



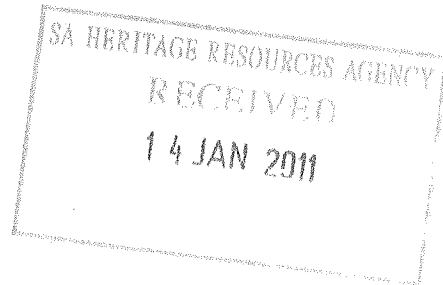
# mineral resources

Department:  
Mineral Resources  
REPUBLIC OF SOUTH AFRICA

Private Bag X6093, Kimberley, 8300, Tel: (053) 807 1700, Fax: (053) 8325 631  
First Floor, Liberty Corner, 29-31 Curry Street, Kimberley 8301

**From:** Directorate: Mineral Development: Northern Cape      **Date:** 07 December 2010  
**Enquiries:** Ms M.S Makoele      **E-mail:** maphakiso.makoele@dmr.gov.za  
**Ref No.:** NC 30/5/1/3/3/2/1/2003 EM

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



**Attention: MRS 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 IN RESPECT OF BORROW PITS 1,2,3,4,5,6,7,8 AND 9 ON PORTION 19 OF FARM 543, REMAINING EXTENT AND PORTION 1 OF GAMAGARA 541, PORTION 1 AND PORTION 2 OF FRITZ 540, REMAINDER OF NOOITGEDACHT 469 AND REMAINDER OF LYLYVELD 545, SITUATED IN THE MAGISTERIAL DISTRICT OF KURUMAN: NORTHERN CAPE REGION.**

**APPLICANT: TRANSNET LIMITED.**

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 **05 January 2011** 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 **Ms. Sylvia Makoele** 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.

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



Date: March 2010

Ref: S0253

**Attention:** Northern Cape Department of Mineral Resources

PO Box 1822  
Rivonia, 2128  
Tel: +27 (0)11 807 8225  
Fax: +27 (0)11 807 8226  
synergy@synergistics.co.za

**Marline Medallie**  
marline@synergistics.co.za

Dear Mr P. Swart

## **TRANSNET LIMITED**

### **APPLICATION FOR BORROW PIT EXEMPTION IN ACCORDANCE WITH SECTION 106 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT NO. 28 OF 2002**

#### **1. Introduction**

This letter serves to notify the Department of Mineral Resources (DMR) that Transnet Limited proposes to borrow material within the Sishen Mine property, in order to construct the following linear infrastructure:

- A section of Postmasburg-Hotazel manganese freight railway line, owned by Transnet Limited (Transnet);
- A section of the Sishen Lylyveld rail turnout to Sishen load-out stations (hereafter referred to as the Lylyveld siding);
- A section of the Dingleton-Dibeng public gravel road, owned by the Northern Cape Department of Roads and Public Works (DRPW);
- Two Transnet traction substations;
- Two 132 kV Eskom powerlines to supply the traction substations;

In terms of Government Notice (GN) 386 and GN 387 of 21 April 2006 published in Chapter 5 of the National Environmental Management Act No. 107 of 1998 (NEMA), an Environmental Impact Assessment (EIA) for the Relocation of Rail and Associated Infrastructure is required. In 2008 the EIA was initiated in accordance with Government Notice (GN) 387 of 21 April 2006. The EIA report was submitted to the competent authority, the National Department of Environmental Affairs (DEA), in December 2009. Environmental authorisation for the EIA report was obtained from the DEA in March 2010. The proposed relocation is to be undertaken in accordance with the EIA report as approved by the DEA. Construction is due to commence after approval of the EIA and EMP from DEA.

Kumba will be responsible for the construction of the infrastructure and will hand it over to the various owners (Transnet, DRPW etc.) once construction has been completed. Kumba is acting as the project applicant, on behalf of the owners of the infrastructure, in terms of a contract (power of attorney) with each of the owners. Once handed over, the responsibility will be with the infrastructure owner.

## 2. Project Description

Construction aggregates, including ballast, will be sourced from borrow pits along the servitude route and from Sishen Mine waste rock deposits. The geotechnical investigation identified nine preliminary borrow pit areas (Table 1 and Appendix 1). The final location of the borrow pits will depend on the quality and quantity of available material. Tests are underway to determine the engineering properties and suitability of material available from Sishen Mine waste rock deposits.

**Table 1: Preliminary location and size of the Proposed Borrow Pits**

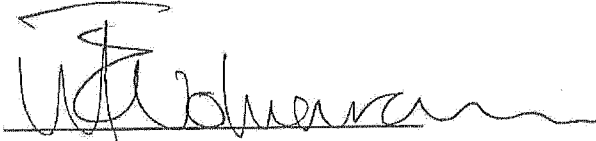
Borrow pit number (Refer to Appendix 1)	Property / Farm Name	Landowner	Size (ha)	Volume of material available (m <sup>3</sup> )	Coordinates
BP1	Portion 19 of Sishen 543	Gamagara Local Municipality (Letter of landowner consent)	4 ha	28,000	22° 58' 48.04" E 27° 49' 36.01" S
BP2	Remaining Extent (RE) and portion 1 of Gamagara 541	Kumba	7 ha	35,000	22° 57' 5.55" E 27° 48' 12.63" S
BP3	Portion 2 of Fritz 540	Kumba	4 ha	36,000	22° 55' 13.21" E 27° 46' 34.89" S
BP4	Portion 2 of Fritz 540	Kumba	3 ha	18,000	22° 55' 9.26" E 27° 46' 16.84" S
BP5	Portion 1 of Fritz 540	Kumba	3 ha	30,000	22° 54' 38.15" E 27° 44' 54.55" S
BP6	Portion 1 of Fritz 540	Kumba	4 ha	40,000	22° 54' 42.18" E 27° 44' 34.86" S
BP7	RE of Nootgedacht 469	Kumba	4 ha	40,000	22° 54' 53.61" E 27° 42' 46.26" S
BP8	RE of Nootgedacht 469	Kumba	3.5 ha	20,000	22° 54' 47.11" E 27° 42' 15.03" S
BP9	RE of Nootgedacht 469	Kumba	3.5 ha	20,000	22° 54' 42.93" E 27° 41' 55.15" S
Sishen Mine Waste Deposits	RE of Lylyveld 545 and other properties in the mining area	Kumba	n/a	120,000 (to be confirmed)	23° 1' 28.75" E 27° 49' 6.52" S

These are preliminary, more borrow pits may be identified and/or the locations might be moved based on material quality analysis.

Should the Department have any additional requirements, please be so kind as to notify us accordingly. If no correspondence is received from your Department within 30 days of this notice, it will be assumed that all requirements have been adequately addressed.

Please do not hesitate to contact us should you have any queries.

