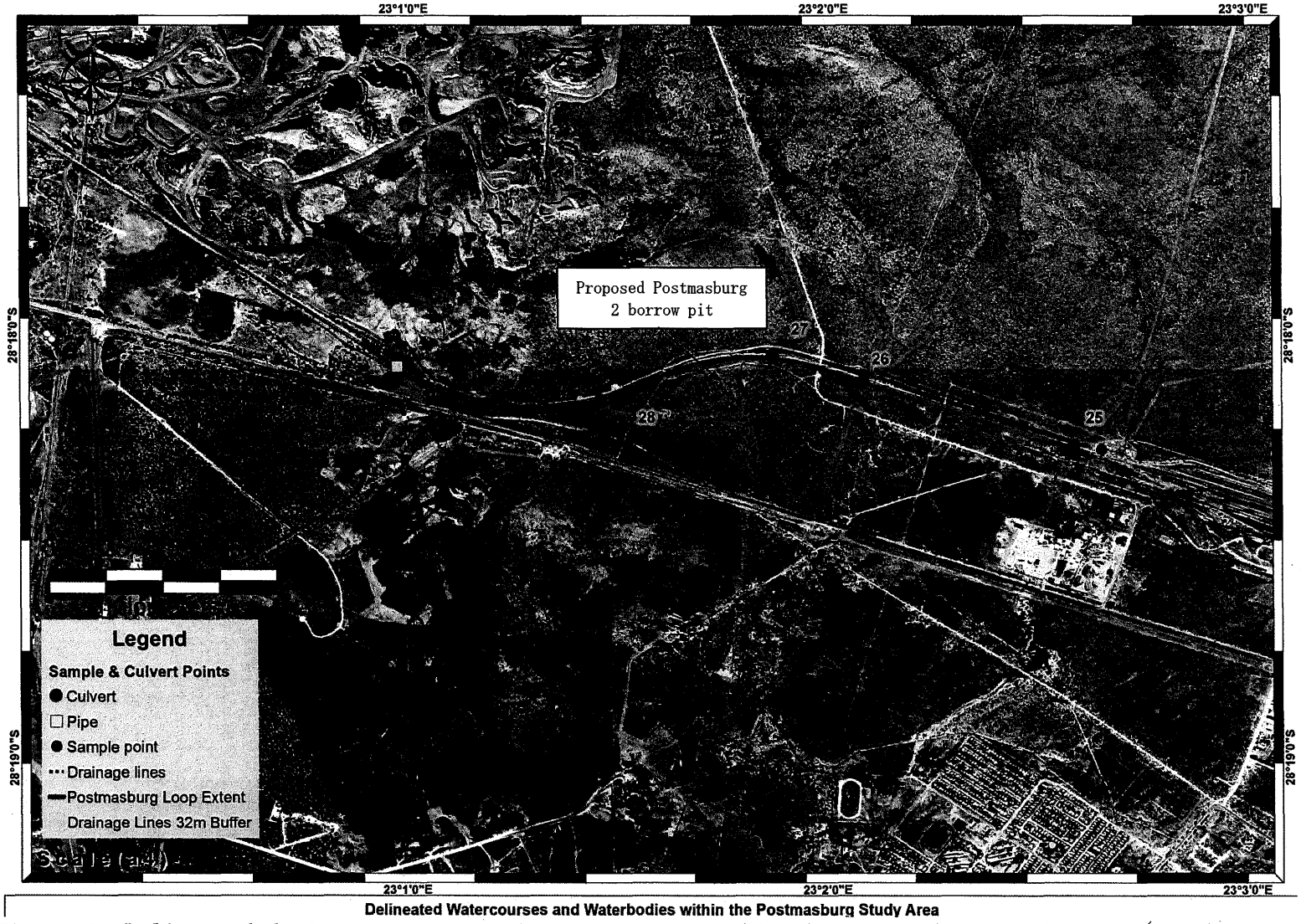


Figure 2: Delineated drainage systems and watercourses within the Postmasburg study area (Source: Watercourse assessment Report, Appendix D7)

The Socio-Economic Environment (Refer to Appendix D6 for additional detail)

The proposed borrow pit area is located in the Tsantsabane Local Municipality in the Northern Cape. According to a community survey conducted in 2007 for the local municipality, the majority of the population are classified as Coloured (49 percent), 37 percent are Black and 14 percent are White.

The closest town to the Project site is Postmasburg, a medium size mining town. Diamond and manganese ore mining are the main economic activities undertaken in the town. Like many mining towns in the Northern Cape, the tourism industry is booming due to a lack of accommodation for miners, as such the mining companies are housing some of its workers in the local establishments.

Within the Postmasburg 2 borrow pit area there is one project affected property (Remainder of ERF 1 Postmasburg farm). This portion is owned by the Tsantsabane Local Municipality (See Appendix 2 for the Landowner consent forms).

The Cultural/Heritage Environment (Refer to Appendix D3 for additional detail)

The Postmasburg borrow pit will be located on privately owned land 12 kilometres north of Tsantsabane Railway Station. The Blinkklipkop Iron Age site is located in the hillside of a distinctive ironstone outcrop. The site is 5km north east of Postmasburg. The cultural landscape at the borrow pit is similar to the one at Blinkklipkop and may contain evidence of Iron Age settlements. Tsantsabane means "place of sibilo or shining stone" that refers to the specularite stone that is evident in the area. Specularite is a crystalline form of haematite that has a steel grey/iron black colour and it was indicated that this material was used for cosmetic purposes by the local prehistoric people that lived in the area (Thackeray A I et al. 1983). Stone circles and scattered low density stone tool material was observed at the Postmasburg 2 borrow pit site. A heritage management plan is available (Appendix E2) that provides guidance in terms of the steps that should be taken if heritage objects are uncovered during the borrow pit's operation. Figure 2 below indicates the various items of archaeological interest located within the borrow pit area.

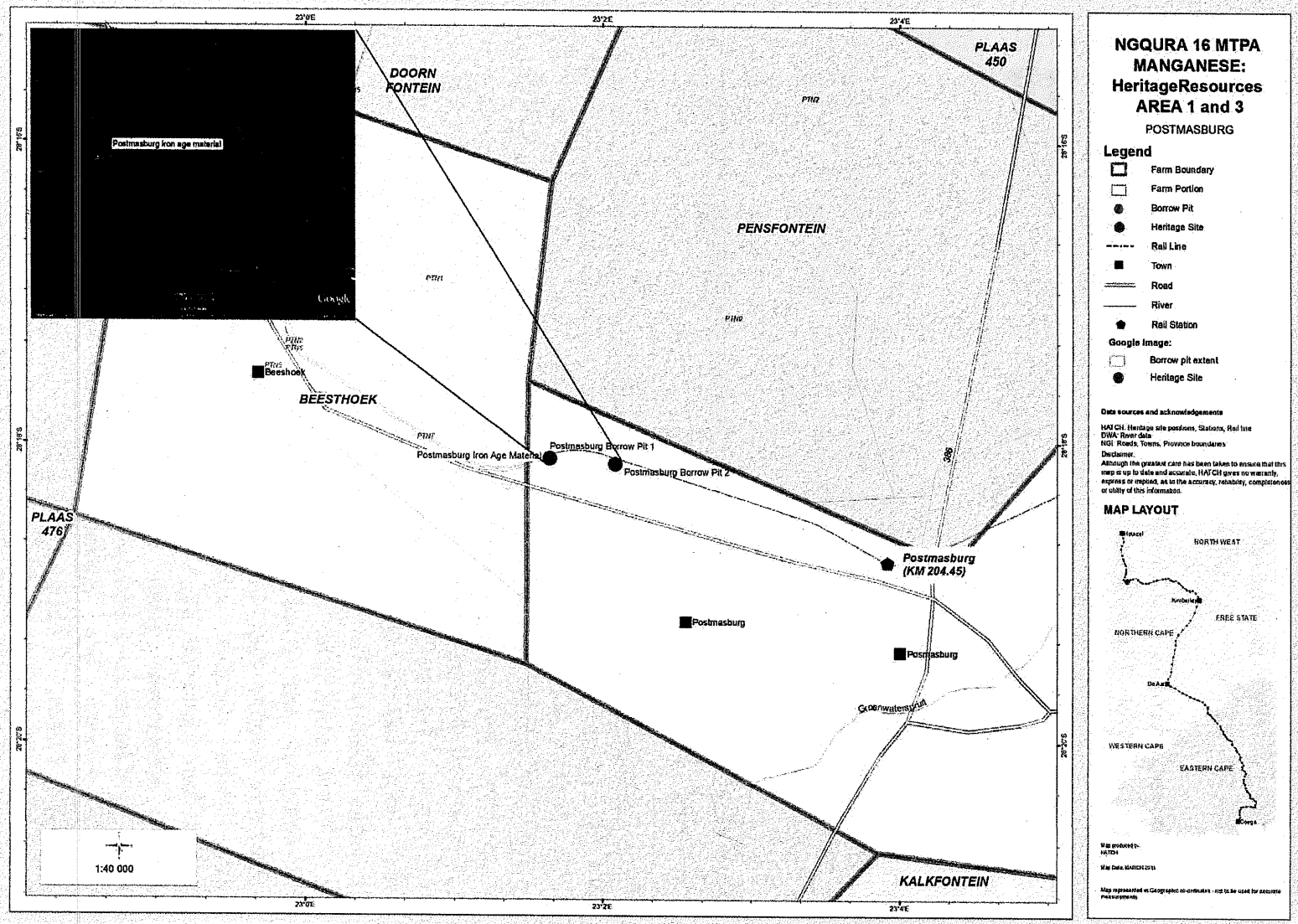


Figure 3: Heritage sites located in the vicinity of the Postmasburg 2 borrow pit area

1.2 The specific environmental features on the site applied for which may require protection, remediation, management or avoidance

The area around the proposed Postmasburg 2 borrow pit is severely disturbed. There is evidence of disturbance to the vegetation growth by anthropogenic activities (historical waste dumps likely associated with railway and road construction).

A dry drainage line with indistinct channel features does occur in close proximity to the Postmasburg 2 borrow pit but this is not associated with wetland conditions. Even though this drainage feature has been impacted by dumping, alien plant species, as well as railway line and road crossings, it should be avoided in terms of the borrow pit development.

There are no protected/conservation areas within a 5 km radius of the site. The vegetation in the borrow pit area is dominated by the Kuruman Thornveld which is classified as Least Threatened (Figure 4).

1.3 Map showing the spatial locality of all environmental, cultural/heritage and current land use features identified on site

The sensitivity map is shown in Figure 4 and the Heritage map is shown in Figure 3.

1.4 Confirmation that the description of the environment has been compiled with the participation of the community, the landowner and interested and affected parties

A public participation process was carried out as part of the Basic Assessment (BA) Process conducted in 2012/2013 (Appendix B). The borrow pits in general have been discussed in this assessment and the public were made aware during the process that the project would require several borrow pits along the length of the railway line. The Postmasburg 2 borrow pit is located on the Remainder of ERF 1 Postmasburg which is owned by the Tsantsabane Local Municipality. Consultation with the municipality was undertaken for the proposed Postmasburg borrow pit. In addition to this, landowners and informal farms of the farm portions adjacent to the area on which the borrow pit is located were consulted with as part of the BA public participation process (See Figure 5 for the farm portions adjacent to the borrow pit site). The general landscape was included in the BA process and therefore communities and affected parties along the length of the railway line had the

opportunity to provide input into the classification of the surrounding environment.