**Authorised Signature**

A handwritten signature in black ink, appearing to read 'Mari Wolmarans', written over a horizontal line.

**Mari Wolmarans**

BL Arch MSAIEE EAPSA

Director

Synergistics Environmental Services (Pty) Ltd

BORROW PIT				
No.	SIZE (m)	AREA (ha)	START CHAINAGE (m)	END CHAINAGE (m)
BP1	100x400	4	1000	1400
A LAYER: 0.7m DEEP x 100 x 400 = 28000m³				
B LAYER: 0.6m DEEP x 100 x 400 = 24000m³				
BULK FILL: 0.3m DEEP x 100 x 400 = 12000m³				
No.	SIZE (m)	AREA (ha)	START CHAINAGE (m)	END CHAINAGE (m)
BP2	100x700	7	5000	5700
A LAYER: 0.5m DEEP x 100 x 700 = 35000m³				
B LAYER: 0.5m DEEP x 100 x 700 = 35000m³				
BULK FILL: 0.4m DEEP x 100 x 700 = 28000m³				
No.	SIZE (m)	AREA (ha)	START CHAINAGE (m)	END CHAINAGE (m)
BP3	100x300	4	9100	9700
A LAYER: 0.6m DEEP x 100 x 300 = 36000m³				
B LAYER: 0.3m DEEP x 100 x 300 = 9000m³				
No.	SIZE (m)	AREA (ha)	START CHAINAGE (m)	END CHAINAGE (m)
BP4	100x700	3	9800	10500
A LAYER: 0.6m DEEP x 100 x 700 = 42000m³				
B LAYER: 0.3m DEEP x 100 x 700 = 21000m³				
No.	SIZE (m)	AREA (ha)	START CHAINAGE (m)	END CHAINAGE (m)
BP5	100x300	3	2900	3200
A LAYER: 1.0m DEEP x 100 x 300 = 30000m³				
BULK FILL: 1.0m DEEP x 100 x 300 = 30000m³				
No.	SIZE (m)	AREA (ha)	START CHAINAGE (m)	END CHAINAGE (m)
BP6	100x400	4	13500	13900
A LAYER: 1.0m DEEP x 100 x 400 = 40000m³				
BULK FILL: 1.0m DEEP x 100 x 400 = 40000m³				
No.	SIZE (m)	AREA (ha)	START CHAINAGE (m)	END CHAINAGE (m)
BP7	100x700	4	6800	17500
A LAYER: 0.57m DEEP x 100 x 700 = 40000m³				
BULK FILL: 0.57m DEEP x 100 x 700 = 40000m³				
No.	SIZE (m)	AREA (ha)	START CHAINAGE (m)	END CHAINAGE (m)
BP8	100x350	3.5	19000	19350
A LAYER: 0.57m DEEP x 100 x 350 = 20000m³				
BULK FILL: 0.57m DEEP x 100 x 350 = 20000m³				
No.	SIZE (m)	AREA (ha)	START CHAINAGE (m)	END CHAINAGE (m)
BP9	100x350	3.5	18600	18950
A LAYER: 0.57m DEEP x 100 x 350 = 20000m³				
BULK FILL: 0.57m DEEP x 100 x 350 = 20000m³				

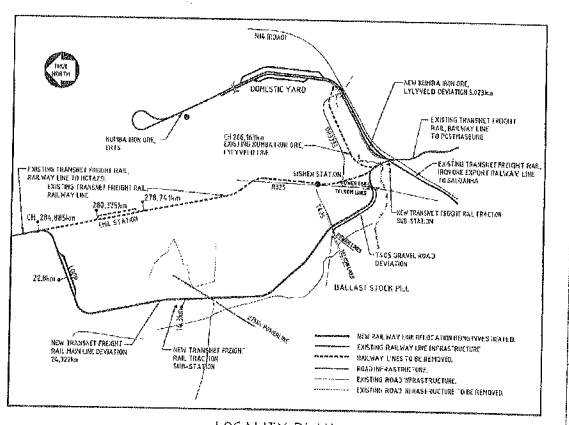
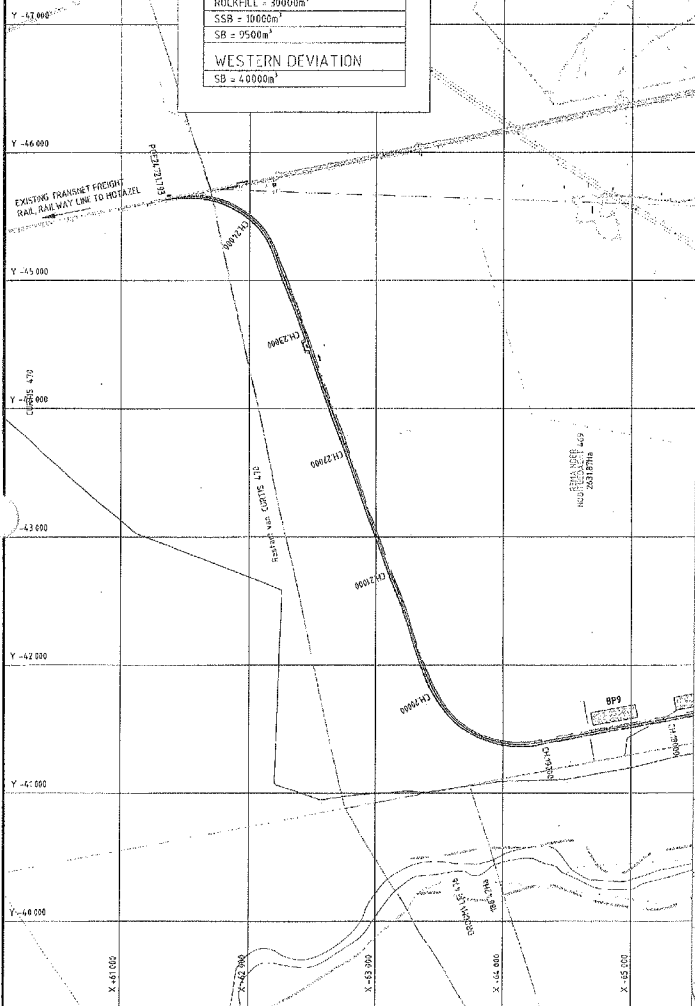
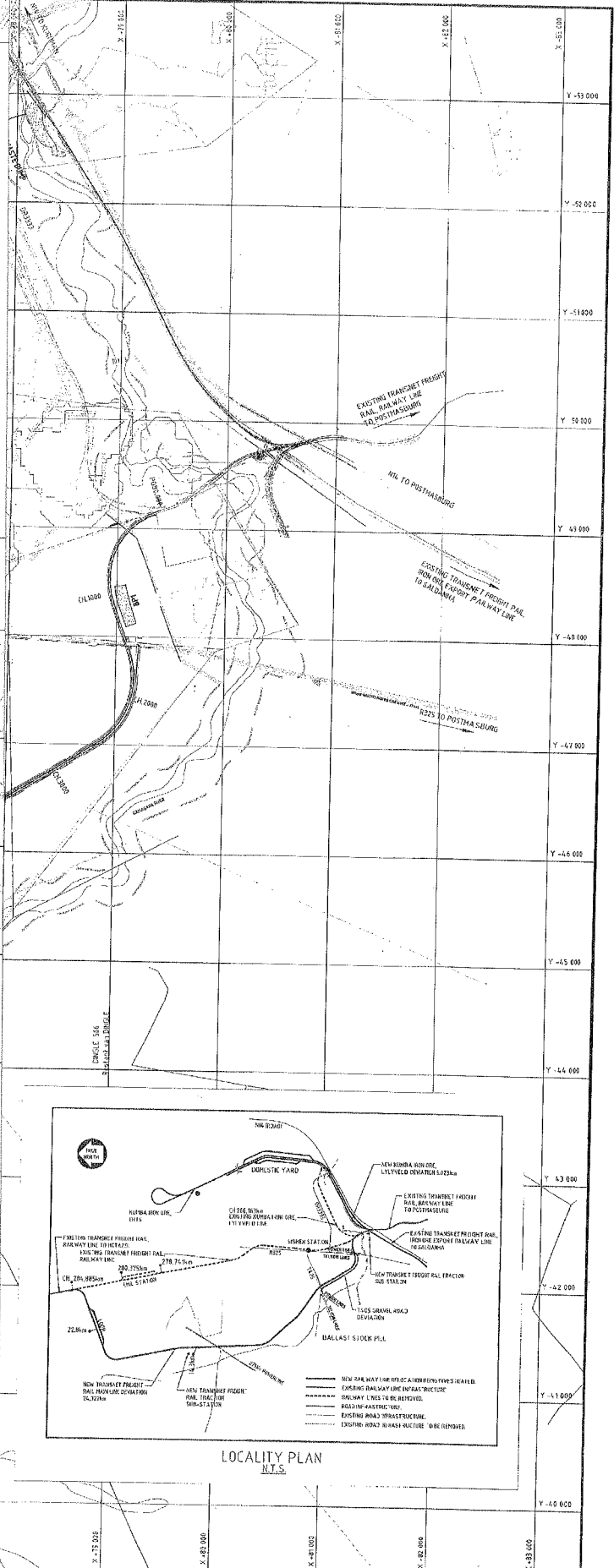
NOTE: Selected mine waste dump material to be crushed and stockpiled for use as follows:

**T4.05 GRAVEL ROAD**  
 GR = 5600m³  
 CG = 6000m³

**LILYVELD DEVIATION**  
 ROCKFILL = 30000m³  
 SSR = 10000m³  
 SR = 9500m³

**WESTERN DEVIATION**  
 SB = 40000m³

BORROW PIT SETTING OUT DATA		
FUT No.	POINT	X-COORD
BORROW PIT		
	(CONS)	Y = 50.000
BP1-1		44090.099
BP1-2		44000.099
BP1-3		44150.838
BP1-4		44126.328
BP1-5		44250.838
BP1-6		44300.838
BP1-7		44200.838
BP1-8		44350.838
BP1-9		44400.838
BP1-10		44500.838
BP1-11		44550.838
BP1-12		44600.838
BP1-13		44700.838
BP1-14		44750.838
BP1-15		44800.838
BP1-16		44900.838
BP1-17		44950.838
BP1-18		45000.838
BP1-19		45100.838
BP1-20		45150.838
BP1-21		45200.838
BP1-22		45300.838
BP1-23		45350.838
BP1-24		45400.838
BP1-25		45500.838
BP1-26		45550.838
BP1-27		45600.838
BP1-28		45700.838
BP1-29		45750.838
BP1-30		45800.838
BP1-31		45900.838
BP1-32		45950.838
BP1-33		46000.838
BP1-34		46100.838
BP1-35		46150.838
BP1-36		46200.838
BP1-37		46300.838
BP1-38		46350.838
BP1-39		46400.838
BP1-40		46500.838
BP1-41		46550.838
BP1-42		46600.838
BP1-43		46700.838
BP1-44		46750.838
BP1-45		46800.838
BP1-46		46900.838
BP1-47		46950.838
BP1-48		47000.838
BP1-49		47100.838
BP1-50		47150.838



PROFESSIONAL ENGINEER	DATE	21/04/2010
REG. CODE		950567
<b>HATCH</b>		
KUMBA HATCH		
PROJECT	H331527	
DISCIPLINE	CIVIL	
<b>SISHEN WEST EXPANSION PROJECT</b>		
KUMBA INFRASTRUCTURE: RAIL EARTHWORKS: BORROW PIT LOCATION		
SCALE	DRAWING NUMBER	H331527-1210-10-035-0195
DATE	DATE	DATE