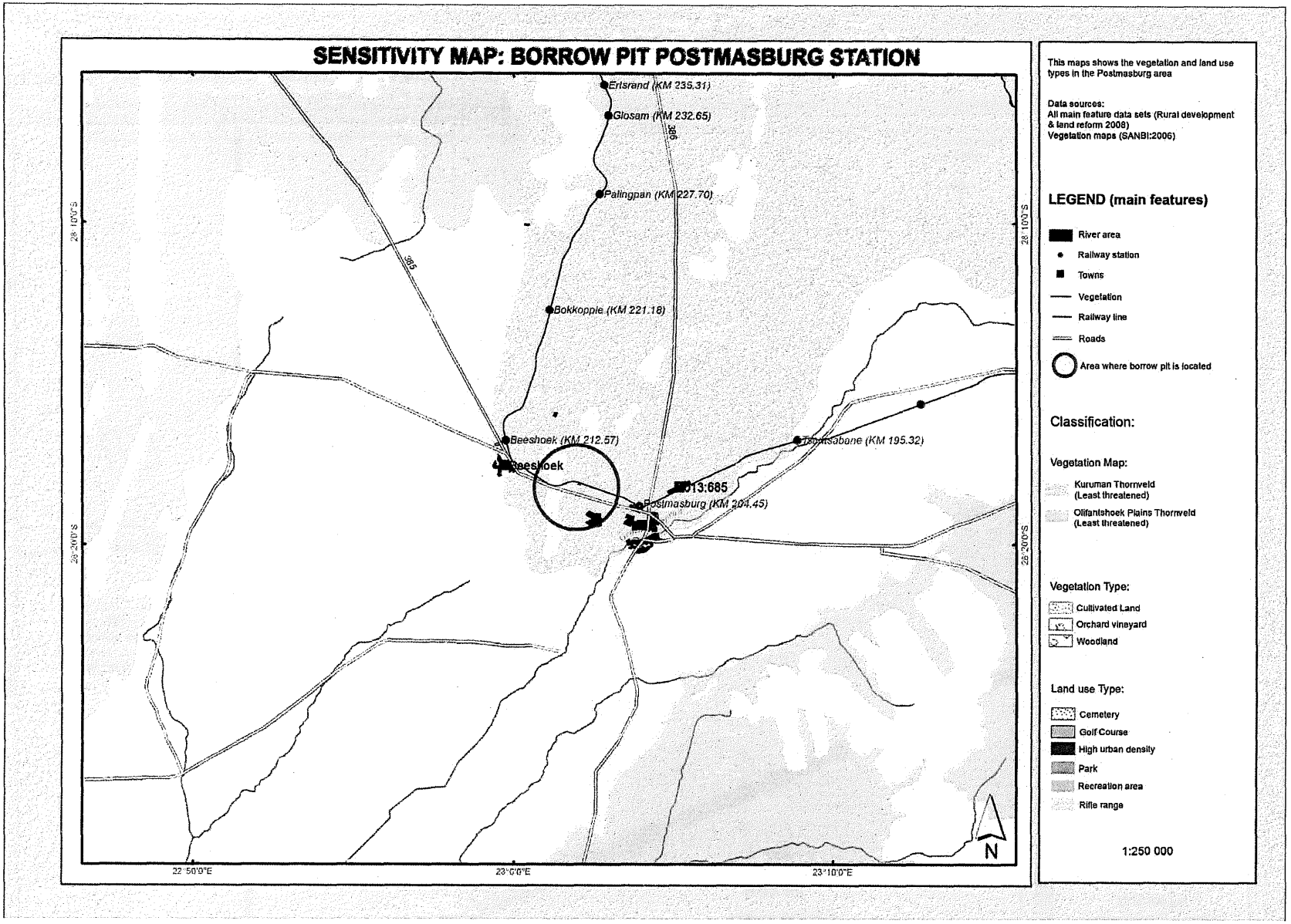


Figure 4: Sensitivity map of the area in and around the Postmasburg 2 borrow pit

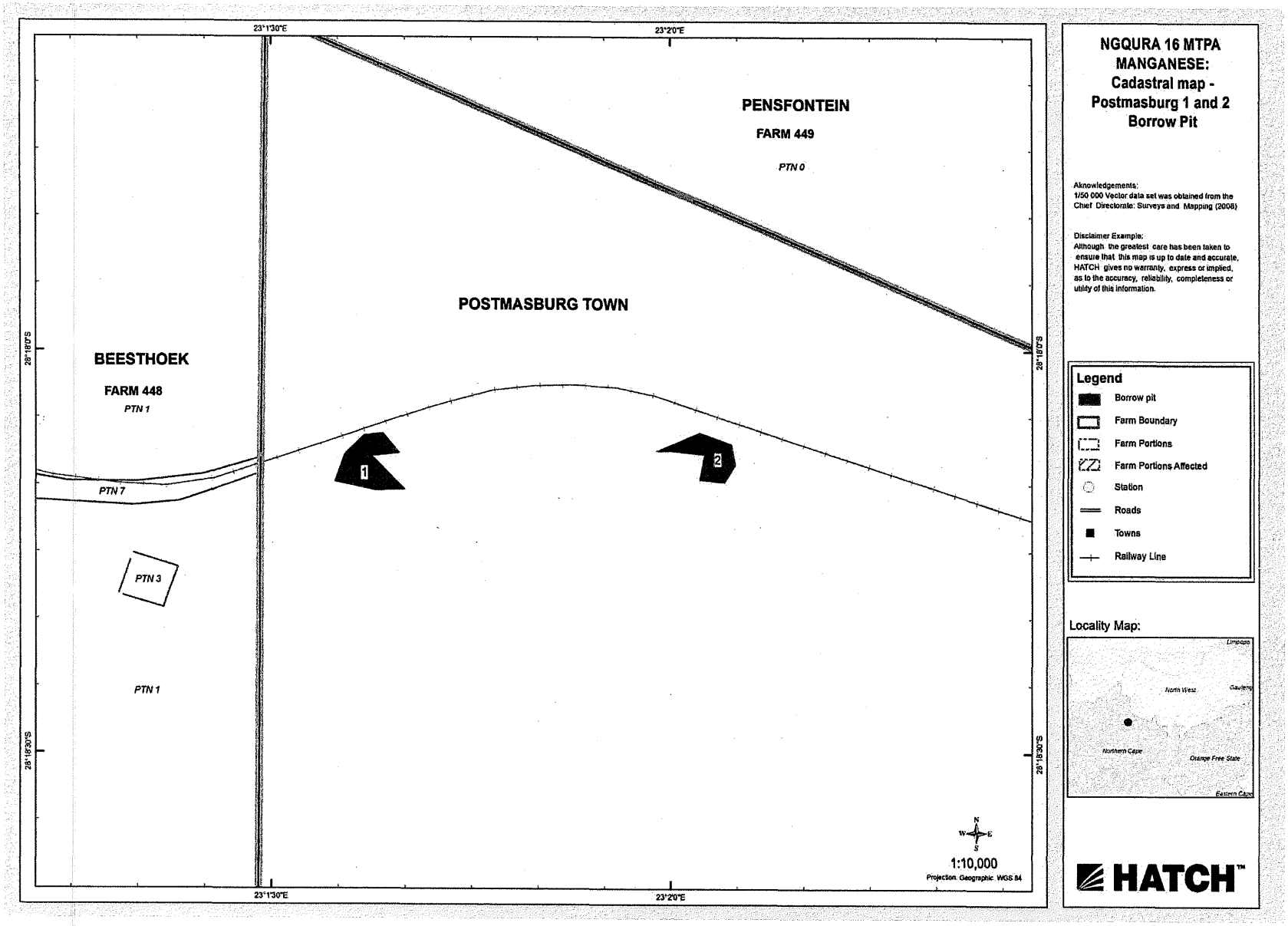


Figure 5: Farm portions adjacent to the Postmasburg borrow pit

2 REGULATION 52 (2) (b): Assessment of the potential impacts of the proposed prospecting or mining operation on the environment, socio-economic conditions and cultural heritage.

2.1 Description of the proposed prospecting or mining operation.

2.1.1 The main prospecting activities (e.g. access roads, topsoil storage sites and any other basic prospecting design features)

The material from the borrow pit will be used for earthworks material for construction of railway formations, construction of level crossing ramps and use in the formation subsidence repair. The main equipment that will be used to achieve this will be a 22 ton excavator, backactor and 10m^3 tipper. The main activities involved in the excavation of the Postmasburg 2 borrow pit include:

- Staking out of the borrow pit area prior to vegetation clearing following which, the vegetation would be cleared from the site.
- Topsoil, where possible, will be stripped to a depth of 200 mm and stockpiled separately from the other soil layers.
- Excavation of materials by ripping and loading with the excavator directly onto the haul vehicle. The material will be transported along the existing gravel road which runs adjacent to the railway line.
- Any material which is not suitable for borrow material will be stockpiled separately and used for in the rehabilitation of the site.

2.1.2 Plan of the main activities with dimensions

The borrow pit dimensions are as follows:

- Footprint (in hectares): Estimated at 2.5 ha
- Maximum depth (in meters): 5 m
- Anticipated volume (in cubic meters): 67 000 m^3

The borrow pit layout plan is shown in Figure 6.

2.1.3 Description of construction, operational, and decommissioning phases

The main phases associated with borrow pit development include construction, operation, rehabilitation and

closure. A brief description of each one of these phases is given below:

Construction:

The borrow pit area will be staked out prior to vegetation clearing after which, the vegetation will be cleared from the site. Where topsoil is present, this will be stripped to a depth of 200 mm and stockpiled separately in piles.

Operation:

The borrow pit material will be excavated by means of ripping and loading with an excavator and then stockpiled before being loaded onto haul vehicles. The material will be transported along the existing gravel access road which runs adjacent to the railway line within the Transnet rail reserve.

Rehabilitation and Closure:

The objective of this phase is to restore the disturbed area as closely as possible to its original state through rehabilitation. The material which cannot be used for the repair of the rail track formation will be used in the reshaping of the site during rehabilitation. Drainage outputs would also be provided to ensure that there are no water pools within the borrow pit excavations. The stockpiled topsoil will be spread evenly over the disturbed area to a depth of 100 mm where possible. The borrow pit sites would then be re-vegetated with suitable indigenous grass species.

2.1.4Listed activities (in terms of the NEMA EIA regulations)

Various listed activities (some of which are included in the table below) have been applied for as part of the Basic Assessment application process (see Appendix B) for the project as a whole.

It is not anticipated that development of this borrow pit will trigger any activities in terms of NEMA however, in order to satisfy this section of the EMP, a list of potential listed activities which could be triggered for other borrow pit scenarios have been highlighted in the table below together with an explanation of why they are not applicable in this case.

Potential Triggered Activity No. and Description	Relevance
GN R544	
11. The construction of infrastructure or structures covering 50 square meters or more within 32 meters of a watercourse.	**Not relevant.** No infrastructure will be constructed as part of the borrow pit excavation.
13. The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres.	**Not relevant.** This activity is not relevant to the borrow pit. The contractor will provide temporary tanks on stands with a capacity of 2 cubic meters each for storage of diesel at the site in a bunded area. The combined capacity of these temporary tanks will not exceed 80 cubic meters.
19. Any activity which requires a prospecting right or renewal thereof in terms of section 16 and 18 respectively of the Mineral and Petroleum Resources Development Act 2002 (Act No. 28 of 2002).	**Not relevant.** Transnet is an Organ of State and therefore, in terms of GN R762, is exempted from these activities for borrow pits.
20. Any activity requiring a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) or renewal thereof.	**Not relevant.** Transnet is an Organ of State and therefore, in terms of GN R762, is exempted from these activities.
23ii. The transformation of undeveloped land to industrial use, outside an urban area bigger than 1 hectare.	**Not relevant.** The proposed borrow pit will developed within the urban area of Postmasburg.
24: The transformation of land bigger than 1000 square meters in size to industrial land where such land was zoned open space or conservation.	**Not relevant.** The proposed borrow pit will developed within the urban area of Postmasburg which is not zoned for open space or

	conservation.
53: The expansion of railway lines, stations or shunting yards where there will be an increased development footprint excluding: (i) Railway lines, shunting yards and railway stations in industrial complexes or zones; (ii) Underground railway lines in mines; (iii) Additional railway lines within the reserve of an existing railway line.	**Not relevant.** The activity is not relevant to the borrow pit development.
GN R546	
4. Construction of a road wider than 4 m with a reserve less than 13.5 m. (a) Northern Cape; (ii) All areas outside urban areas.	**Not relevant.** An access road already exists. This will be used for transport of the borrow material from the pit to the section of the railway line where it is needed. No lengthening or widening of this road is anticipated to be required.
12. The clearance of an area of 300 square meters or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. a) Within any critically endangered or endangered ecosystem listed in terms of section 52 of NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; b) Within critical biodiversity areas identified in bioregional plans.	**Not relevant.** The borrow pit will not be located within any critically endangered or CBA areas.
13. The clearance of an area of 1 hectare or more of vegetation where	**Not relevant.** The borrow pit is adjacent to the existing

75% or more of the vegetation cover constitutes indigenous vegetation. (c) Northern Cape; (ii) All areas outside urban areas.	railway line area has been disturbed. Substantial clearing of indigenous vegetation would therefore not be required. In addition to this, there are no protected areas within a 5 km radius of the site.

2.2 Identification of potential impacts

(Refer to the guideline)

As mentioned in section 2.1.4 above, the excavation of the Postmasburg borrow pit is not likely to trigger any activities in terms of NEMA. Sections 2.2.1 to 2.2.4 below have therefore been completed to only consider the impacts relating to the main activities (identified in section 2.1.1 above) revolving around the borrow pit during the construction, operation, rehabilitation and closure phases.

The impacts associated with the borrow pit development were assessed through the Basic Assessment (BA), conducted in terms of the National Environmental Management Act 107 of 1998 as amended (See Appendix B).

2.2.1 Potential impacts per activity and listed activities

The impacts identified to be associated with the excavation of the borrow pits are dust, noise, loss of vegetation, archaeological and faunal impacts. The table below highlights the potential impacts which may occur per activity for each of the phases of the borrow pit's development:

Phase	Borrow Pit Activity	Impact	Impact Description
Construction	Clearing of vegetation	Impact on vegetation and protected plant species	Some loss of vegetation is an inevitable consequence of the borrow pit development.

		Alien plant invasion risk	The disturbance created during construction will leave the disturbed areas vulnerable to alien plant invasion.
		Loss of faunal diversity and richness	Clearing of vegetation will result in some habitat loss for species likely to occur in the borrow pit area. In addition to this, sensitive and shy fauna would move away from the area during construction activities. Some slow moving species would not be able to avoid the construction activities and might be killed.
		Dust nuisance	The generation of dust through site clearance and earthworks could pose a nuisance to social receptors in proximity to the borrow pit site.
		Soil erosion	Increased erosion risk would result from soil disturbance and the loss of plant cover within the cleared and disturbed areas.
		Noise disturbance	Noise disturbance could result from the use of machinery during vegetation clearing.
		Contamination of soil and	Contamination of soil and groundwater due to

		groundwater resources	potential major fuel spillage from construction machinery.
		Paleontological fossil disturbance	Excavation of the borrow pit could result in the disturbance of fossil vertebrate remains, invertebrates, trace fossils, plant fossils and microfossils.
	Stockpiling of topsoil	Soil erosion	Soil erosion (predominately by wind erosion) may occur if the topsoil stockpiles are not shaped and re-vegetated appropriately.
		Dust nuisance	The generation of dust during stockpiling could pose a nuisance to social receptors in proximity to the borrow pit site.
		Noise disturbance	Noise disturbance could result from the use of machinery during stockpiling.
		Contamination of soil and groundwater resources	Contamination of soil and groundwater due to potential fuel spillage from machinery used to stockpile the topsoil.
Operation	Excavation of borrow material	Dust nuisance	The generation of dust through the excavation of the borrow material and transport on the access road could pose a nuisance to social receptors in proximity to the borrow pit site.
		Noise	Noise disturbance

		disturbance	could result from the use of machinery during excavation.
		Contamination of soil and groundwater resources	Contamination of soil and groundwater due to potential fuel spillage from excavation machinery and haul vehicles.
Rehabilitation and closure	Rehabilitation	Alien plant invasion risk	Patches of disturbed soil can be vulnerable to colonisation by weeds which can prohibit natural succession of the local indigenous vegetation during rehabilitation.
		Dust nuisance	The generation of dust through spreading of the topsoil during rehabilitation.
		Contamination of soil and groundwater resources	Contamination of soil and groundwater due to potential fuel spillage from machinery used for rehabilitation.

2.2.2Potential cumulative impacts

The following potential cumulative impacts have been identified:

Cumulative Impact	Impact Description
Habitat loss and faunal disturbance	Due to the number of borrow pits envisaged along the length of the railway line, there will be some cumulative impact in terms of habitat loss and faunal disturbance. However, since the extent of the development is limited, this would not be significant.
Cumulative transformation of the area	Due to the number of borrow pits envisaged along the length of the

	railway line, there will be some cumulative impact in terms of the transformation of the area. However, since the extent of the development is limited, this would not be significant.
Incremental noise from a number of separate developments	Both the activities taking place on the railway line between Hotazel and Ngqura (upgrade of the line) and the excavation of the borrow pits will generate noise which together would result in an increased noise impact.
Combined effect of the individual impacts on surrounding receptors	The noise, dust and visual impacts from the borrow pit activities will collectively have a greater impact on surrounding receptors than they would in isolation.

2.2.3Potential impact on heritage resources

The heritage impact assessment undertaken as part of the BA process identified Iron Age material of low archaeological significance at the borrow pit site. The impacts on these are likely to be confined to the construction phase only. A Phase 1 Heritage Impact Assessment (HIA) has been included in Appendix D3.

Phase	Activity	Impact	Impact Description
Construction	Clearing of vegetation	Loss of or disturbance to archaeological or cultural sites.	Construction activities may result in the disturbance, damage or destruction of sites of low archaeological significance (as defined in the National Heritage Resource Act 25 of 1999).

2.2.4Potential impacts on communities, individuals or competing land uses in close proximity

The Postmasburg borrow pit is located inside the urban edge of Postmasburg in close proximity to the railway line. The land is owned by the Tsantsabane Local Municipality. No settlements or schools were noted in close vicinity of the borrow pit; however trading stores

are located within 2 km and one household has been identified within 1 km of the borrow pit. The site is bounded to the north by the railway line and to the south by an informal gravel road. Due to the distance between the borrow pit and the closest receptor (1km away from the borrow pit), it is not anticipated that the proposed borrow pit will have any impact on communities, individuals or competing land uses.

2.2.5Confirmation that the list of potential impacts has been compiled with the participation of the landowner and interested and affected parties

A public participation process was carried out as part of the BA process conducted in 2012 (Appendix B). Borrow pits in general have been discussed in this assessment as well as in the public information documents (BIDs, presentations etc) and the public were made aware during the BA process that the project would require several borrow pits along the length of the railway line. Since the proposed Postmasburg 2 borrow pit area is located on municipal land, specific consultation with the Tsantsabane Local Municipality was conducted. In addition to this, landowners of the farm portions adjacent to the area on which the borrow pit is located, were contacted and informed about the proposed activities as part of the BA consultation process (See Figure 5 for the farm portions adjacent to the borrow pit site). The general landscape was included in the BA process and therefore communities and affected parties along the length of the railway line had the opportunity to provide input into the classification of the surrounding environment. The issues and concerns of the interested and affected parties have been captured in the Comments and Responses report which has been appended to the BA report in Appendix B.

Potential issues and impacts highlighted by the landowner have been appended in Appendix 3.

2.2.6Confirmation of specialist report appended
(Refer to guideline)

The following relevant specialist reports, which are in line with the baseline information and proposed activities, have been included as appendices to this EMP:

- Ecological Specialist Study: Appendix D2
- Paleontological Specialist Study: Appendix D4
- Phase I Heritage Impact Assessment: Appendix D3
- Noise Specialist Study: Appendix D5
- Social Specialist Study: Appendix D6
- Air Quality Baseline: Appendix D1
- Watercourse Assessment: Appendix D7

3 REGULATION 52 (2) (c): Summary of the assessment of the significance of the potential impacts and the proposed mitigation measures to minimise adverse impacts

3.1 Assessment of the significance of the potential impacts

3.1.1 Criteria of assigning significance to potential impacts

The impact assessment methodology for assigning significance to potential impacts was included in the Basic Assessment Report (Appendix B) and is shown below:

METHODOLOGY USED FOR ASSESSING IMPACTS

The assessment methodology employed for this project was developed by Environmental Resources Management (ERM) and is in line with Department of Environmental Affairs (DEA) requirements.

The impact assessment for the proposed project commenced with a site investigation. The site investigation was carried out by ERM in order to better understand the site setting and the affected biophysical and social context and identify any sensitive receptors. During the site investigation key personal that would be involved in the proposed installation were interviewed.

The adequate assessment and evaluation of the potential impacts and benefits that will be associated with the proposed project necessitates the development of a scientific methodology that will reduce the subjectivity involved in making such evaluations. A clearly defined methodology (described below) was used in order to accurately determine the significance of the predicted impacts on, or benefit to, the surrounding natural and/or social environment. The proposed project was considered in the context of the area.

Mitigation was incorporated into the project design in order to avoid or reduce negative impacts and enhance positive impacts. For the identified significant impacts in the construction and operational phases, the project team worked with the client in identifying suitable and practical mitigation measures. A description of these mitigation measures is included within the Environmental Management Programme (EMPr) (Appendix G).