NO.	DESCRIPTION	DATE
1	DESIGN	21/04/2010
2	CHECKED	21/04/2010
3	DATE	21/04/2010
4	DATE	21/04/2010
5	DATE	21/04/2010

**APPENDIX 2**

Environmental Management Programme

EMP No	DWA Record of Recommendations	DEA EA Conditions	Technical and Management Commitments	Scheduling	Project Phase				Responsibilities					
					Construction	Operation	Rehabilitation	Decommissioning of Old Infrastructure	Contractor / ERP	Environmental Control Officer (ECO)	Environmental Auditor (EA)	Kumba / Construction Manager (CM)	Infrastructure Owner	
1.2.1	Y		The ECO will oversee implementation of the EMP on a day to day basis, verifying that the EMP mitigation measures and water use authorisation conditions are adhered to at all times, and to act as guide and advisor to Contractors, the EREPs and Kumba personnel on matters related to EMP implementation.	Daily	Y	Y	Y	Y	Y					
1.2.2			Where necessary, the ECO will develop and oversee implementation of EMP procedures, including emergency procedures, to give effect to the commitments of the EMP. EMP procedures are live documents and the ECO may amend them from time to time to bring them in line with environmental conditions and issues pertaining to the construction site and surroundings.	As required	Y	Y	Y	Y	Y					
1.2.3			Where necessary, the ECO will issue EMP instructions to address and correct non-compliances with the EMP and specific environmental issues pertaining to the construction site and surroundings.	As required	Y	Y	Y	Y	Y					
1.2.4			The ECO will provide a copy of the EMP (and all updates) to Contractors appointed by Kumba. The ECO to obtain proof that documentation has been provided to the Contractors.	As required	Y	Y	Y	Y	Y					
1.2.5			The ECO will provide copies of EMP procedures (and all revisions) to Contractors appointed by Kumba, if the procedures apply to the nature of their activities and contract with Kumba. The ECO to obtain proof that documentation has been provided to the Contractor.	As required	Y	Y	Y	Y	Y					
1.2.6			The ECO will provide copies of EMP instructions to Contractors appointed by Kumba, if the instructions apply to the nature of their activities and contract with Kumba. The ECO to obtain proof that documentation has been provided.	As required	Y	Y	Y	Y	Y					
1.2.7		1.11.1	The ECO will oversee environmental awareness induction training to all contractor staff.	Prior to construction	Y				Y					
1.2.8			The ECO to ensure that the necessary environmental induction training takes place and that records of attendance are maintained and up to date.	Ongoing	Y		Y	Y	Y					
1.2.9			The ECO will be responsible for regular inspections of the construction site and surroundings to monitoring and verify that the EMP is implemented and that environmental impacts are kept to a minimum during construction.	Daily, as required	Y		Y	Y	Y					
1.2.10			The ECO will complete environmental compliance checklists and submit checklists and environmental reports to the EA and CM.	Weekly	Y		Y	Y	Y					
1.2.11			The ECO will arrange, facilitate, attend and minute regular meetings to discuss environmental performance and EMP implementation with the Contractors' EREPs and the CM.	Monthly	Y		Y	Y	Y					
1.2.12			The ECO will arrange, facilitate, attend and minute regular environmental monitoring committee meetings to discuss construction-related environmental issues, public complaints and the necessary corrective action required to minimise environmental impacts during construction with the ECO, Contractors' EREPs, EA, registered IAPs (who wishes to be part of such a committee) and representatives from relevant authorities (who wishes to be part of such a committee).	Quarterly	Y		Y	Y	Y					
1.2.13		1.11.1	The ECO to keep records of all matters concerning compliance monitoring, environmental performance and EMP implementation in a Site Diary on site and to make it available for inspection to any relevant and competent authority in respect of this development.	Ongoing, as required	Y		Y	Y	Y					

EMP No	DWA Record of Recommendations	DEA EA Conditions	Technical and Management Commitments	Scheduling	Project Phase				Responsibilities					
					Construction	Operation	Rehabilitation	Decommissioning of Old Infrastructure	Contractor/ ERP	Environmental Control Officer (ECO)	Environmental Auditor (EA)	Kumba / Construction Manager (CM)	Infrastructure Owner	
1.3.3			Where necessary, the EA to guide the ECO on EMP procedures and EMP instructions to be issued to the Contractor.	As required	Y		Y				Y			
1.3.4			The EA to update the EMP based on the findings of the environmental audits, the ECO weekly reports, or based on motivations for EMP amendments submitted by Contractors.	Every six months, or as required	Y		Y				Y			
1.3.5		1.9.4 & 1.9.5	The EA to submit any proposed changes/amendments to the EMP, to the competent authority for approval before such changes can be implemented.	Every six months, or as required	Y		Y				Y			
1.3.6			In addition to EMP compliance, the EA to ensure overall environmental legal compliance with relevant legislation.	Ongoing	Y		Y				Y			
1.3.7	Y	1.12	The EA to compile and submit environmental compliance audit reports to Kumba, the Sishen Mine SHEQ department and relevant environmental authorities (DEA and DWA).	Quarterly (Monthly according to the RoF)	Y		Y				Y			
1.4			<b>Contractors</b>											
			<b>Environmental Aspect / Impact Source:</b>											
			Non-compliance with the EMP due to a lack of understanding and delegation of responsibilities.											
			<b>Goals and Objectives:</b>											
			Define organisational and administrative arrangements for EMP implementation. Adequate management and mitigation of environmental impacts.											
			<b>Mitigation Measures:</b>											
1.4.1			Contractors to familiarise themselves with the EMP and to ensure that contract prices allow for environmental legal compliance and costs associated with EMP implementation.	Ongoing	Y		Y				Y			
1.4.2			Contractors to comply with the EMP where it applies to the nature of their activities and contract with Kumba.	Ongoing	Y		Y				Y			
1.4.3			Contractors to implement EMP amendments, EMP procedures and written EMP instructions issued to them by the ECO, within the timeframe specified by the ECO in the EMP procedure or instruction.	Ongoing	Y		Y				Y			
1.4.4			Contractors to not deviate from the EMP or procedures and instructions issued by the ECO without written approval by the ECO.	Ongoing	Y		Y				Y			
1.4.5			Contractors to ensure that their workforce, sub-contractors and suppliers comply with the EMP.	Ongoing	Y		Y				Y			
1.4.6			Contractors to be responsible for rectifying and rehabilitating, at their own expense, any environmental damage caused by their activities on the construction site and surroundings. Measures to repair damage and rehabilitate the affected area must be approved and signed off by the ECO.	Ongoing	Y		Y				Y			
1.4.7			Contractors shall nominate a capable and suitably qualified staff member as Environmental Representative (EREP) to supervise implementation of the EMP as it applies to the nature of the contract with Kumba.	At start of construction phase	Y		Y				Y			
1.5			<b>Contractor Environmental Representative (EREP)</b>											
			<b>Environmental Aspect / Impact Source:</b>											
			Non-compliance with the EMP due to a lack of understanding and delegation of responsibilities.											
			<b>Goals and Objectives:</b>											