DETERMINATION OF IMPACT SIGNIFICANCE

Significance

Impacts are described in terms of '*significance*'. Significance is a function of the **magnitude** of the impact and the **likelihood** of the impact occurring. Impact magnitude (sometimes termed *severity*) is a function of the **extent, duration and intensity** of the impact. The criteria used to determine significance are summarised in *Table 1*. Once an assessment is made of the magnitude and likelihood, the impact significance is rated through a matrix process as shown in *Table 2*. outlines the various definitions for significance of an impact.

Significance of an impact is qualified through a statement of the **degree of confidence**. Confidence in the prediction is a function of uncertainties, for

example, where information is insufficient to assess the impact. Degree of confidence is expressed as low, medium or high.

Significance Criteria

Magnitude – the degree of change brought about in the environment	
Extent	**On-site** – impacts that are limited to the Site Area only. **Local** – impacts that affect an area in a radius of 20 km around the development area. **Regional** – impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystems. **National** – impacts that affect nationally important environmental resources or affect an area that is nationally important/ or have macro-economic consequences.
Duration	**Temporary** – impacts are predicted to be of short duration and intermittent/occasional. **Short-term** – impacts that are predicted to last only for the duration of the construction period. **Long-term** – impacts that will continue for the life of the project, but ceases when the project stops operating. **Long term** – impacts that cause a permanent change in the affected receptor or resource (e.g. removal or destruction of ecological habitat) that endures substantially beyond the project lifetime.
Intensity (1)	**BIOPHYSICAL ENVIRONMENT:** *Intensity can be considered in terms of the sensitivity of the biodiversity receptor (ie habitats, species or communities).* **Negligible** – the impact on the environment is not detectable. **Low** – the impact affects the environment in such a way that natural functions and processes are not affected. **Medium** – where the affected environment is altered but natural functions and processes continue, albeit in a modified way. **High** – where natural functions or processes are altered to the extent that it will temporarily or permanently cease.
	SOCIO-ECONOMIC ENVIRONMENT: *Intensity can be considered in terms of the ability of project affected people/communities to adapt to changes brought about by the project.* **Negligible** – there is no perceptible change to people's way of life. **Low** – People/communities are able to adapt with relative ease and maintain pre-impact livelihoods. **Medium** - Able to adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support. **High** - Those affected will not be able to adapt to changes and continue to maintain-pre impact livelihoods.
Likelihood - the likelihood that an impact will occur	
Unlikely	The impact is unlikely to occur.
Likely	The impact is likely to occur under most conditions.
Definite	The impact will occur.

(1) The frequency of the activity causing the impact also has a bearing on the intensity of the impact, ie the more frequent the activity, the higher the intensity.

Significance Rating Matrix

SIGNIFICANCE				
		LIKELIHOOD		
		Unlikely	Likely	Definite
MAGNITUDE	Negligible	Negligible	Negligible	Minor
	Low	Negligible	Minor	Minor
	Medium	Minor	Moderate	Moderate
	High	Moderate	Major	Major

The following are descriptions of the overall post-mitigation significance ratings:

Negligible: Insignificant or no residual impacts.
Minor: An impact of minor significance is one where an effect will be experienced, but the impact magnitude is sufficiently small and well within accepted standards, and/or the receptor is of low sensitivity/value.
Moderate: An impact of moderate significance is one within accepted limits and standards. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). This does not necessarily mean that "moderate" impacts have to be reduced to "minor" impacts, but that medium impacts are being managed effectively and efficiently.
Major: An impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors.

The impact assessment methodology for assigning significance to potential heritage impacts was included in the Heritage Impact Assessment Report (Appendix D3) and is shown below:

The determination of archaeological and historical significance ratings depend on the type, density and context of the cultural landscape. For example if one hand axe is discovered at a site with no archaeological context, it is of low significance. If a hand axe is discovered at an area listed as a site of national, provincial or local significance, the finding is of high to medium importance. Research has been undertaken to determine the best option to provide an explainable significance table. Natal Museum has provided significant data in terms of a proposed methodology to rate heritage resources of significance (Whitelaw G, 1997). In addition to this a table was developed to assess

archaeological and historical sites of significance at the areas where borrow pits will be excavated.

Class	Characteristic	Group 1	Group 2	Group 3
1	Context	Historical structures out of context and poorly preserved. Scattered historical objects in vicinity of the ruins and surrounding landscape. No oral history available. Scattered stone tools noted on the surface.	Limited context. Historical structures in acceptable condition. Medium concentration of historical objects in vicinity of the ruins and surrounding landscape. Limited oral history available. Medium density stone tools have been identified on the surface.	Well defined context. Historical structures well preserved. High concentration of historical objects in vicinity of the ruins and surrounding area. Significant oral history available. High density stone tools have been identified on the surface.
2	Rarity of historical or archaeological Items	Absent	Present	Highly visible
3	Need for future investigation	Absent	Present	Highly visible
4	Potential for future public display	Low	Medium	High
5	Visual value	Low	Medium	High
6	Need for a heritage management plan	Low	Medium	High
7	Need for monitoring	Low	Medium	High

3.1.2Potential impact of each main activity in each phase, and corresponding significance assessment

The potential impacts of each main activity associated with the various phases of the borrow pit' s development have been assessed in accordance with the methodology above. The results of the significance assessment have been included in the impact table below:

Phase	Activity	Impact	Significance Rating	Explanation of Significance Rating
Construction	Clearing of vegetation	**Impact on vegetation and protected plant species:** Some loss of vegetation is an inevitable consequence of the borrow pit development.	Minor	The area to be impacted has already been disturbed. Vegetation communities situated on the borrow pit land, if any, are minimal and are unlikely to be of the same composition (which is also poor) as those in undisturbed areas. Therefore clearing of this land would have a minor impact on vegetation communities.

		Alien plant invasion risk: The disturbance created during construction will leave the disturbed areas vulnerable to alien plant invasion.	Negligible	Once vegetation clearing has occurred, the borrow pit will be excavated continuously until it is closed and rehabilitated. This continual use will prevent any alien plants from invading the disturbed area
		Loss of faunal diversity and richness: Clearing of vegetation will result in some habitat loss for species likely to occur in the borrow pit area. In addition to this, sensitive and shy fauna would move away from the area during construction activities. Some slow moving species would not be able to avoid the construction activities and might be killed.	Minor	The area to be impacted has already been disturbed. Some habitat loss for the faunal species is likely to occur but given the scale of the development relative to the distribution extent of these species, it would not be of a high significance.

		Dust nuisance: The generation of dust through site clearance and earthworks could pose a nuisance to social receptors in proximity to the borrow pit site.	Minor	The area to be disturbed is not in close proximity to any sensitive receptors. Any dust generated by the activities would therefore have a minor to negligible impact on potential social receptors.
		Soil erosion: Increased erosion risk would result from soil disturbance and the loss of plant cover within the cleared and disturbed area.	Minor	The area to be cleared has already been disturbed. Additional clearing is unlikely to cause significant soil erosion as all soil and material which will be cleared will be stockpiled correctly.
		Noise disturbance: Noise disturbance could result from the use of machinery during vegetation clearing.	Minor	The area to be is not in close proximity to any sensitive receptors.
		Paleontological fossil disturbance: Excavation of the borrow pit could result in the disturbance of fossils and	Moderate	This area is underlain by Early Precambrian marine carbonate rocks of the Campbell Rand Subgroup that are known for their prolific fossil record of

		microfossils.		stromatolites and well-preserved microfossils.
		Loss of or disturbance to archaeological or cultural sites: Construction activities may result in the disturbance, damage or destruction of sites of cultural significance or sites of archaeological importance.	Low	An item low archaeological significance was identified by the heritage specialist at the borrow pit site. In addition to this, materials of archaeological or cultural value may be further exposed during the excavation of the borrow pit.
		Contamination of soil and groundwater resources: Contamination of soil and groundwater due to potential fuel spillage from construction machinery.	Moderate	Fuel spillage as a result of oil spills from poorly maintained machinery can seep into the newly exposed ground and eventually into the groundwater. This impact is moderate as it is can be managed effectively and efficiently to minimise or prevent the impact on the contamination of soil and groundwater.

	Stockpiling of topsoil	**Soil erosion:** Soil erosion (predominately by wind erosion) may occur if the topsoil stockpiles are not shaped and re-vegetated appropriately.	Minor	Newly stockpiled topsoil is vulnerable to erosion by flash floods and winds. Although the likelihood is low, this will impact on the amount of topsoil which will be available for rehabilitation if this is not managed correctly.
		Contamination of soil and groundwater resources: Contamination of soil and groundwater due to potential fuel spillage from excavation machinery and haul vehicles.	Moderate	Fuel spillage as a result of oil spills from poorly maintained machinery can seep into the newly exposed ground and eventually into the groundwater. This impact is moderate as it is can be managed effectively and efficiently to minimise or prevent the impact on the contamination of soil and groundwater.
		Dust nuisance: The generation of dust During stockpiling could pose a nuisance to social receptors in proximity to the borrow	Minor	The area to be disturbed is not in close proximity to any sensitive receptors. Any dust generated by the activities would therefore have a minor to negligible

		pit site.		impact on potential social receptors.
		Noise disturbance: Noise disturbance could result from the use of machinery during stockpiling.	Minor	The area to be disturbed is not in close proximity to any sensitive receptors.
Operation	Excavation of borrow material	**Dust nuisance:** The generation of dust through the excavation of the borrow material and transport on the access road could pose a nuisance to social receptors in proximity to the borrow pit site.	Minor	The area to be disturbed is not in close proximity to any sensitive receptors. Any dust generated by the activities would therefore have a minor to negligible impact on potential social receptors.
		Noise disturbance: Noise disturbance could result from the use of machinery during excavation.	Minor	The area to be disturbed is not in close proximity to any sensitive receptors.
		Contamination of soil and groundwater resources: Contamination of soil and groundwater due to	Moderate	Fuel spillage as a result of oil spills from poorly maintained machinery can seep into the newly exposed ground and eventually into

		potential fuel spillage from machinery used for excavation.		the groundwater. This impact is moderate as it is can be managed effectively and efficiently to minimise or prevent the impact on the contamination of soil and groundwater.
Rehabilitation and closure	Rehabilitation	**Alien plant invasion risk:** Patches of disturbed soil can be vulnerable to colonisation by weeds which can prohibit natural succession of the local indigenous vegetation during rehabilitation.	Minor	The area which is to be disturbed will be used continuously. Therefore, there will not be sufficient time for weeds and other plants to colonise the area.
		Dust nuisance: The generation of dust through spreading of the topsoil during rehabilitation.	Minor	The area to be disturbed is situated within the railway reserve and is not in close proximity to any sensitive receptors.
		Contamination of soil and groundwater resources: Contamination of soil and groundwater due to	Moderate	Fuel spillage as a result of oil spills from poorly maintained machinery can seep into the newly exposed ground and eventually into

		potential fuel spillage from machinery used for rehabilitation.		the groundwater. This impact is moderate as it is can be managed effectively and efficiently to minimise or prevent the impact on the contamination of soil and groundwater.

3.1.3Assessment of potential cumulative impacts

The potential impacts of the possible cumulative impacts identified in Section 2.2.2 above have been assessed in accordance with the methodology in section 3.1.1. The results of the significance assessment have been included in the impact table below:

Cumulative Impact	Impact Description	Significance Rating
Habitat loss and faunal disturbance	Due to the number of borrow pits envisaged along the length of the railway line, there will be some cumulative impact in terms of habitat loss and faunal disturbance. However, since the extent of the development is limited, this would not be significant.	Minor
Cumulative transformation of the area	Due to the number of borrow pits envisaged along the length of the railway line, there will be some cumulative impact in terms of the transformation of the area. However, since the extent of the development is limited, this would not be significant.	Minor
Incremental noise from a number of separate developments	Both the activities taking place on the railway line between Hotazel and Ngqura (upgrade of the line) and the excavation of the borrow pits will generate noise which together would result in an increased noise	Moderate

	impact.	
Combined effect of the individual impacts on surrounding receptors	The noise, dust and visual impacts from the borrow pit activities will collectively have a greater impact on surrounding receptors than they would in isolation.	Moderate

3.2 Proposed mitigation measures to minimise adverse impacts

3.2.1List of actions, activities, or processes that have sufficiently significant impacts to require mitigation

According to the definitions for significance ratings in section 3.1.1, any activity with anything greater than and including a significance rating of 'Minor' should require mitigation. Based on this, the activities requiring mitigation for each phase are:

1) Construction:
   - Clearing of vegetation
   - Stockpiling of topsoil
2) Operation:
   - Excavation of borrow material
3) Decommissioning and closure:
   - Rehabilitation

3.2.2Concomitant list of appropriate technical or management options

(Chosen to modify, remedy, control or stop any action, activity, or process which will cause significant impacts on the environment, socio-economic conditions and historical and cultural aspects as identified. Attach detail of each technical or management option as appendices)

The table below includes the activity as well as the significant impacts associated with it as well as how it will be mitigated or managed. This information has been sourced from the environmental management plan in the **Basic** Assessment (Appendix B), **Transnet's Standard Environmental Specification** (Appendix E3) and **Transnet's Construction Environmental Management Plan** (Appendix E1) as well as the **Heritage Management Plan** (Appendix E2):

Phase	Activities	Impact	Mitigation/Management
Construction	Clearing of vegetation Stockpiling of topsoil	**Loss of vegetation communities:** Some loss of vegetation is an inevitable consequence of the borrow pit development.	- The footprint of the vegetation removal will be limited to that absolutely necessary for the excavation of the borrow material. - The available topsoil will be appropriately stockpiled (in mounds not exceeding 2m in height) and reused in the rehabilitation process to facilitate re growth of the vegetation after the operation is complete.
		Loss of faunal diversity and richness: Clearing of vegetation will result in some habitat loss for species likely to occur	- The footprint of the vegetation removal will be limited to that absolutely necessary for the operation. The footprint of the area to be lost is already minimal. - Construction vehicles will be restricted

		in the borrow pit area. In addition to this, sensitive and shy fauna would move away from the area during construction activities. Some slow moving species would not be able to avoid the construction activities and might be killed.	to operate during daylight hours only. This will increase the likelihood that faunal species will be seen and avoided by the machine operators.
		Dust nuisance: The generation of dust through site clearance and earthworks could pose a nuisance to social receptors in proximity to the borrow pit site.	- The movement of vehicles and machinery will be restricted to the authorised access roads and vehicles will be limited to travel at speeds not exceeding 20 km/h. - Dust suppression with environmentally friendly soil stabilisers and additional measures will be used if dust becomes a nuisance. - Construction and operations personnel will be trained to report excessive dust conditions so that these can be managed quickly and effectively.
		Soil erosion: Increased erosion risk	- The footprint of the vegetation removal will be limited to that absolutely

		would result from soil disturbance and the loss of plant cover within the cleared and disturbed area.	necessary for the operation. Rehabilitation will commence soonest after the completion of the activities.
		Noise disturbance: Noise disturbance could result from the use of machinery during vegetation clearing.	- Operations will be limited to daylight hours. - Vehicles will be maintained in accordance with the manufacturer's specifications to reduce the noise impacts from the equipment. The Contractor will be required to demonstrate that the maintenance record of the vehicles he/she intends to use (including noise reduction measures such as exhaust silencers) is up to date prior to accessing the site.
		Paleontological fossil disturbance: Excavation of the borrow pit could result in the disturbance of fossils and microfossils.	- If a fossil is uncovered during the borrow pit excavation, all work will be stopped immediately and the EO will be informed of the discovery. The EO will contact SAHRA and work will only recommence once clearance has been given in writing by the palaeontologist. The procedures as specified in the HMP will be followed (Appendix E2).
		Loss of or disturbance to archaeological or	- If an artefact on site is uncovered during the operations, all work will be

		cultural sites: Construction activities may result in the disturbance, damage or destruction of sites of cultural significance or sites of archaeological importance.	stopped immediately and the EO as well as the professional archaeologist will be informed of the discovery. SAHRA will be contacted and work will only recommence once clearance has been given in writing by the archaeologist. The procedures as specified in the HMP will be followed (Appendix E2).
		Contamination of soil and groundwater resources: Contamination of soil and groundwater due to potential fuel spillage from excavation machinery and haul vehicles.	- Limited quantities of fuel and oils will be stored on site. Storage will be done within adequately bunded areas to prevent soil and water contamination. - Servicing and refuelling of vehicles will take place only at designated servicing or refuelling locations. - Vehicles will be maintained in accordance with the manufacturer's specifications. The Contractor will be required to demonstrate that the maintenance record of the vehicles he/she intends using is up to date prior to accessing the site. - Any spillage will be immediately attended to, reported and recorded. - A spill response kit will be available on site at all times and contractors' employees will be trained in the use of

			the kit.
Operation	Excavation of borrow material	**Dust nuisance:** The generation of dust through the excavation of the borrow material and transport on the access road could pose a nuisance to social receptors in proximity to the borrow pit site.	- The movement of vehicles and machinery will be restricted to the authorised access roads and vehicles will be limited to travel at speeds not exceeding 20 km/h. - Dust suppression with environmentally friendly soil stabilisers and additional measures will be used if dust becomes a nuisance. - Construction and operations personnel will be trained to report excessive dust conditions so that these can be managed quickly and effectively.
		Noise disturbance: Noise disturbance could result from the use of machinery during excavation.	- Operations will be limited to daylight hours. - Vehicles will be maintained in accordance with the manufacturer's specifications to reduce the noise impacts from the equipment. - The Contractor will be required to demonstrate that the maintenance record of the vehicles he/she intends to use (including noise reduction measures such as exhaust silencers) is up to date prior to accessing the site.
		Contamination of soil	- Limited quantities of fuel and oils will

		and groundwater resources: Contamination of soil and groundwater due to potential fuel spillage from machinery used for excavation.	be stored on site. Storage will be done within adequately bunded areas to prevent soil and water contamination. - Servicing and refuelling of vehicles will take place only at designated servicing or refuelling locations. - Vehicles will be maintained in accordance with the manufacturer's specifications. The Contractor will be required to demonstrate that the maintenance record of the vehicles he/she intends using is up to date prior to accessing the site. - Any spillage will be immediately attended to, reported and recorded. - A spill response kit will be available on site at all times and contractors' employees will be trained in the use of the kit.
Rehabilitation and closure	Rehabilitation	**Alien plant invasion risk:** Patches of disturbed soil can be vulnerable to colonisation by weeds which can prohibit natural succession of the local indigenous vegetation during	- Regular monitoring of vegetation growth especially on the topsoil stockpile and areas surrounding the access roads and proposed borrow site will be undertaken by the EO. - Procedures for the prevention of the establishment and spread of alien invasive species will be included in the rehabilitation plan which will be

		rehabilitation.	submitted to the EO for approval six weeks before completion.
		Dust nuisance: The generation of dust through spreading of the topsoil during rehabilitation.	- Dust suppression with environmentally friendly soil stabilisers and additional measures will be used if dust becomes a nuisance. - Rehabilitation personnel will be trained to report excessive dust conditions so that these can be managed quickly and effectively.
		Contamination of soil and groundwater resources: Contamination of soil and groundwater due to potential fuel spillage from machinery used for rehabilitation.	- Vehicles will be maintained in accordance with the manufacturer's specifications. The Contractor will be required to demonstrate that the maintenance record of the vehicles he/she intends using is up to date prior to accessing the site. - Any spillage will be immediately attended to, reported and recorded. - A spill response kit will be available on site at all times and contractors' employees will be trained in the use of the kit.

3.2.3Review the significance of the identified impacts

(After bringing the proposed mitigation measures into consideration).

The significance of the identified impacts post-mitigation has been included in the table below:

Phase	Activity	Impact	Significance Rating
Construction	Clearing of vegetation	**Loss of vegetation communities:** Some loss of vegetation is an inevitable consequence of the borrow pit development.	Minor
		Loss of faunal diversity and richness: Clearing of vegetation will result in some habitat loss for species likely to occur in the borrow pit area. In addition to this, sensitive and shy fauna would move away from the area during construction activities. Some slow moving species would not be able to avoid the construction activities and might be killed.	Minor
		Dust nuisance: The generation of dust through site clearance and earthworks could pose a nuisance to social receptors in proximity to the borrow pit site.	Negligible
		Soil erosion: Increased erosion risk would result from soil disturbance and the loss of plant cover	Negligible

		within the cleared and disturbed area.	
		Noise disturbance: Noise disturbance could result from the use of machinery during vegetation clearing.	Negligible
		Paleontological fossil disturbance: Excavation of the borrow pit could result in the disturbance of fossils and microfossils.	Minor
		Loss of or disturbance to archaeological or cultural sites: Construction activities may result in the disturbance, damage or destruction of sites of cultural significance or sites of archaeological importance.	Low
		Contamination of soil and groundwater resources: Contamination of soil and groundwater due to potential fuel spillage from construction machinery.	Minor
	Stockpiling of topsoil	**Soil erosion:** Soil erosion (predominately by wind erosion) may occur if the topsoil stockpiles are not shaped and re-vegetated appropriately.	Minor
		Contamination of soil and groundwater resources: Contamination of soil	Minor

		and groundwater due to potential fuel spillage from excavation machinery and haul vehicles.	
		Dust nuisance: The generation of dust During stockpiling could pose a nuisance to social receptors in proximity to the borrow pit site.	Negligible
		Noise disturbance: Noise disturbance could result from the use of machinery during stockpiling.	Negligible
Operation	Excavation of borrow material	**Dust nuisance:** The generation of dust through the excavation of the borrow material and transport on the access road could pose a nuisance to social receptors in proximity to the borrow pit site.	Negligible
		Noise disturbance: Noise disturbance could result from the use of machinery during excavation.	Negligible
		Contamination of soil and groundwater resources: Contamination of soil and groundwater due to potential fuel spillage from machinery used for excavation.	Minor
Rehabilitation and closure	Rehabilitation	**Alien plant invasion risk:** Patches of disturbed soil can be vulnerable to colonisation by weeds which can prohibit	Negligible

		natural succession of the local indigenous vegetation during rehabilitation.	
		Dust nuisance: The generation of dust through spreading of the topsoil during rehabilitation.	Negligible
		Contamination of soil and groundwater resources: Contamination of soil and groundwater due to potential fuel spillage from machinery used for rehabilitation.	Minor

4 REGULATION 52 (2) (d): Financial provision, the applicant is required to-

4.1 Plans for quantum calculation purposes

(Show the location and aerial extent of the aforesaid main mining actions, activities, or processes, for each of the construction operational and closure phases of the operation).