EMP No	DWA Record of Recommendations	DEA EA Conditions	Technical and Management Commitments	Scheduling	Project Phase				Responsibilities						
					Construction	Operation	Rehabilitation	Decommissioning of Old Infrastructure	Contractor EREP	Environmental Control Officer (ECO)	Environmental Auditor (EA)	Kumba / Construction Manager (CM)	Infrastructure Owner		
1.7.1			The owners of the new infrastructure to assume responsibility for EMP implementation during the operational phase of the project.	Ongoing	Y									Y	
1.7.2		1.10.1	The operational management of the new railway line must be included in the Transnet Freight Rail environmental management system (EMS) for railway line servitides.	Ongoing	Y									Y	
1.7.4		1.11.2	Transnet to monitor the operational phase as part of the Transnet Freight Rail EMS.	Ongoing	Y									Y	
2			<b>TRAINING, AWARENESS AND COMPETENCE</b> <b>Environmental Aspect / Impact Source:</b> Environmental impacts resulting from an insufficient understanding of risks associated with work conditions and job description, resulting in insufficient "duty of care". <b>Goals and Objectives:</b> Ensure adequate knowledge and understanding of EMP stipulations, policies and procedures. Understanding the interface between the work environment and environmental protection. <b>Mitigation Measures:</b> All construction workers, suppliers and service providers entering the construction site to attend and undergo environmental awareness induction training session covering key environmental issues pertaining to the construction site and surroundings with regard to protection of the natural environment, the conditions of the environmental authorisation, the requirements of the EMP and the rights of landowners on whose properties construction takes place. Maintain a record of all individuals attending an environmental induction session. Individuals dealing with potential hazardous situations that could lead to hazardous spills, pollution incidents, excessive dust or other forms of environmental damage to receive appropriate job-specific training and to be aware of the risks and potential consequences of their appointment and work situation, how to avoid environmental impacts and how to respond during an environmental incident or emergency situation. Maintain a record of all individuals receiving job-specific training. Implement a ongoing environmental awareness programme linked to the established programme at Sishen Mine. The program will involve regular communication of environmental requirements and protection measures by means of newsletters, posters, meetings and other suitable means.												
2.1		1.9.3			Y		Y	Y						Y	
2.2				Ongoing			Y	Y	Y	Y					
2.3				Ongoing	Y		Y	Y	Y	Y	Y	Y	Y	Y	
2.4				During each training session	Y		Y	Y	Y	Y	Y	Y	Y		
2.5				Ongoing, at least monthly	Y		Y	Y	Y	Y	Y	Y	Y		
3			<b>INCIDENT REPORTING AND MANAGEMENT</b> <b>Environmental Aspect / Impact Source:</b> Hazardous spills, pollution occurrences, excessive dust or other forms of environmental damage. Recurring environmental incidents. Complaints by third parties. <b>Goals and Objectives:</b> Adequately assess root cause of incidents in order to develop and implement appropriate corrective actions and prevent incidents from recurring.												

EMP No	DWA Record or Recommendations	DEA EA Conditions	Technical and Management Commitments	Scheduling	Project Phase				Responsibilities									
					Construction	Operation	Rehabilitation	Decommissioning of Old Infrastructure	Contractor/ERP	Environmental Control Officer (ECO)	Environmental Auditor (EA)	Kumba / Construction Manager (CM)	Infrastructure Owner					
			Continued environmental degradation due to a lack of information about environmental performance. Lack of communication may result in delays in adequately addressing pertinent environmental issues. Legal non-compliance.															
			<b>Goals and Objectives:</b> Provide information and ensure early detection of the impact of the construction activities upon the receiving environment. Recognise environmental changes in order to enable analysis of their cause. Maintain accurate records and transparent communication with regulatory bodies. Keeping regulatory body up to date with the development.															
			<b>Mitigation Measures:</b> General compliance with the EMP to be monitored and verified through regular inspections of the construction site and surroundings. The Contractors' activities and their compliance with the EMP to be monitored and verified through regular inspections of areas where the Contractors operate. Records of the timeframes and scope of monitoring and verification inspections to be kept on file. Monitoring and inspections to be conducted as outlined in the individual sub-sections of the EMP (i.e. dust deposition through visual and/or dust buckets if required). Records will be kept on file. Regular meetings to be conducted between EREPs and ECO to discuss EMP compliance and/or environmental issues and/or an environmental awareness topics and general environmental performance. Minutes of meetings will be kept on file.															
5.1				Daily	Y		Y	Y	Y	Y				Y				
5.2				Weekly	Y		Y	Y	Y	Y				Y				
5.3				Weekly	Y		Y	Y	Y	Y				Y				
5.4				As required	Y		Y	Y	Y	Y				Y				
5.5				Monthly	Y		Y	Y	Y	Y				Y				
5.6				As required	Y		Y	Y	Y	Y				Y				
5.7				Monthly, or as required	Y		Y	Y	Y	Y				Y				
5.7.1				Monthly, or as required	Y		Y	Y	Y	Y				Y				
5.7.2				Monthly, or as required	Y		Y	Y	Y	Y				Y				
5.7.3				Monthly, or as required	Y		Y	Y	Y	Y				Y				
5.7.4				Monthly, or as required	Y		Y	Y	Y	Y				Y				
5.7.5				Monthly, or as required	Y		Y	Y	Y	Y				Y				
5.7.6				Monthly, or as required	Y		Y	Y	Y	Y				Y				
5.8				Ongoing	Y		Y	Y	Y	Y				Y				Y
6																		
			<b>ENVIRONMENTAL RISKS AND EMERGENCIES</b>															
			<b>Environmental Aspect / Impact Source:</b>															

EMP No	DWA Record of Recommendations	DEA EA Conditions	Technical and Management Commitments	Scheduling	Project Phase				Responsibilities					
					Construction	Operation	Rehabilitation	Decommissioning of Old Infrastructure	Contractor / Contractor ERP	Environmental Control Officer (ECO)	Environmental Auditor (EA)	Kumba / Construction Manager (CM)	Infrastructure Owner	
7.1.3			Discuss security management, firebreaks and general maintenance issues with neighbouring farmers, IAPs and stakeholders along and adjacent to the affected routes.	Quarterly	Y	Y	Y	Y	Y	Y				
7.1.4			Inform / remind IAPs of employment procedures, and feedback on training, local economic development (with appropriate local skills base), and infrastructure development.	Quarterly	Y	Y	Y	Y	Y	Y				
7.1.5			Summary of information submitted to authorities as part of quarterly reports.	Quarterly	Y	Y	Y	Y	Y	Y				
7.1.6			Results of EMP compliance inspections and auditing activities.	Quarterly	Y	Y	Y	Y	Y	Y				
7.2			The meetings will be chaired by an independent person, not a Kumba employee.	Quarterly	Y	Y	Y	Y	Y	Y				
7.3			If required by IAPs, the environmental monitoring committee to remain in place after construction has been completed. During operation, the committee could address issues related to servitude management, including management of fence lines, gates for security and fire management.	Every six months, or as required	Y	Y	Y	Y	Y	Y				Y
7.4			Kumba and Contractors will maintain transparent employment policies and will, wherever reasonably possible, give preference to labour from local communities.	Ongoing	Y	Y	Y	Y	Y	Y				
7.5			Kumba and Contractors will only employ labour through recognised employment structures and processes as has been established by Kumba in consultation with local community (Ganagara Municipality) and Government (Dept. of Labour).	Annually	Y	Y	Y	Y	Y	Y				
7.6		1.9.3	Measures to ensure public access to any homesteads or amenities must at all times be guaranteed and shall not be restricted due to this development.	Monthly, or as required	Y	Y	Y	Y	Y	Y				
7.7		1.9.6	Transnet to acquire the necessary servitude for the railway line route. Negotiations with affected landowners to be made available to the DEA on request should any dispute arise.	Prior to construction	Y	Y	Y	Y	Y	Y				Y
7.8		1.9.7	Any route adjustment, to be assessed and reported to the DEA for acceptance in writing before implementation.	Prior to construction	Y	Y	Y	Y	Y	Y				Y
7.9	Y	1.9.8	All construction works shall be limited to the servitude area negotiated with the landowners. The works area must be properly demarcated.	As required	Y	Y	Y	Y	Y	Y				Y
7.10		1.9.9	No construction workers shall be allowed to reside on any site unless a written agreement with the affected landowner is obtained.	As required	Y	Y	Y	Y	Y	Y				Y
7.11		1.9.12	Written approval to be obtained from landowners for any construction activities outside the designated servitude.	As required	Y	Y	Y	Y	Y	Y				Y
7.12		1.9.37	Should any disruption of services be required during construction, the affected parties must be informed at least two (2) weeks in advance.	As required	Y	Y	Y	Y	Y	Y				Y
7.13		1.9.44 & 1.9.45	No fences may be flattened or deviated for the purpose of construction without the consent from the landowner. All fence crossings shall be fitted with a proper servitude gate to ensure access for the construction teams.	Prior to construction	Y	Y	Y	Y	Y	Y				
7.14		1.11.3	Should authorisation be transferred to any other juristic person, it must be formally recorded in writing and a copy submitted to the Director of DEA.	Prior to construction	Y	Y	Y	Y	Y	Y				Y
7.15		1.14.2	Thirty (30) days written notice to be given to the DEA that the operational phase of the facilities will commence.	At end of construction phase	Y	Y	Y	Y	Y	Y				Y

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					Construction	Operation	Rehabilitation	Decommissioning of Old Infrastructure	Contractor / Contractor EREP	Environmental Control Officer (ECO)	Environmental Auditor (EA)	Kumba / Construction Manager (CM)	Infrastructure Owner	
10.4			The ECO will register complaints about blasting damage as per the complaints procedure.	As required	Y					Y				
10.5			The ECO will register environmental damage caused by blasting as per the incident reporting procedure.	As required	Y					Y				
10.6			Environmental damage caused by construction-related vibration, fly rock or air blast will be repaired.	As required	Y			Y						
10.7			Vibration monitoring will be instituted in the case of credible complaints about damage to property.	As required	Y			Y						
10.8			If the vibration monitoring confirms that damage to property was caused by construction related blasting, damage will be repaired or appropriate compensation will be made.	As required	Y			Y						
10.9			Blasting will be limited to daylight hours.	Ongoing	Y			Y						
10.10			People in the vicinity of the blast zone will be notified if blasting is to happen at night.	As required	Y			Y		Y				
11			<b>UNSTABLE GROUND</b>											
			<b>Environmental Aspect / Impact Source:</b>											
			Dolomitic areas known to occur in the region and along the Gamagara River.											
			<b>Goals and Objectives:</b>											
			Avoidance of sinkholes and unsafe areas. Correcting problems with unstable ground as required.											
			<b>Mitigation Measures:</b>											
11.1			Geotechnical investigations of infrastructure routes and river crossing.	Prior to construction	Y								Y	
11.2			Where subsidence or sinkholes occur as a result of construction activities, actions to be undertaken to make the area safe, to investigate the cause and affect, and to determine corrective measures.	As required	Y			Y	Y	Y			Y	Y
12			<b>SOIL</b>											
			<b>Environmental Aspect / Impact Source:</b>											
			Soil disturbance, loss of nutrients, loss of topsoil cover, loss of in situ structure and physical / chemical properties, soil compaction and erosion. Local soils associated with thin topsoil layer. Deficiency of topsoil at Sishen Mine.											
			<b>Goals and Objectives:</b>											
			Optimise availability and viability of soil as growth medium to enable sustainable vegetation cover after rehabilitation. Maximise topsoil availability for rehabilitation of construction areas and disturbed areas at Sishen Mine.											
			<b>Mitigation Measures:</b>											
12.1	Y		All available topsoil will be stripped from areas compacted and disturbed by construction along the servitude and at the borrow pits.	Ongoing	Y								Y	
12.2			Topsoil will be stockpiled for later reuse in rehabilitation of embankments, cuttings and borrow pits.	Ongoing	Y								Y	
12.3			Topsoil will be stored and managed in accordance with relevant Sishen Mine's procedures as developed and issued by the SHEQ Department.	Annually	Y								Y	

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					Construction	Operation	Rehabilitation	Decommissioning of Old Infrastructure	Contractor / ERP	Environmental Control Officer (ECO)	Environmental Auditor (EA)	Kumba / Construction Manager (CM)	Infrastructure Owner							
			Damage or loss of cultural, historical sites, artefacts or graves if such sites are unearthed during site operations.																	
			<b>Goals and Objectives:</b> Implement measures to avoid disturbance or loss of important heritage sites and artefacts.																	
			<b>Mitigation Measures:</b> Known heritage sites, artefacts and graves within 500 m from construction activities to be fenced, signposted and protected from damage, unless a permit approving their destruction has been obtained.					Prior to construction												
14.1									Y					Y						
14.2		1.9.3	If any archaeological or palaeontological artefacts (such as an unknown grave or artefact) is unearthed / exposed during excavation, soil stripping or earthworks, reasonable measures will be implemented to prevent damage to the grave or artefact.					As required	Y					Y						
14.3		1.9.3	Construction work around an unearthed grave or artefact to be stopped immediately and the ECO will be notified.					As required	Y					Y						
14.4			The ECO to demarcate the site and seek advice from the McGregor Museum or an alternative suitably qualified archaeologist/historian/specialist.					As required	Y					Y						
14.5		1.9.3	Opportunity must be provided for the examination and identification of the artefact by a suitably qualified specialist.					As required	Y					Y						
14.6			The artefact will not be removed and work at the site will not resume until clearance is given by the specialist for removal or work to continue.					As required	Y					Y						
14.7		1.9.3	The artefact or grave will not be destroyed, disturbed or relocated until the necessary permits have been obtained.					As required	Y					Y						
14.8		1.9.3	The ECO to inform the South African Heritage Resources Agency of any new finds.					As required	Y						Y					
15			<b>DUST</b>																	
			<b>Environmental Aspect / Impact Source:</b> Fugitive dust emissions due to low rainfall figures, material composition and particle sizes, and impacts due to location of residences.																	
			<b>Goals and Objectives:</b> Develop and implement appropriate dust control measures according to the risk profile of the project.																	
			<b>Mitigation Measures:</b> The CM and ECO will develop and maintain up to date procedures for dust control at potential problem areas and near sensitive receptors.																	
15.1		1.9.3						At start of construction, as required thereafter	Y		Y				Y					Y
15.2			Strict dust control measures will be maintained on gravel / non-surfaced roads used by construction-related vehicles (wet and chemical suppression and road maintenance).					Ongoing	Y		Y			Y						Y
15.3			Dust generation and other disturbances in close proximity to residences to be kept to a minimum, especially during times when the wind direction is towards nearby residences.					Ongoing	Y		Y			Y						Y