This plan is shown in Figure 6.

4.2 Alignment of rehabilitation with the closure objectives

(Describe and ensure that the rehabilitation plan is compatible with the closure objectives determined in accordance with the baseline study as prescribed).

The closure objectives for the borrow pits include:

1) Rehabilitation of access roads
2) Rehabilitation of the pit including final voids and ramps
3) General surface rehabilitation (laying and spreading of topsoil and reseeding)
4) Maintenance and aftercare of the rehabilitated area

Costing for the closure objectives has been provided in Section 4.3 below and these objectives are in line with the rehabilitation plan as discussed in **Transnet's Standard Environmental Specification** (Appendix E3) and **Transnet's Construction Environmental Management Plan** (Appendix E1).

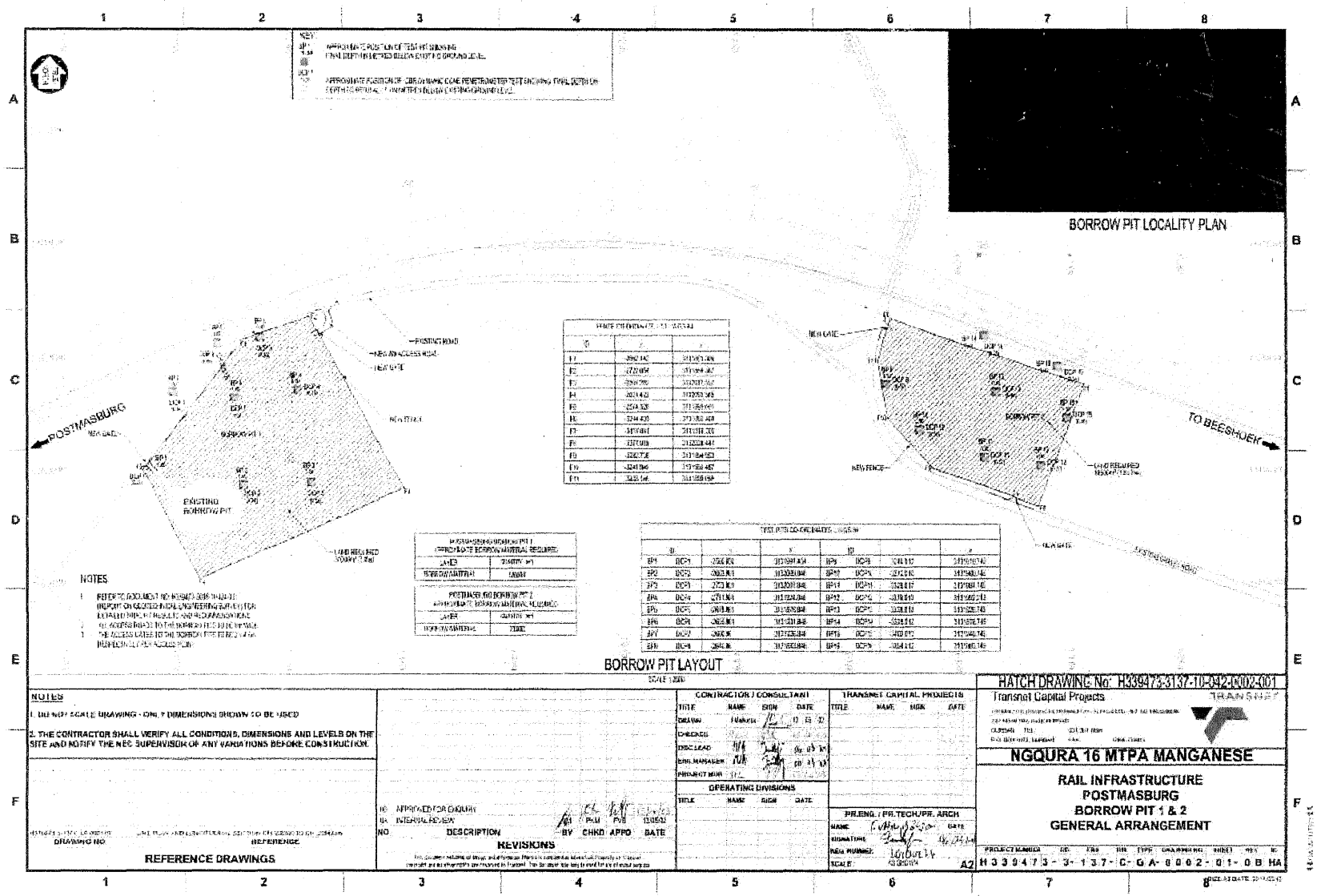


Figure 6: Postmasburg 2 borrow pit layout

4.3 Quantum calculations.

(Provide a calculation of the quantum of the financial provision required to manage and rehabilitate the environment, in accordance with the guideline prescribed in terms of regulation54 (1) in respect of each of the phases referred to).

Postmasburg Borrow Pit 2

As part of the license application for the opening of a borrow pit, an evaluation of the Quantum of closure-related financial provision has to be carried out. The Department of Minerals and Energy (DME) must be provided with sufficient financial provision to cover the environmental liability for rehabilitation and closure requirements of mining operations, at that specific time.

The calculation of the Quantum is based on the *Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provision provided By a Mine, Jan 2005.*

Calculation of Quantum for Witloop Borrow Pit 2

The procedure adopted below is the procedure recommended by the *Guideline Document*, for the procedure to determine the quantum for financial provision.

Step 1 – Determine mineral being mined

According to the geotechnical investigations (refer to document H339473-S018-10-124-0001), the anticipated materials to be found in the location of the proposed borrow pit, is ferruginised residual dolomite.

Step 2A – Determine primary risk class

Class C (Low Risk), from Table B.13 in the *Guideline Document*.

Step 2B – Revise primary risk class based on saleable products

Not Applicable

Step 3 – Sensitivity of mine are

Biophysical	Social	Economic
Medium	Low	Low

Step 4.1 – Determine level of information available

Extensive – Option 3: Follow rules-based approach and proceed to step 4.2

Step 4.2 – Identify closure components

It should be noted that the Guidelines have been written to mainly focus on mining related activities, and the opening of a borrow pit mainly relates to the quarrying of certain materials, to be used for the earthworks construction. Therefore, when identifying the relevant closure components required for rehabilitation and closure of this borrow pit, not all of the components set-out by the Guidelines are relevant.

The table below gives the list of components as set-out by the guidelines, and the relevant closure/rehabilitation components are highlighted in blue.

1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	No
2 (A)	Demolition of steel buildings and structures	No
2(B)	Demolition of reinforced concrete buildings and structures	No
3	Rehabilitation of access roads	Yes
4 (A)	Demolition and rehabilitation of electrified railway lines	No
4 (A)	Demolition and rehabilitation of non-electrified railway lines	No
5	Demolition of housing and/or administration facilities	No
6	Opencast rehabilitation including final voids and ramps	Yes
7	Sealing of shafts adits and inclines	No

8 (A)	Rehabilitation of overburden and spoils	No
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	No
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	No
9	Rehabilitation of subsided areas	No
[illegible]	[illegible]	[illegible]
11	River diversions	No
[illegible]	[illegible]	[illegible]
13	Water management	No
[illegible]	[illegible]	[illegible]
15 (A)	Specialist study	No
15 (B)	Specialist study	No

Step 4.3 – Identify unit rates for closure components

Master rates as received from DMR

Step 4.4 – Identify and apply waiting factors

Weighting Factor 1 - 1,00 (Nature of Terrain = Flat)

Weighting Factor 2 - 1,05 (proximity to urban area = Peri-urban [as per guidelines])

Step 4.5 – Identify areas of disturbance

Quantities were calculated based on the Borrow pit drawing.

Step 4.6 – Identify closure costs from specialist studies

No specialist studies required.

Step 4.7 – Calculate closure costs

Refer to calculation of quantum.

The table below is a calculation of the quantum of the financial provision required to manage and rehabilitate the environment:

CALCULATION OF THE QUANTUM

Mine: POSTMASBURG BORROW PIT 2 (TRANSNET LIMITED)

Location: Postmasburg, Northern Cape
Date: 05/03/2013

Risk Class: C
Area Sensitivity: Med

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication Factor	Weighting Factor 1	Amount (rands)
1	Dismantling of **processing plant and related structures** (including overland conveyors and powerlines)	m^3		10.87	0.00	0.00	R -
2(A)	Demolition of **steel buildings and structures**	m^2		151.42	0.00	0.00	R -
2(B)	Demolition of **reinforced concrete buildings and structures**	m^2		223.14	0.00	0.00	R -
3	Rehabilitation of **access roads**	m^2	400	27.10	1.00	1.00	R 10 840.00
4(A)	Demolition and rehabilitation of **electrified railway lines**	m		262.98	0.00	0.00	R -
4(B)	Demolition and rehabilitation of **non-electrified railway lines**	m		143.45	0.00	0.00	R -
5	Demolition of **housing and/or administration facilities**	m^2		302.83	0.00	0.00	R -
6	**Opencast rehabilitation** including final voids and ramps	ha	2.50	158 747.30	0.52	1.00	R 206 371.49
7	Sealing of **shafts, adits and inclines**	m^3		81.29	0.00	0.00	R -
8(A)	Rehabilitation of **overburden and spoils**	ha		105 831.50	0.00	0.00	R -
8(B)	Rehabilitation of processing waste **deposits and evaporation ponds (basic salt-producing waste)**	ha		131 811.20	0.00	0.00	R -
8(C)	Rehabilitation of processing waste **deposits and evaporation ponds (acidic, metal-rich waste)**	ha		382 842.30	0.00	0.00	R -
9	Rehabilitation of **subsided areas**	ha		88 617.95	0.00	0.00	R -
10	**General surface rehabilitation**	ha	2.50	83 836.41	1.00	1.00	R 209 591.03
11	**River diversions**	ha		83 836.41	0.00	0.00	R -
12	**Fencing**	m	605	95.63	0.00	0.00	R -
13	**Water management**	ha		31 876.96	0.00	0.00	R -
14	2 to 3 years of **maintenance and aftercare**	ha	2.50	11 156.92	1.00	1.00	R 27 892.30
15A	Specialist study	Sum		0.00	0.00	0.00	R -
15B	Specialist studies (soil remediation)	ha		0.00	0.00	0.00	R -
						(Sum of items 1 to 15 above)	**R 454 694.82**
						Weighting Factor 2	1.05
						Subtotal 1	**R 477 429.56**

1	Preliminary and General	6.0% if Subtotal 1 > 100 000 000 12.0% if Subtotal 1 < 100 000 000	R 57 291.55
2	Contingency	10.0% of Subtotal 1	R 47 742.96
		SubTotal 2	**R 582 464.06**
		(Subtotal 1 plus sum of management and contingency)	
		Add Vat (14%)	R 81 544.97
		GRAND TOTAL	**R 664 009.03**
		(Subtotal 2 plus VAT)	

4.4 Undertaking to provide financial provision

(Indicate that the required amount will be provided should the right be granted).