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					Construction	Operation	Rehabilitation	Decommissioning of Old Infrastructure	Contractor / EREP	Environmental Control Officer (ECO)	Environmental Auditor (EA)	Kumba / Construction Manager (CM)	Infrastructure Owner	
16.9		1.9.13	Transplantable protected species (e.g. geophyte and Aloe species) to be rescued and relocated immediately where feasible/possible and where a suitable host area can be found. Transplantation should be done in consultation with an ecologist and the National Botanical Gardens (Bloemfontein) to nearby habitats / secure areas, or be stored in a nursery area for use later during the rehabilitation process.	Prior to site clearing of areas where these plants occur	Y	Y	Y	Y						
16.10			Where the engineering properties permit, mining waste rock will be used for construction purposes in favour of material from new borrow pits.	As required	Y	Y	Y							
16.11			Sishen Mine (in consultation with the Department of Forestry, Northern Cape Department of Environment and Nature Conservation, National Department of Environmental Affairs and the Department of Minerals and Energy) to consider and investigate appropriate and feasible mitigation measures for impacts on protected trees and natural habitats, including the establishment of a protection area to offset biodiversity impacts.	Within 12 months from the issuing of the environmental authorisation	Y				Y	Y				
16.12			All sections of power lines crossing rivers should be marked on the earth wires with a suitable anti-collision marking device in order to protect birds against collisions. This includes the span actually crossing the river and one span either side of that.	During construction of the power lines	Y				Y				Y	
16.13			All sections of the power lines passing over or adjacent to pans and dams should be marked on the earth wires with a suitable marking device in order to protect birds against collisions.	During construction of the power lines	Y				Y				Y	
16.14		1.9.28	Special care shall be taken when doing any construction work in wetland areas and the area of disturbance shall be kept to the absolute minimum.	Ongoing	Y			Y	Y					
16.15		1.9.27 & 1.9.30	All wetland, river and stream crossings shall be done in accordance with a DWA approved design drawing.	Prior to construction	Y				Y				Y	
16.16		1.9.31	Vegetation at river and stream bank crossings may be cut and treated with a suitable registered herbicide to prevent further growth and root development. De-stumping of trees at river and stream bank crossings may lead to erosion and is therefore forbidden, unless these trees need to be removed for specific construction activities and permits are in place for protected trees.	Ongoing	Y			Y	Y					
16.17		1.9.33	Pollution prevention of wetlands or rivers and streams to be implemented by the applicant.	Ongoing	Y				Y	Y			Y	
17			<b>ALIEN AND INVASIVE SPECIES</b>											
			<b>Environmental Aspect / Impact Source:</b>											
			Disruption of ecological synergy.											
			<b>Goals and Objectives:</b>											
			Prevent the alteration of natural ecological systems and processes.											
			<b>Mitigation Measures:</b>											
17.1			Alien and invasive species shall not be allowed to establish within the areas affected by construction.	Ongoing	Y			Y	Y					
17.2			Imported materials shall be free of alien species, weeds and seeds of alien or invasive species.	Ongoing	Y			Y	Y					
17.3			Sources of imported soil and construction aggregates shall be listed and pre-approved by the ECO.	Ongoing	Y			Y	Y				Y	

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					Construction	Operation	Rehabilitation	Decommissioning of Old Infrastructure	Contractor / Contractor ERP	Environmental Control Officer (ECO)	Environmental Auditor (EA)	Kumba / Construction Manager (CM)	Infrastructure Owner		
19.1			Maintain machinery, vehicles and equipment in good condition to prevent unnecessary noise output, emissions, and risks of hydrocarbon spills (fuels and lubricants).	Ongoing	Y	Y	Y	Y	Y						
19.2			All vehicles utilising public roads should be roadworthy, and should thus meet applicable maximum noise output requirements. Records will be kept on file.	Ongoing	Y	Y	Y	Y	Y						
19.3		1.9.42	All vehicles to adhere to prescribed / agreed speed limits as indicated on road signage and/or specific instructions or procedures issued by the CM or ECO to prevent accidents and road damage.	Ongoing	Y	Y	Y	Y	Y						
19.4			During dry windy conditions, the ECO will conduct visual observations of dust generation on gravel roads and will direct the movement of water tankers based on these visual observations.	As required	Y		Y	Y	Y						
19.5			Vehicles to remain on existing roads and tracks and will not be permitted to drive off-road and in the veld, unless strictly necessitated by an emergency situation or with the approval of the ECO.	Ongoing	Y		Y	Y	Y	Y					
19.6		1.9.41	Use of any private access roads must be agreed with the landowners in writing.	Ongoing	Y		Y	Y	Y						
19.7		1.9.41	All private roads not to be used for the purpose of construction, but to be intersected by construction roads and where no fences are present, shall be marked clearly with no entry signs. Where relevant as per agreement with the landowner.	Y	Y		Y	Y	Y	Y					
19.8			No new roads and tracks will be created, unless approved by the ECO.	Ongoing	Y		Y	Y	Y	Y					
19.9			Traffic and movement over stabilised / rehabilitated areas will be appropriately restricted to avoid compromising erosion control measures and damage to topsoil or vegetation cover.	Ongoing	Y		Y	Y	Y	Y					
19.10			Develop a construction traffic management plan.	At start of construction, as required thereafter	Y		Y	Y	Y	Y					
19.11			Minimise movement of construction traffic along public roads as far as reasonably possible.	Ongoing	Y		Y	Y	Y	Y					
19.12			Avoid construction traffic along the Dingleton-Dibeng road along sections open to the public (construction traffic to be restricted to the closed-off section as far as reasonably possible).	Ongoing	Y		Y	Y	Y	Y					
19.13			Maintenance of road sections and intersections affected by construction to be kept in an acceptable condition.	Ongoing	Y		Y	Y	Y	Y					
19.14		1.9.43	Upon completion of construction, all private roads used during construction must be rehabilitated to their original condition and to the satisfaction of the landowner.	At end of construction	Y		Y	Y	Y	Y					
19.15		1.9.40	Road crossings of the railway line must be done in accordance with a provincial roads department or SANRAL approved design drawing, whichever applies.	At start of construction	Y		Y	Y	Y	Y				Y	
20			<b>NOISE</b>												
			<b>Environmental Aspect / Impact Source:</b>												
			General construction activities in close proximity to residences. Movement of vehicles and equipment. Materials handling. Use of machinery and equipment.												
			<b>Goals and Objectives:</b>												
			Develop and implement appropriate noise control measures according to risk profile of construction site and proximity of residences.												