The undertaking to provide financial provision is attached below:

TRANSNET

UNDERTAKING TO PROVIDE FINANCIAL PROVISION

Postmasburg 2 Borrow Pit in Postmasburg Town, south of the existing Hotazel to Ngqura railway line and west of the Postmasburg Station

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant. On behalf of the applicant, I agree to undertake and provide the financial resources for a sum of **R 664 009.03** intended for the rehabilitation of the area affected by the Postmasburg 2 Borrow Pit operations at the time when this operation ceases.

Full Name and Surname: Velile Sikhosana

Identity Number: 7410175430085

Date: 14·08·2013

Signature:

5 REGULATION 52 (2) (e): Planned monitoring and performance assessment of the environmental management plan

5.1 List of identified impacts requiring monitoring programmes

The main impacts requiring monitoring programmes will occur during the construction phase and the rehabilitation and closure phase. The impacts and the associated monitoring plans have been tabulated below:

Phase	Impact	Management/Monitoring Plan
Construction	Loss of vegetation communities	CEMP (Appendix E1) and SES (Appendix E3) and HMP (Appendix E2)
	Loss of faunal diversity and richness	
	Dust nuisance	
	Soil erosion	
	Noise disturbance	
	Paleontological fossil disturbance	
	Loss of or disturbance to archaeological or cultural sites	
	Contamination of soil and groundwater resources	
Rehabilitation and closure	Alien plant invasion risk	Vegetation monitoring plan as part of the rehabilitation plan (to be developed at closure) and SES (Appendix E3)
	Dust nuisance	SES (Appendix E3)
	Contamination of soil and Groundwater resources	SES (Appendix E3)

5.2 Functional requirements for monitoring programmes

Where relevant either a Transnet Capital Projects (TCP) or the Contractor's Environmental Officer (EO) will be required to implement the monitoring programmes for the construction, operation, rehabilitation and closure phases.

An allowance has been made in the Calculation of the Quantum (Section 4.3 of this document) for the rehabilitation monitoring plan to implemented for three years after the borrow pit has been rehabilitated.

5.3 Roles and responsibilities for the execution of monitoring programmes

The roles and responsibilities for execution of the monitoring programmes are detailed in the CEMP (Appendix E1) and explained briefly below:

Role	Responsibility
Transnet Capital Projects Environmental Manager	Approval of monitoring programmes and environmental training and awareness programmes.
Transnet Capital Projects Environmental Officer	Ensures that all environmental monitoring programmes are carried out in accordance to protocols and schedules.
Contractor's Environmental Officer	Ensures the contractors compliance with the CEMP and SES.
Environmental Auditor	An environmental auditor will be appointed to ensure, among other things, that the monitoring plans have been implemented correctly.

5.4 Committed time frames for monitoring and reporting

The committed times frames for monitoring and reporting during the construction and post closure phases are:

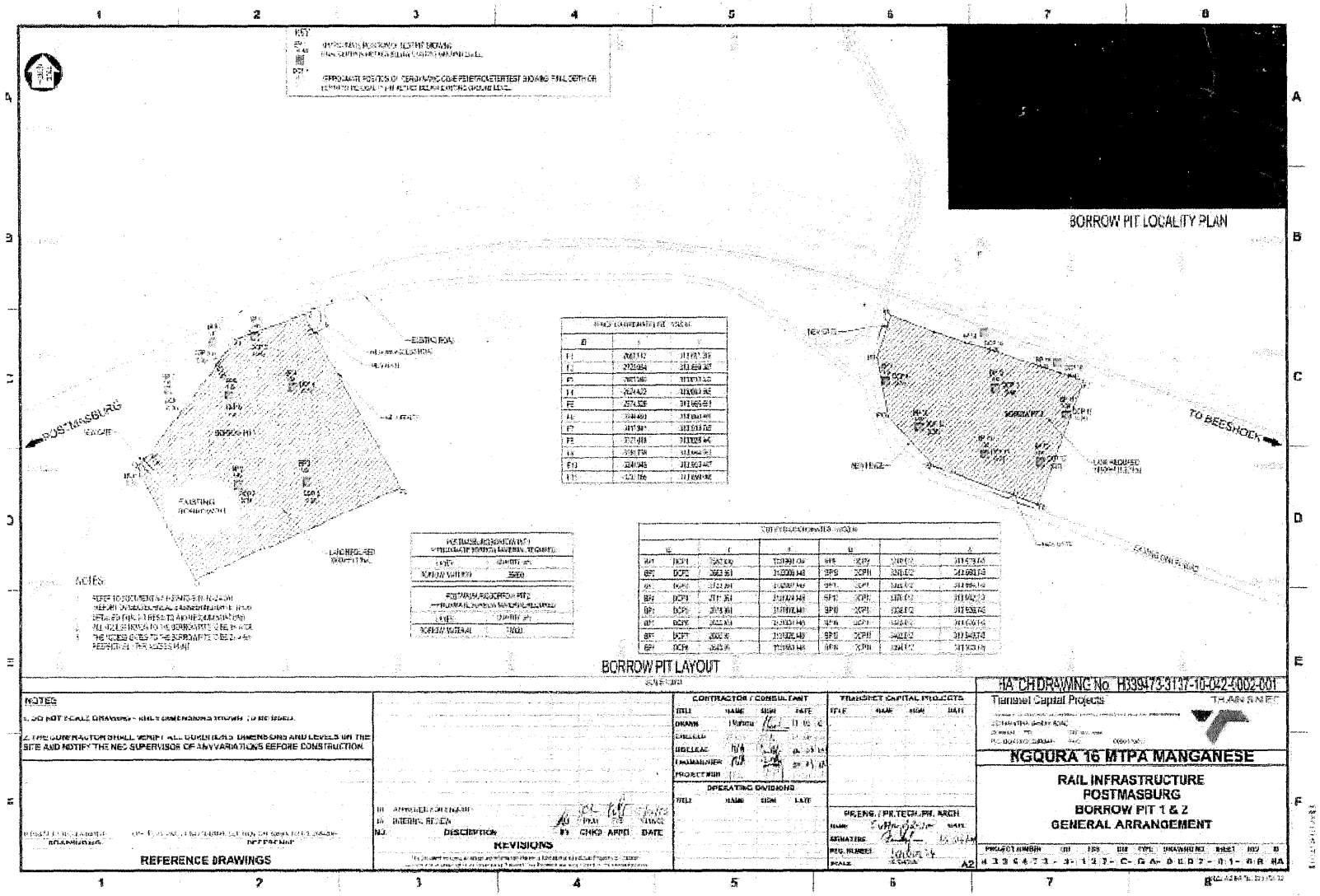
- **Construction**: 12 months from the start of construction.
- **Vegetation monitoring** (Post closure): Three years post closure
- **Heritage monitoring**: Duration of the construction phase and throughout rehabilitation.

6 REGULATION 52 (2) (f): Closure and environmental objectives

6.1 Rehabilitation plan

(Show the areas and aerial extent of the main prospecting activities, including the anticipated prospected area at the time of closure).

The area to be affected is shown in the plan below..



6.2 Closure objectives and their extent of alignment to the pre-mining environment

The closure objectives for the borrow pits include:

1) Rehabilitation of access roads
2) Rehabilitation of the pit including final voids and ramps
3) General surface rehabilitation (laying and spreading of topsoil and reseeding)
4) Maintenance and aftercare of the rehabilitated area

The vegetation in the borrow pit area is dominated by the Kuruman Thornveld which has an ecological status of least threatened in terms of the National Spatial Biodiversity Assessment (NSBA). The area in and around the proposed borrow pit is of low ecological importance. The area is degraded and highly disturbed/transformed with little ecological function and generally very poor in species diversity (most species are exotic or weeds). Rehabilitation of this area will in most likelihood, restore it to a better state than that at pre-construction.

6.3 Confirmation of consultation

(Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties)

A public participation process was carried out as part of the Basic Assessment Process for the proposed expansion of the Transnet Manganese Ore Export Railway Line between Hotazel and the Port of Ngqura (See Appendix B for a copy of this report). Borrow pits in general have been discussed in this assessment as well as in the public information documents (BIDs etc) and the public were made aware that the project would require several borrow pits along the length of the line as part of the process. The CEMP and SES (Appendix E) were discussed in the BA report. The CEMP and SES make reference to closure and site cleanup.

The Postmasburg 2 borrow pit area is located on municipal land. The environmental objectives relating to closure and rehabilitation were discussed with the municipality and described in the BID (See Appendix 3). Transnet have agreed to the closure objectives (See Undertaking to provide financial provision in Section 4.4). Specific consultation with the affected landowner was conducted and, in addition to this, landowners of the farm portions adjacent to the area on which the borrow pit is located, were consulted with as part of the

public participation process conducted for the BA. The general landscape was included in the BA process and therefore communities and affected parties along the length of the railway line had the opportunity to provide input into the classification of the surrounding environment.

7 REGULATION 52 (2) (g): Record of the public participation and the results thereof

7.1 Identification of interested and affected parties

7.1.1 Name the community or communities identified, or explain why no such community was identified

No community or settlements reside on the borrow pit land itself as observed from the field visit as well as in information obtained from the municipality. Areas around the Postmasburg 2 borrow pit consist of farm land and the closest town is Postmasburg (2km away).

7.1.2 Specifically state whether or not the Community is also the landowner

The Community is not the landowner. The land is owned by the Tsantsabane Local Municipality.

7.1.3 State whether or not the Department of Land Affairs have been identified as an interested and affected party

As part of the Public Participation process, the Northern Cape Provincial Department of Agriculture and Land Affairs were identified as an interested and affected party and were consulted with specifically.

7.1.4 State specifically whether or not a land claim is involved

No land claims are involved.

7.1.5 Name the Traditional Authority identified

No Traditional Authorities have jurisdiction over this land.

7.1.6List the Landowners identified by the applicant (Traditional and Title Deed owners)

The land is owned by the Tsantsabane Local Municipality. The landowner consent forms are attached in Appendix 2.

7.1.7List the lawful occupiers of the land concerned

There are no people occupying the proposed borrow pit sit.

7.1.8Explain whether or not other persons (including on adjacent and non-adjacent properties) socio-economic conditions will be directly affected by the proposed prospecting or mining operation and if not, explain why not

The directly impacted area is farm land. Due to the small scale of this operation, it is not anticipated that the borrow bit operations will have an effect on the socio-economic conditions of the people residing on adjacent and non-adjacent properties.