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					Construction	Operation	Rehabilitation	Decommissioning of Old Infrastructure	Contractor / Contractor ERP	Environmental Control Officer (ECO)	Environmental Auditor (EA)	Kumba / Construction Manager (CM)	Infrastructure Owner		
22.2.1			Identify waste streams generated and document the selected methods for handling, treatment and off-site disposal.	As required	Y	Y	Y	Y	Y	Y					
22.2.2			Ensure appropriate location and design of waste handling, storage and treatment facilities.	As required	Y	Y	Y	Y	Y	Y					
22.2.3			Provide designated waste collection points and ensure that these have adequate capacity and that they are serviced frequently.	As required	Y	Y	Y	Y	Y	Y					
22.2.4			Ensure appropriate temporary storage of waste earmarked for off-site disposal.	As required	Y	Y	Y	Y	Y	Y					
22.2.5			Ensure appropriate off-site disposal at an appropriately registered waste disposal facility in order to minimise the risk of soil, water and air pollution.	As required	Y	Y	Y	Y	Y	Y					
22.2.6			Maintain records of the type and volume of waste leaving the construction site and balance with records of the type and volume of off-sited disposal at waste facilities.	As required	Y	Y	Y	Y	Y	Y					
22.2.7			Ensure appropriate management of specific hazardous wastes such as waste oil, rejected hazardous substances, filters, batteries, chemical toilet contents, etc.	As required	Y	Y	Y	Y	Y	Y					
22.2.8			Control of litter on an ongoing basis.	As required	Y	Y	Y	Y	Y	Y					
22.2.9			Ensure regular inspections of waste handling, storage and treatment facilities.	As required	Y	Y	Y	Y	Y	Y					
22.3			All hazardous waste will only be taken to a permitted hazardous waste disposal site.	As required	Y	Y	Y	Y	Y	Y					
22.4			Upon completion of construction, an operational phase waste management procedure to be put in place and kept up to date at all times.	Ongoing	Y										Y
23			<b>HAZARDOUS SUBSTANCES STORAGE AND HANDLING</b>												
			<b>Environmental Aspect / Impact Source:</b>												
			The release of hazardous substances into the receiving environment could result in air, soil and water pollution and may affect the health and well being of people, plants and animals. Substances such as fuels, lubrication oils, hydraulic and brake fluid, solvents, paints and anti-corrosives, insecticides and pesticides, as well as the by-products and waste associated with use of these products will be present on the site.												
			<b>Goals and Objectives:</b>												
			Ensure appropriate storage and handling of hazardous substances to prevent pollution and health risks.												
			<b>Mitigation Measures:</b>												
23.1			A hazardous substance management procedure to be put in place and kept up to date as per the specific requirements of construction, and will be based on the Sishen Mine environmental management system (EMS) procedures and the following principles:	At start of construction, as required thereafter	Y	Y	Y	Y	Y	Y					Y
23.1.1			Ensure appropriate location and design of hazardous storage areas.	Ongoing	Y			Y	Y	Y					
23.1.2		1.9.23 & 1.9.26	Ensure appropriate bunding for all carbon containing fuel and lubricant (e.g. oil) storage areas and storage areas for other hazardous substances. The bunded area should accommodate 110 percent of the stored liquids. The design of the bunds will be based on the volume and nature of substances stored, the risk of spillages, applicable legislation and Kumba's corporate policies. Bunds will be provided with valves for controlled release of rainwater.	Annually	Y	Y	Y	Y	Y	Y					Y



EMP No	DWA Record of Recommendations	DEA EA Conditions	Technical and Management Commitments	Scheduling	Project Phase				Responsibilities						
					Construction	Operation	Rehabilitation	Decommissioning of Old Infrastructure	Contractor ERP	Environmental Control Officer (ECO)	Environmental Auditor (EA)	Kumba / Construction Manager (CM)	Infrastructure Owner		
24.1			A spill prevention and response procedure to be put in place and kept up to date as per the specific requirements of construction, and will be based on the Sishen Mine environmental management system (EMS) procedures and the following principles:	Ongoing	Y	Y	Y	Y	Y	Y					
24.1.1			Identify activities and areas where there are risks for spills.	Annually	Y		Y	Y	Y						
24.1.2		1.9.22	Workshop areas must have a concrete floor area for servicing of vehicles.	Ongoing	Y		Y	Y	Y						
24.1.3			Provision of workshops and wash bays equipped with appropriate stormwater management to separate clean and dirty water, and impervious surfaces draining towards silt traps and oil separators.	Ongoing	Y		Y	Y	Y						
24.1.4			Prevention of spills during the transportation and handling of hazardous chemicals.	Ongoing	Y		Y	Y	Y						
24.1.5			Ensure appropriate maintenance of vehicles and equipment to prevent spills. Records to be kept on file.	Ongoing	Y		Y	Y	Y						
24.1.6		1.9.25	Should it be necessary to service any vehicles or equipment in the servitude construction area due to a breakdown, a drip tray shall be used to prevent carbon spills onto the soil. Drip trays are to be placed under stationary vehicles and equipment which leak oil or lubricants.	Ongoing	Y		Y	Y	Y						
24.1.7			Identify and train people responsible to respond to spills and to provide assistance and instructions for immediate actions required to stop the spill, prevent further spreading of the hazardous substance and to obtain specialist input where required.	Ongoing	Y		Y	Y	Y						
24.1.8			Ensure appropriate inspections are conducted to ensure early detection of spills.	Ongoing	Y		Y	Y	Y						
24.1.9			Investigate and assess spills, as per the incident reporting procedure, and identify and implement immediate appropriate corrective actions required to stop the spill and prevent further spreading of the hazardous substance.	Ongoing	Y		Y	Y	Y						
24.1.10		1.9.24	All spills of carbon materials shall be contained and cleaned up immediately and polluted soils shall be disposed of in a registered waste site. Minor spills can be treated on site.	Ongoing	Y		Y	Y	Y						
24.1.11		1.9.26	Ensure disposal of carbon waste material at a registered waste site.	Ongoing	Y		Y	Y	Y						
24.1.12			Determine appropriate measures to remove, treat and/or dispose of the hazardous substance and contaminated soil and/or water.	Ongoing	Y		Y	Y	Y						
24.1.13			Determine appropriate measures to clean up the area affected by the spill, with specialist input where required.	Ongoing	Y		Y	Y	Y						
24.2			The ECO and EA to investigate and implement appropriate measures to collect, handle, store and treat contaminated soil. The aim of treatment is to contain contaminants and rehabilitate soils for later use in rehabilitation.	Ongoing	Y		Y	Y	Y					Y	
24.3			Contractor responsible to collect, handle, store and treat contaminated soil as per procedures developed by the ECO and EA.	As required	Y		Y	Y	Y						
25			<b>EFFLUENT MANAGEMENT</b>												
			<b>Environmental Aspect / Impact Source:</b>												