7.1.9Name the Local Municipality

Tsantsabane Local Municipality

7.1.10 Name the relevant Governmental Departments, agencies and institutions responsible for the various aspects of the environment and for infrastructure which may be affected by the proposed project. The relevant authorities which would be affected by the borrow pit's development include:

- National Department of Environmental Affairs
- Provincial Government of Environmental Affairs & Nature Conservation
- Northern Cape Department of Mineral Resources
- South African Heritage Resources Agency (SAHRA)
- Ngwao Boswa Kapa Bokoni (Northern Cape Provincial Heritage Resources Agency)
- National Department of Agriculture, Forestry and Fisheries
- Northern Cape Provincial Department of Agriculture and Land Affairs
- Provincial Government of Agriculture, Land Reforms and Rural Development
- National Government Department of Roads and Transport
- Siyanda District Municipality

- Tsantsabane Local Municipality

7.1.11 Submit evidence that the landowner or lawful occupier of the land in question, and any other interested and affected parties including those listed above, were notified

All public documentation, including letters from the relevant Authorities, interested and affected parties proving that they were notified about the project has been appended to this EMP (See Appendix B and Appendix 3).

7.2 The details of the engagement process

7.2.1 Description of the information provided to the community, landowners, and interested and affected parties

The information provided included:

- A description of the proposed project activities
- The project location
- A description of the BA process as well as the various phases within this process
- A description of the borrow pits required as part of the project

The following activities were conducted as part of the public participation process. These have been split up according to the project as a whole as well as those specific to the borrow pit development. Public participation activities for the Basic Assessment process included:

- Distribution of proposed project announcement letter and Background Information Document (BID)
- Placing of adverts
- Putting up of site notices
- Identification of stakeholders
- Consultation with relevant stakeholders

All public participation documentation relevant to the Basic Assessment process has been included in Appendix B.

The public participation process specific to the Postmasburg 2 borrow pit development has been tabulated below:

Public participation specific to the borrow pit development		
Activity	Details	Reference
Field visit to the Postmasburg 2 borrow pit	Field visit during 1-15 April 2013 to obtain information, consult with affected landowners and put up site notices specifically for the borrow pits. Field trip reports were compiled for each borrow pit site.	Appendix 1 Field trip report
Distribution of BID	The BIDs for the borrow pits were distributed during the field visit (1-15 April 2013)	Appendix 3 BID
Placing of site notices	Site notices were placed at each borrow pit location during the field visit.	Appendix 3 Site notice
Identification of stakeholders	A list of affected landowners (where applicable) was provided by the team which undertook the geotechnical drilling for the test pits.	Appendix 3 Stakeholder database
Consultation with relevant stakeholders	Consultations with key stakeholders and directly affected landowners were conducted between 1-15	Appendix 2 Landowner consent forms Minutes of meetings

	April	

7.2.2List of which parties identified in 7.1 above that were in fact consulted, and which were not consulted

All of the parties identified in 7.1 were consulted with as part of the Basic Assessment Process which was conducted for the Project:

- National Department of Environmental Affairs
- Provincial Government of Environmental Affairs & Nature Conservation
- Northern Cape Department of Mineral Resources
- South African Heritage Resources Agency (SAHRA)
- Ngwao Boswa Kapa Bokoni (Northern Cape Provincial Heritage Resources Agency)
- National Department of Agriculture, Forestry and Fisheries
- Northern Cape Provincial Department of Agriculture and Land Affairs
- Provincial Government of Agriculture, Land Reforms and Rural Development
- National Government Department of Roads and Transport
- Siyanda District Municipality
- Tsantsabane Local Municipality

7.2.3List of views raised by consulted parties regarding the existing cultural, socio-economic or biophysical environment

Comments raised by the various parties have been included as an annex to the Draft BA in Appendix B. These views are once again, based on the project as a whole and not specifically on the borrow pits. A summarised list of the views has been listed below:

<u>Views on the current Socio-Economic Environment:</u>

- Air quality issues including but not limited to the release of asbestos, and health issues related to dust generation

- Socio-economic issues including but not limited to potential housing relocations; job opportunities for local communities, disabled people and women; opportunities and benefits for local businesses and communities; creation of a skills database and skills development; increased crime and stock theft; safety issues at level crossings; train collisions with live stock and people; housing for construction workers; locking of gates by construction crews; land ownership; purchasing of land from Transnet; transfer of land ownership from Transnet to the municipality at Rosmead; the use of decommissioned material; the proposed use of land reserved for other projects; public participation; the development of housing specifically at Postmasburg; illegal mining specifically at Gong Gong; the development of a social and labour plan; transportation of commodities other than manganese ore; assessment of HIV/AIDS; and project description related issues (including timeframes, public participation)
- Noise and vibration issues including but not limited to the number of trains that will pass the Groenwater Community and vibration damage to houses at Rosmead
- Visual issues including but not limited to the creation of light pollution.

Views on the current Biophysical Environment:

- Vegetation issues including but not limited to veld fires
- Faunal issues including but not limited to small animals being trapped within fencing; the use of jackal proof fencing, and the potential impact on Shamwari Game Reserve
- Agricultural issues including but not limited to the impacts on existing irrigation activities and impacts on land with high agricultural potential.

7.2.4List of views raised by consulted parties on how their existing cultural, socio-economic or biophysical

environment potentially will be impacted on by the proposed prospecting or mining operation

Comments raised by the various parties have been included as an annex to the Draft BA in Appendix B and Appendix 3. Relevant views pertained to how the existing environment will be impacted on by the borrow pits include:

Views on the current Socio-Economic Environment:

- Generation of dust from the access roads will have an impact on human health.
- Transnet should be careful when buying privately owned land because there are some land restitution issues that need resolving in the province.

Views on the current Biophysical Environment:

- No views on the current biophysical environment were received.

Views on the Cultural Environment:

- No views on the current cultural environment were received.

7.2.5Other concerns raised by the aforesaid parties

No other concerns pertaining specifically to borrow pits were raised by the aforesaid parties.

7.2.6Confirmation that minutes and records of the consultations are appended

The minutes and records of the consultations have been included in the Annexes of the BA Report in Appendix B and in Appendix 3 for the meeting held with the directly affected landowner.

7.2.7Information regarding objections received

No objections were received for this project.

7.3The manner in which the issues raised were addressed.

All responses to the issues raised by the various parties have been addressed in the Comments and Responses Report which has included as an annex to the Draft BA in Appendix B and Appendix 3. All issues raised in e-mails and phone calls have also been captured in this report and addressed here.

8 SECTION 39 (3) (c) of the Act: Environmental awareness plan.

8.1 Employee communication process

(Describe how the applicant intends to inform his or her employees of any environmental risk which may result from their work).

This will be achieved through Environmental Awareness Training presented in section 4.13 of the SES document (Appendix E3). In addition to this, all site personnel should be given a copy of the SES which describes the minimum standards for environmental management to which they must comply. The SES must be read in conjunction with the CEMP (Appendix E1).
All contractors will be required to adhere to the Method statement which has been developed for the Postmasburg 2 borrow pit (See Appendix E4).

8.2 Description of solutions to risks

(Describe the manner in which the risk must be dealt with in order to avoid pollution or degradation of the environment)t.

Transnet' s solution is to anticipate the risk and then compile a management guideline in order to minimise the risk from occurring. Various management guidelines have been included in the SES (Appendix E3) including those for:

- Waste management
- Refuelling
- Dust management
- Storm water management
- Noise management
- Protection of heritage resources

If however, and environmental incident does occur, the CEMP (in Appendix E1) details how these incidences are categorised and how they are dealt with in order to prevent further damage to the environment. These procedures are managed through the construction manager who is assisted by the environmental manager and environmental officer.

8.3 Environmental awareness training.

(Describe the general environmental awareness training and training on dealing with emergency situations and remediation measures for such emergencies).

Before the commencement of any work on site through an induction process, the Contractor's site management staff shall attend an environmental awareness-training course presented by TCP's Environmental Officer (EO). Training of the appropriate personnel will help ensure that all environmental regulations and requirements are followed and are defined in the relevant Method Statement to be prepared by the Contractor. The training should be conducted, as far as it is possible, in the employees' language of choice and shall include as a minimum:

- Explanation of how to protect the environment from the effects of construction by making the personnel aware of the sensitive environmental resources.
- Employees' roles and responsibilities, including emergency preparedness.
- Explanation of the mitigation measures that must be implemented when carrying out their activities.
- Training of personnel to recognise potential environmental problems, i.e. spills, and communicate the problem to the correct person for solution.

All individuals on the Project site will need to have a minimum awareness of environmental requirements and responsibilities. However, not all need to have the same degree of awareness. The required degree of knowledge is greatest for personnel in the Safety, Health and Environmental Sections and the least for manual personnel. Environmental issues that occur on site will be included in toolbox talks. The Contractor shall keep a record of all the environmental related training of the personnel.

9 SECTION 39 (4) (a) (iii) of the Act: Capacity to rehabilitate and manage negative impacts on the environment.

9.1 The annual amount required to manage and rehabilitate the environment.

(Provide a detailed explanation as to how the amount was derived)

Due to the nature and scale of this activity (constant use of the borrow pit area), rehabilitation does not take place on an annual basis but rather once the activity is completed. The amount which has been calculated is the amount which has been

committed to the effective rehabilitation of the borrow pit area at a time where it is no longer needed.

The table below shows the various activities which will be required as part of the borrow pit's rehabilitation. The amounts for each activity have been calculated separately:

CALCULATION OF THE QUANTUM

Mine: POSTMASBURG BORROW PIT 2 (TRANSNET LIMITED)

Location: Postmasburg, Northern Cape
Date: 05/03/2013

Risk Class: C
Area Sensitivity: Med

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication Factor	Weighting Factor 1	Amount (rands)
3	Rehabilitation of **access roads**	m^2	400	27.10	1.00	1.00	R 10 840.00
6	**Opencast rehabilitation** including final voids and ramps	ha	2.50	158 747.30	0.52	1.00	R 206 371.49
10	**General surface rehabilitation**	ha	2.50	83 836.41	1.00	1.00	R 209 591.03
14	2 to 3 years of **maintenance and aftercare**	ha	2.50	11 156.92	1.00	1.00	R 27 892.30
						(Sum of items 1 to 15 above)	**R 454 694.82**
						Weighting Factor 2	1.05
						Subtotal 1	**R 477 429.56**
1	Preliminary and General	6.0% if Subtotal 1 > 100 000 000 12.0% if Subtotal 1 < 100 000 000					R 57 291.55
2	Contingency	10.0% of Subtotal 1					R 47 742.96
						SubTotal 2	**R 582 464.06**
						(Subtotal 1 plus sum of management and contingency)	
						Add Vat (14%)	R 81 544.97
						GRAND TOTAL	**R 664 009.03**
						(Subtotal 2 plus VAT)	

9.2 Confirmation that the stated amount correctly reflected in the Prospecting Work Programme as required

(Specifically confirm that the stated amount has been adequately provided for in the corresponding budget reflected in the Prospecting Work Programme as required in Accordance with Regulation 7 (1) (j) (ii)).

This has been included in section 9.1 above.

10 REGULATION 52 (2) (h): Undertaking to execute the environmental management plan

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises EIA and EMP compiled in accordance with the guideline on the Departments official website and the directive in terms of sections 29 and 39 (5) in that regard, and the applicant undertakes to execute the Environmental management plan as proposed.

Full Names and Surname	Velile Sikhosana
Identity Number	7410175430085

-END-